

## CONTENTS

Series Table	01
Group Chart	03
Aluminum Electrolytic Capacitors Show Various Failure Modes in Different Applications	06
Aluminum Electrolytic Capacitors Flow Chart	07
Application Guidelines	08
Soldering Recommendation	12
Part Numbering System	14
Lead Forming	16
Product Specifications	19

**CAPACITOR SERIES TABLE, CONTENTS**  
**CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS**

Category & Series			Features	Endurance (hours)	Rated Voltage Range (Vdc)	Operating Temperature Range(°C)	Capacitance Range(μF)	Page
Solid	Multilayer Type	A1	Low ESR	105°C 2,000	2-25	-55~+105	2.2-470	19
		A2	Low ESR	105°C 2,000	2-16	-55~+105	6.8-470	22
	Radial Type	PZ	Standard	105°C 2,000	6.3-125	-55~+105	4.7-5600	24
		PD	Small size	105°C 2,000	6.3-35	-55~+105	33-4700	29
		PV	High voltage	125°C 2,000	35-125	-55~+125	4.7-1000	33
		PH	Huge capacitance, jumbo size	105°C 2,000	6.3-25	-55~+105	10-2200	35
		PT	Long life, high temperature	125°C 2,000	6.3-25	-55~+125	22-5600	39
		PK	Resistance to high temperature	135°C 3,000	6.3-25	-55~+135	100-1500	43
		PF	Long life	105°C 3,000-5,000	6.3-125	-55~+105	4.7-5600	45
		PU	Low ESR	105°C 2,000	6.3-25	-55~+105	39-5600	50
		PR(new)	Low ESR, long life, ripple current resistant	105°C 5,000	2.5-35	-55~+105	47-1500	54
		PL(new)	Super long life	105°C 10,000-23,000	2.5-35	-55~+105	100-1800	56
		PX(new)	high temperature resistant	145°C 2,000	6.3-25	-55~+145	100-1500	58
		RZ(new)	Low ESR, ripple current resistant	105°C 2,000	2.5-35	-55~+105	47-1500	60
	RT(new)	Resistance to high temperature	125°C 2,000	2.5-35	-55~+125	47-1500	62	
	SMD Type	VZ	Standard	105°C 2,000	2.5-100	-55~+105	22-2200	64
		VS	Low ESR	105°C 2,000	2.5-25	-55~+105	27-2200	67
		VD	High voltage	105°C 2,000	35-63	-55~+105	22-470	69
		VT	Resistance to high temperature	125°C 2,000	2.5-63	-55~+125	22-2200	71
		VF	Long life	105°C 3,000-5,000	2.5-63	-55~+105	22-2200	73
VL(new)		Super long life	105°C 10,000-23,000	2.5-16	-55~+105	100-560	75	

**CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS**

Category & Series			Features	Endurance (hours)	Rated Voltage Range (Vdc)	Operating Temperature Range(°C)	Capacitance Range(μF)	Page
Hybrid	Radial Type	DA(new)	Low ESR, high ripple current resistant	125°C 4,000	25-80	-55~+125	15-470	77
		DC(new)	Low ESR, high ripple current resistant	105°C 10,000	25-80	-55~+105	15-470	79
	Surface Mount Type	SA(new)	Low ESR, high ripple current resistant	125°C 4,000	25-80	-55~+125	15-470	81
		SC(new)	Low ESR, high ripple current resistant	105°C 10,000	25-80	-55~+105	15-470	83

**ALUMINUM ELECTROLYTIC CAPACITORS**

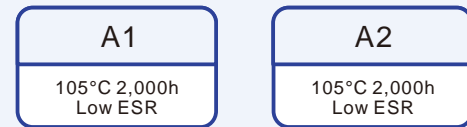
Category & Series			Features	Endurance (hours)	Rated Voltage Range (Vdc)	Operating Temperature Range(°C)	Capacitance Range(μF)	Page	
Surface Mount Type	SMD Type	MK	Standard	105°C 2,000-3,000	6.3 100	-55 +105	2.2 1000	85	
				160 450	-40 +105				
		MF	Long life	105°C 6,000	6.3 100	-55 +105	2.2 1000	87	
				160 450	-40 +105				
		MA	Long life	105°C 10,000	16 100	-55 +105	2.2 1000	89	
				160 450	-40 +105				
		MH	Resistant to 130°C, long life	130°C 1,000 5,000	10 100	-55 +130	2.2 1000	91	
				160 450	-40 +130				
		MT(new)	Low ESR	125°C 2,000	10-100	-55~+125	47 1100	93	
				105°C 2,000-5,000	6.3-100	-55~+105	4.7 1500	95	
	Low Profile	M5	85°C 5mm Height, standard type	85°C 1,000	6.3-50	-40~+85	0.1-330	97	
		H5	105°C 5mm Height	105°C 1,000	6.3-50	-40~+105	0.1-100	99	
		M7	85°C 7mm Height, Standard type	85°C 1,000	6.3-100	-40~+85	0.1-330	101	
		H7	105°C 7mm Height, Standard type	105°C 1,000	6.3-50	-40~+105	0.1-100	103	
		L7	105°C 7mm Height, long life	105°C 2,000	6.3-63	-40~+105	0.1-220	105	
Radial Type		Standard	WK	Standard series for general purpose	85°C 2,000	6.3-100	-40~+85	0.1-22000	107
					160-450	-25~+85			
	Standard	WH	Standard series for general purpose	105°C 2,000	6.3-100	-40~+105	0.1-22000	110	
				160-500	-25~+105				
				105°C 1,000	6.3-100	-40 +105	0.47-6800	113	
CD11GC	Resistant to 130 , long life	130°C 4,000-5,000 105°C 15,000-20,000	160-450	-40~+130	1-220	115			

**ALUMINUM ELECTROLYTIC CAPACITORS**

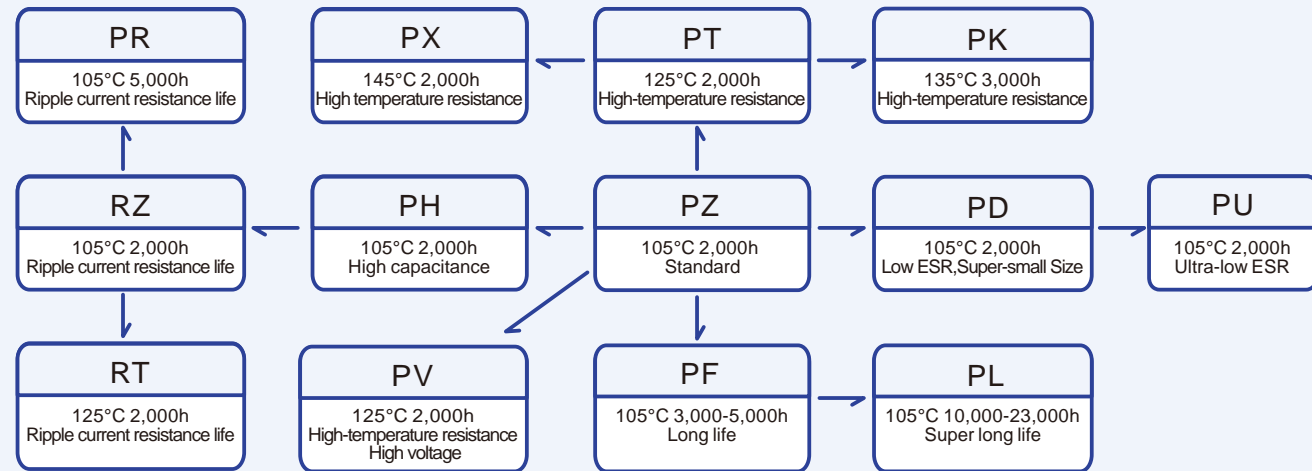
Category & Series			Features	Endurance (hours)	Rated Voltage Range (Vdc)	Operating Temperature Range(°C)	Capacitance Range(μF)	Page				
High reliability, long life. Especially designed for LED driver, electronic ballast, electronic energy saving lamp	Radial Type	High reliability, long life. Especially designed for LED driver, electronic ballast, electronic energy saving lamp	CD11GES	Resistant to 130°C, miniaturized, high ripple current and long life	130°C 3,000 105°C 12,000 105°C 10,000	160-450 160-450 500	-40~+130 -40~+130 -40~+105	1-330	117			
			CD11GK	Extremely miniaturized, long life	105°C 12,000-20,000	160-450	-40 +105	1-47	119			
			CD11GN	Resistant to 130°C, miniaturized and long life	130°C 1,000-2,000	160-450	-40~+130	1-330	121			
					105°C 8,000-12,000	160-450	-40~+130					
			CD11GZ(new)	Long life, suited for outdoor lighting	105°C 10000	500	-40~+105	10-150	123			
					105°C 12,000	250-500	-40~+105					
			CD11GAS	Miniaturized and long life	105°C 10,000	140-450	-40~+105	1-470	125			
					105°C 8,000	500	-40~+105					
			CD11GD(upgrade)	Miniaturized and long life	105°C 8,000	140-450	-40~+105	1-330	128			
			CD11GHS	Miniaturized, long life and high cost performance	105°C 6,000	140-500	-40~+105	1-330	131			
			CD11GM	Miniaturized and high cost performance	105°C 3,000	160-450	-40~+105	1-100	134			
			For Input and Output Circuit	Radial Type	For Input and Output Circuit	RR	High frequency, low impedance, standard	105°C 2,000	6.3-120	-40~+105	0.47-6800	136
						RE	Miniaturized, low impedance	105°C 2,000-4,000	6.3-120	-40~+105	10-4700	139
						RF	High Ripple current, low impedance	105°C 3,000-6,000	6.3-120	-40~+105	6.8-6800	141
						RS	High Ripple current, low impedance and long life	105°C 4,000-10,000	6.3-120	-40~+105	6.8-18000	144
RN	Miniaturized, large capacitance	105°C 5,000-10,000				25-120	-40~+105	2.7-1500	148			
RZ	Miniaturized, long life and low impedance, high reliability	105°C 6,000-10,000				6.3-50	-40~+105	22-10000	151			
RJ	Downsized, long life and low impedance	105°C 8,000-12,000				10-120	-40~+105	10-5600	153			
RH	High frequency, low impedance	105°C 2,000-3,000				160-450	-40 +105	0.47-470	156			
HS	High ripple current	105°C 3,000-5,000				160-450	-40~+105	1-270	158			
		500-550				-25~+105	1-270					
HF	Long life and high ripple current	105°C 5,000-10,000				160-450	-40 +105	1-330	161			
HT(new)	High temperature and ripple current	125°C 2,000				160-450	-40 +125	4.7-150	163			
HL	Long life, downsized and high ripple current	105°C 8,000-12,000				160-450	-40~+105	6.8-680	166			
		500				-25~+105						
RK(upgrade)	Miniaturized, high voltage. Specially designed for charger	105°C 2,000				160-450 500-600	-40~+105 -25~+105	1-150	169			
High Reliability	Radial Type	High Reliability	RG	"GBL" system, high reliability	105°C 2,000-8,000	6.3-100	-55~+105	10-10000	172			
			ML	105°C 5-9mm Height, long life	105°C 3,000-5,000	6.3-50	-40~+105	1-1000	175			
			RM	Miniaturized, long life	105°C 10,000	10-100	-40~+105	0.47-330	177			
			NB(upgrade)	Resistant to 130°C, long life	130°C 2,000-5,000	10-120	-40~+130	1-4700	179			
Special Purpose	Radial Type	Special Purpose	RD	Low water content series	105°C 2,000-5,000	6.3-100	-40~+105	0.47-15000	182			
			GH(upgrade)	For intelligent instrument, high reliability	105°C 5,000-8,000	6.3-100	-40~+105	1-18000	185			
					105°C 10,000	160-450						
			LL	Extremely low leakage current	105°C 2,000	6.3-100	-40~+105	0.47-2200	189			
			BG	Large capacitance, low impedance; For airbags	105°C 5,000	25-35	-55~+105	1000-11000	191			
BH(new)	For automobile electronics	125°C 3,000	25-400	-40~+125	10-11000	193						
General Purpose	Snap-in & Lug Terminal Type	General Purpose	LK(upgrade)	Standard series for general purpose	85°C 2,000	10-100	-40~+85	47-82000	196			
			160-500	-25~+85								
			LH(upgrade)	Withstand high temperature, general purpose	105°C 2,000	10-100	-40~+105	56-56000	202			
			160-550	-25~+105								
			LC	Wide temperature range; miniaturized	105°C 2,000	400-500	-40~+105	56-680	208			
			LZ(new)	Wide temperature range, extremely miniaturized	105°C 2,000	400-450	-40~+105	120-820	210			
			LS	Downsized, long life	85°C 3,000	160-600	-25~+85	47-3300	212			
			LM	For OBC. Downsized, long life	105°C 3,000	160-550	-25~+105	47-3300	216			
			LP	High ripple current, long life	105°C 3,000	400-450	-40~+105	82-820	221			
			High Reliability	Snap-in & Lug Terminal Type	High Reliability	LQ	Long life	85°C 5,000	160-450	-25~+85	68-2200	223
LG	Long life, high ripple current	85°C 12,000				350-450	-25~+85	470-2700	227			
LT	Long life, downsized	105°C 5,000				160-550	-25~+105	47-2700	229			
LX	Extremely long life	105°C 7,000				160-450	-25~+105	47-2200	234			
LB	High reliability, long life	105°C 10,000				200-450	-25~+105	39-1500	237			
Standard	Snap-in & Lug Terminal Type	Standard				NR	Screw terminal, standard series	85°C 2,000	350-550	-25~+85	1000-15000	239
			NS	Screw terminal, standard series	105°C 2,000	350-450	-25~+105	1000-15000	242			
Long Life	Screw-Mount Terminal Type	Long Life	NX	High ripple current, downsized, long life	85°C 5,000	350-500	-25~+85	1000-12000	244			
			NL	Long life	85°C 12,000	350-450	-25~+85	1500-15000	246			
			NE	High ripple current, long life	85°C 20,000	350-450	-25~+85	1500-15000	248			
			NT(new)	Long life	105°C 3,000	350-450	-25~+105	1000-12000	250			
			NF	Long life	105°C 5,000	350-450	-25~+105	1000-15000	252			
			NK	High ripple current, long life	105°C 5,000	350-450	-25~+105	1000-15000	254			

### Group Chart CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

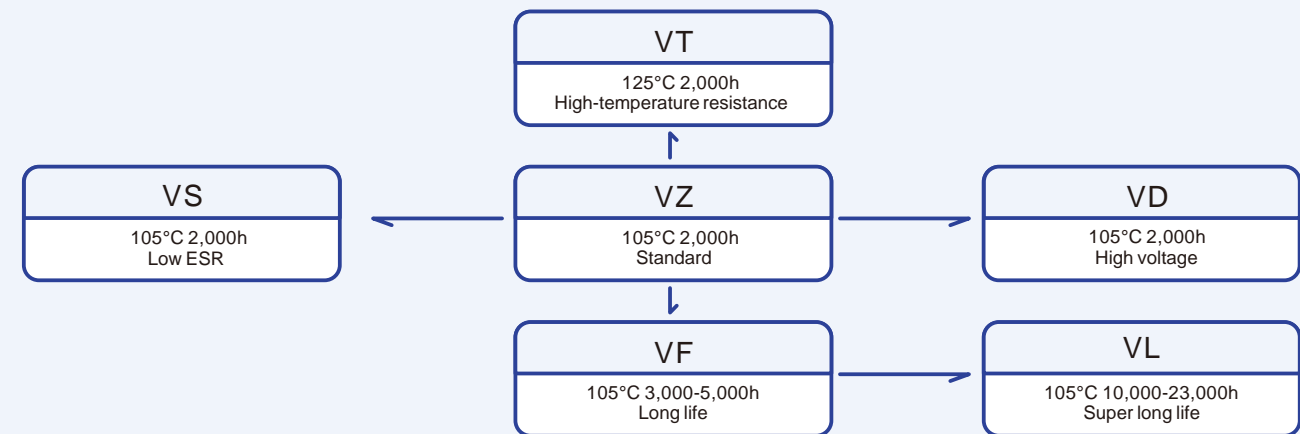
■ MULTILAYER TYPE



■ RADIAL TYPE



■ SURFACE MOUNT TYPE



### CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

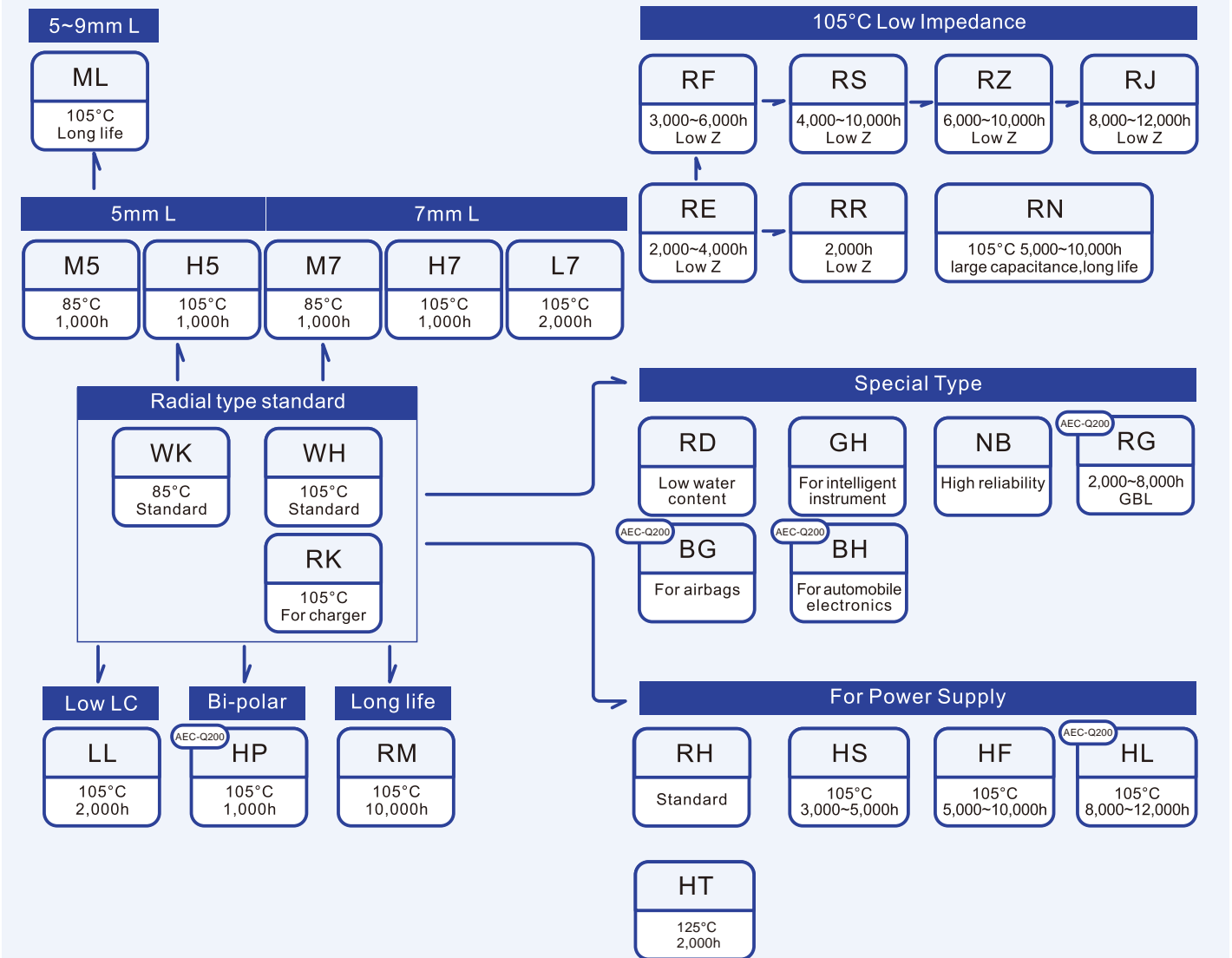
■ RADIAL TYPE



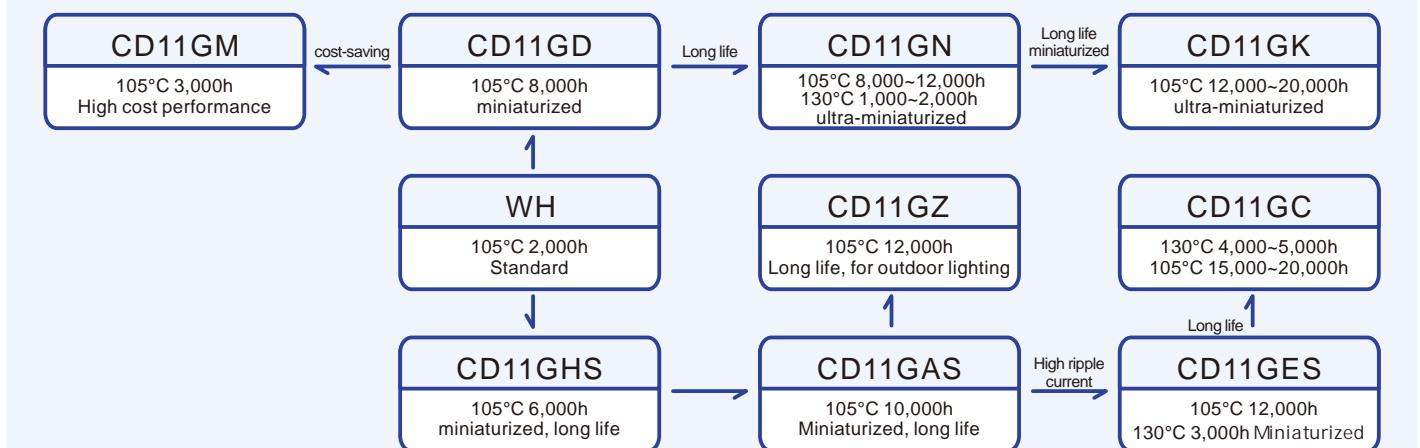
■ SURFACE MOUNT TYPE



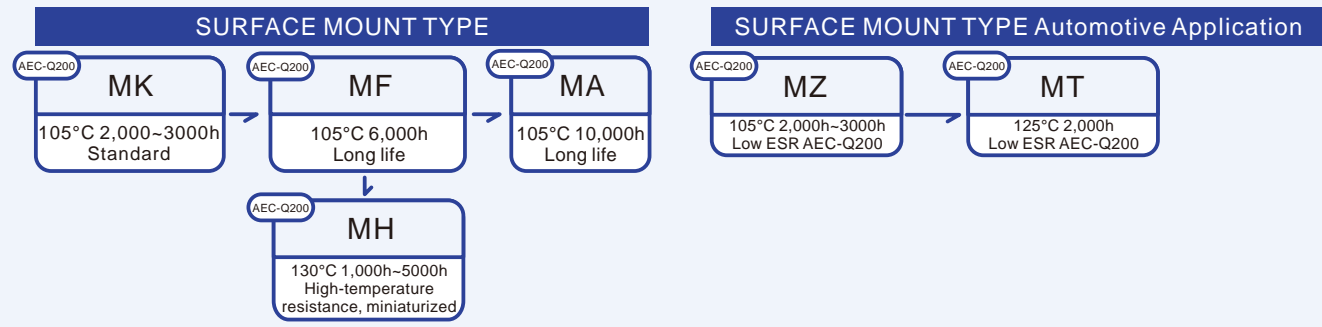
■ RADIAL TYPE



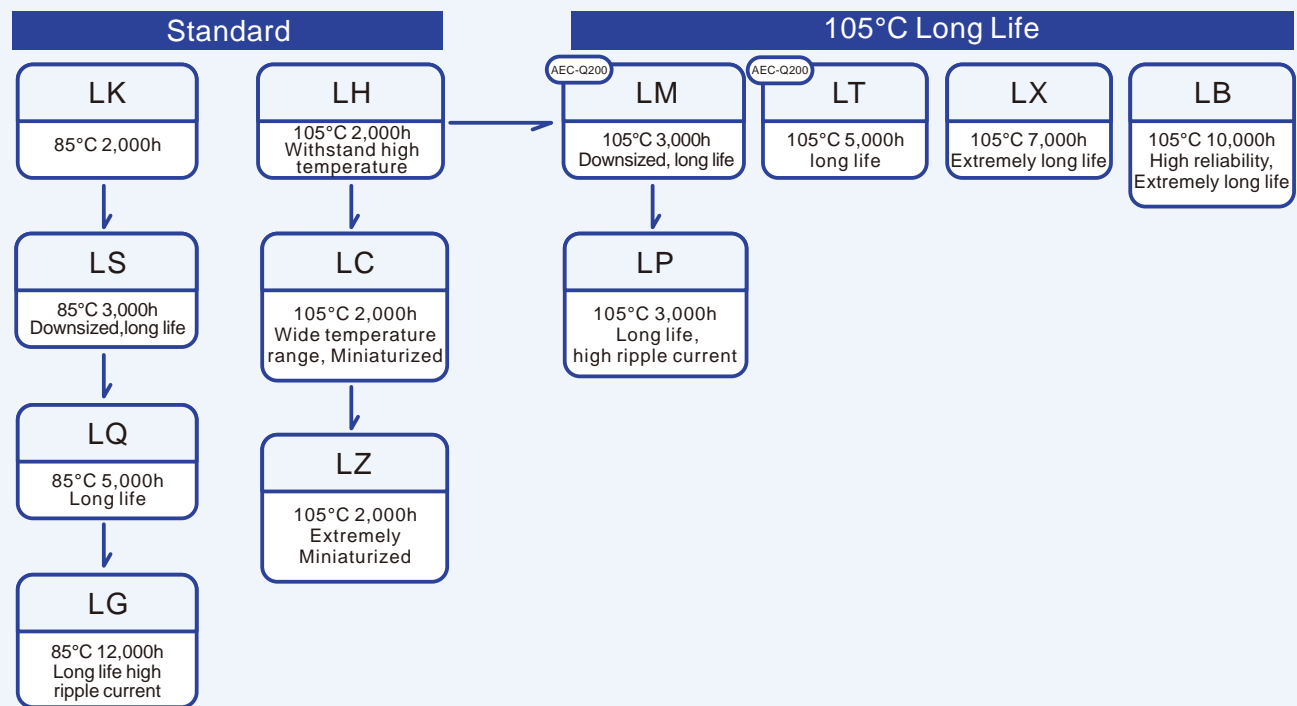
■ FOR LIGHTING APPLICATION



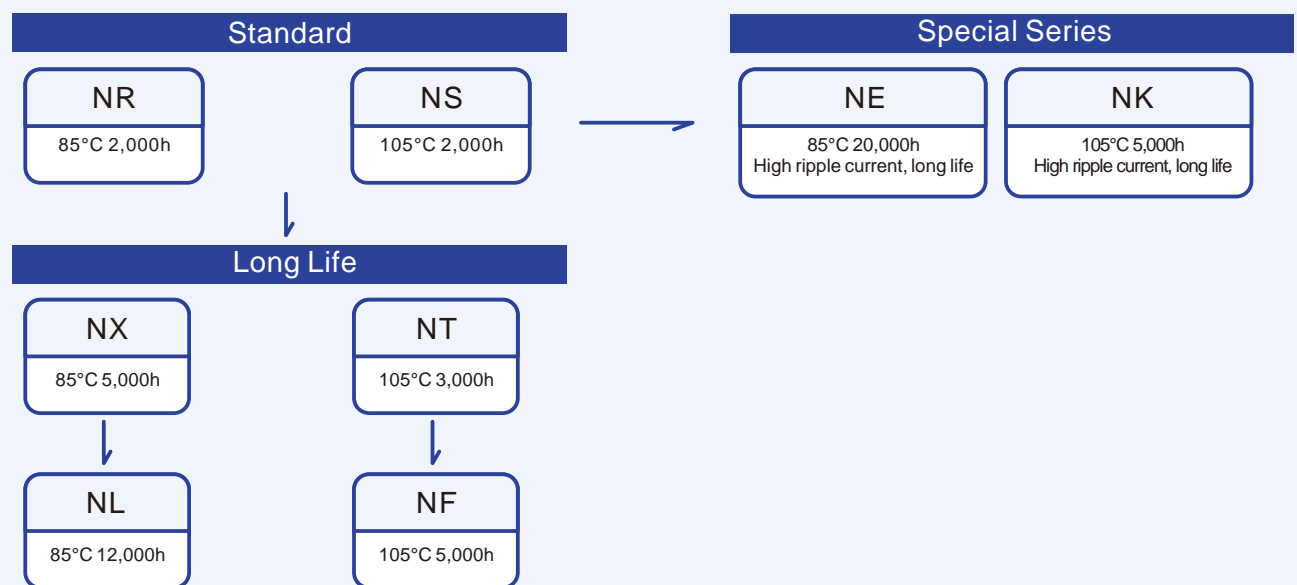
■ SMD TYPE



■ SNAP-IN & LUG TERMINAL TYPE

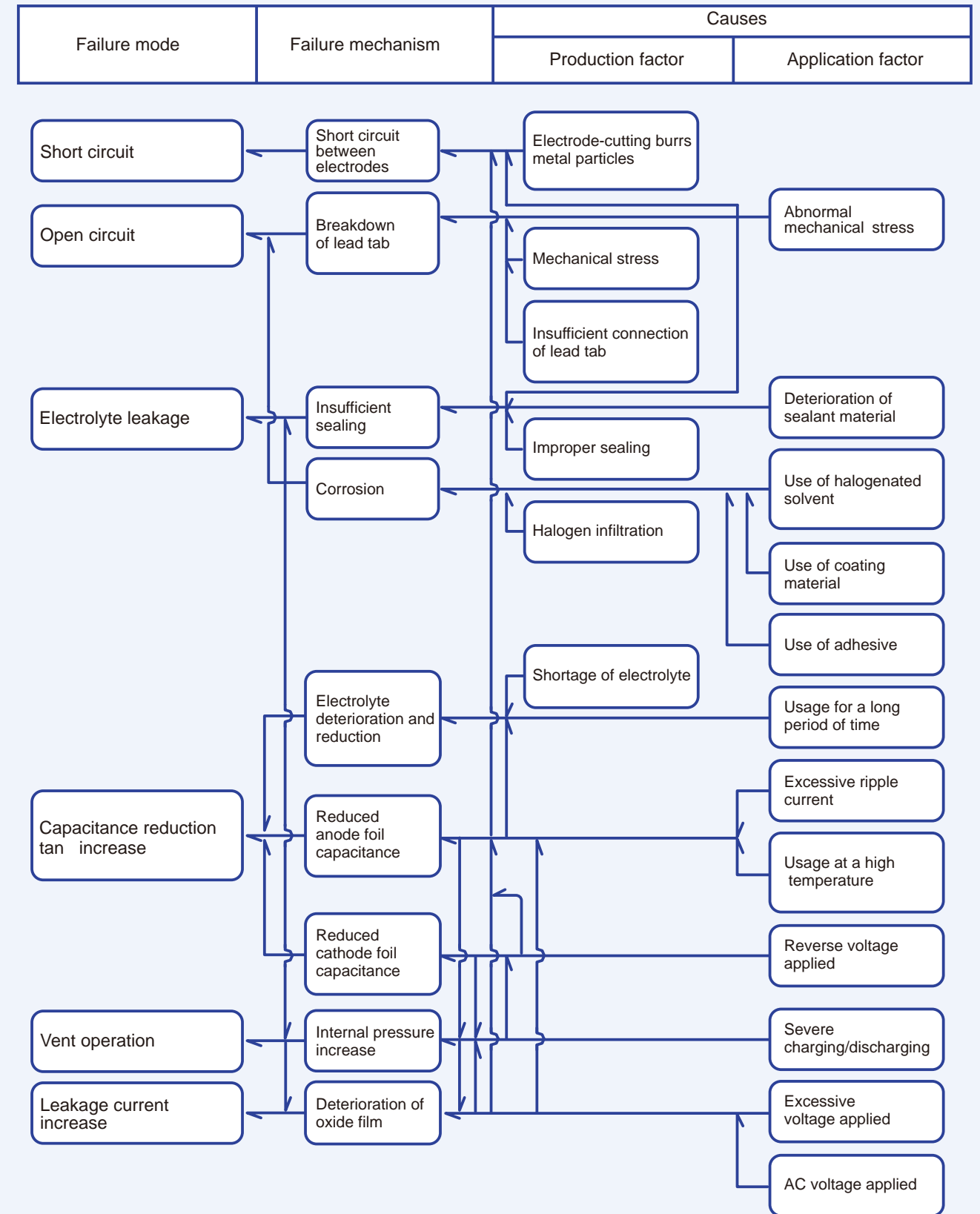


■ SCREW-MOUNT TERMINAL TYPE



■ Failure Modes

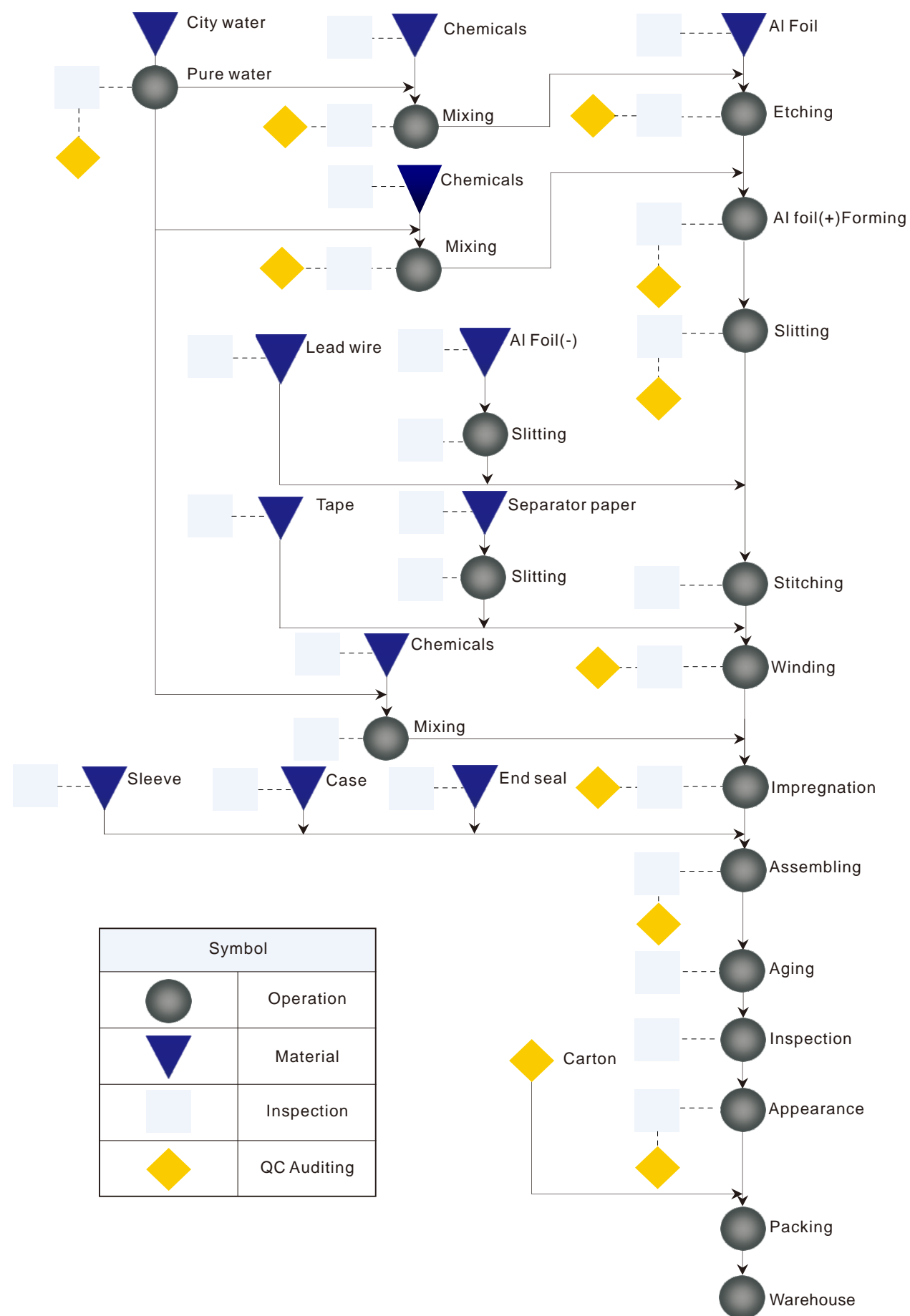
Aluminum Electrolytic Capacitors Show Various Failure Modes in Different Applications





■ Flow Chart

Aluminum Electrolytic Capacitors Flow Chart



Application Guidelines for Conductive Polymer Aluminum Solid Electrolytic Capacitors

1. Polarity

AishiCAP is a solid aluminum electrolytic capacitor with positive and negative electrodes. Do not reverse the polarity when using. If it is used with the polarities reversed, its life may be shortened because of increasing leakage current or short circuit.

2. Prohibited circuits

Since leakage current may be increased during soldering and other processes, AishiCAP cannot be used in the following circuits.

- 1) High impedance circuits;
- 2) Coupling circuits;
- 3) Time-limited constant circuits;
- 4) Connection of two or more capacitors in series for higher withstand voltage;
- 5) Circuits to get bad influence by large leakage current.

\* In addition to the leakage current fluctuation, the operational conditions such as characteristics at high and low temperature, damp heat and endurance stipulated in the specifications will affect the capacitance. The fluctuation of the capacitance may cause problem if it is used as a time-limited constant capacitor, which is extremely sensitive to the fluctuation of the capacitance. So do not use it as a time-limited constant capacitor.

Additionally, please contact Hunan Aihua Group Co., Ltd. for usage of two or more AishiCAP in series for voltage proof.

3. Over voltage

Over voltage cannot be applied even for an instant as it may cause a short circuit.

4. Sudden charge and discharge

Sudden charge and discharge are prohibited (for maintenance of high reliability). A protection circuit is recommended when a sudden charge or discharge causes excessive rush current because this is a main cause of short circuits and leakage current increase and capacitance reduction. Use protection circuits if the rush current exceeds 10A. If the rush current exceeds 10 times the maximum allowable ripple current of AishiCAP, be sure to insert a protection resistor of about 1k for charge and discharge when measuring the leakage current.

5. Considerations when soldering

The soldering conditions are to be within the range prescribed in specifications. If the specifications are not followed, there is a possibility of the intensive increase of leakage current, and the capacitance reduction. Things to be noted before mounting:

- a) Do not reuse capacitors that have been assembled in a set and energized. Capacitors that have been removed for measuring electrical characteristics during a periodic inspection also cannot be reused.
- b) Leakage current may increase when capacitors are stored for one year. In this case, apply rated voltage for 2 hours at 105°C with load of 1 k resistor.
- c) Reflow soldering  
Do not apply reflow soldering to radial lead type capacitors.
- d) Handling after soldering  
Do not tilt, bend or twist the AishiCAP;  
Do not move the PCB with catching AishiCAP itself.  
When stacking PCB, make sure that the AishiCAP does not touch other PCB or components.  
Do not dump the AishiCAP with other objects.

6. Application of AishiCAP in industrial equipments

To ensure reliability, when using the AishiCAP in industrial equipments, appropriate design is required.

7. Use of AishiCAP for human life equipments

In case of using in equipments regarding human life (e.g. Space equipment, aeronautic equipment and atomic equipment, etc.), be sure to consult with Hunan Aihua Group Co., Ltd. Don't use products without recognition document of Hunan Aihua Group Co., Ltd.

8. Storage

- 1) Store AishiCAP with the temperature range between 5 to 35°C (If between 35 to 85°C, it should be less than three months), and the relative humidity of 75% without direct sunshine and store AishiCAP in the package states if possible.
- 2) It is recommended that you open the bag just before use and use up as early as possible.
- 3) Store the capacitors in places free from water, oil or salt water or in condensation status.
- 4) Never store AishiCAP in any area filled with poisonous gases (including hydrogen sulfide, sulfuric acid, nitrous acid, chlorine and ammonia).
- 5) Store the capacitors in places free from ozone, ultraviolet rays or radiation.  
(Radial Lead Type)  
Before unseal: within 1 year after delivery  
After opening: within 1 month

9. Cleaning

Concerning about HCFC, soak with high concentration alcohol, petroleum and terpene, water or surface active agent and other solvents (separate or blended), wash under the maker's recommendation by ultrasonic wave, boiling and evaporation, etc. Please contact us if you require further details.

10. Notes on circuit designs for AishiCAP

10.1 Performance

Use AishiCAP within the rated performance ranges defined in this specification.

10.2 Operating temperature and ripple current

If AishiCAP is used at a temperature higher than the upper category temperature (105°C), or excess ripple current flows through AishiCAP, there are high possibilities of service life reduction or leakage current increase to cause AishiCAP defective.

10.3 Leakage current

The leakage current of AishiCAP may increase slightly by soldering conditions. The application of DC voltage enables the capacitors to be repaired by itself and this leads the leakage current to be smaller gradually.

10.4 Applied voltage

For the reliability of AishiCAP, it is recommended that the voltage applied to AishiCAP should be less than 80% of the rated voltage. Peak value of the DC and AC voltage should not exceed its rated voltage.

10.5 Failure mode

AishiCAP contains conductive polymer. The life ends mostly due to random failure mode, mainly short circuit. In case of short circuit, AishiCAP can be overheated by continuous current flow, and then Al case of AishiCAP would be separated by increased internal pressure.

## Application Guidelines for Aluminum Electrolytic Capacitors

### ■ Designing Device Circuits

**1. Select the capacitors to suit installation and operating conditions, and use the capacitors to meet the performance limits prescribed in this catalog or the product specifications.**

#### 2. Polarity

Aluminum Electrolytic Capacitors are polarized.

Apply neither reverse voltage nor AC voltage to polarized capacitors. Using reversed polarity causes a short circuit or venting. Before use, refer to the catalog, product specifications or capacitor body to identify the polarity marking. (The shape of rubber seal does not represent the directional rule for polarity.) Use a bi-polar type of non-solid aluminum electrolytic capacitor for a circuit where the polarity is occasionally reversed. However, note that even a bi-polar aluminum electrolytic capacitor must not be used for AC voltage applications.

#### 3. Operating voltage

Do not apply a DC voltage which exceeds the full rated voltage. The peak voltage of a superimposed AC voltage (ripple voltage) on the DC voltage must not exceed the full rated voltage.

A surge voltage value, which exceeds the full rated voltage, is prescribed in the catalogs, but it is a restricted condition, for especially short periods of time.

#### 4. Ripple current

The rated ripple current has been specified at a certain ripple frequency. The rated ripple current at several frequencies must be calculated by multiplying the rated ripple current at the original frequency using the frequency multipliers for each product series.

#### 5. Category temperature

The use of a capacitor outside the maximum rated category temperature will considerably shorten the life or cause the capacitor to vent.

The relation between the lifetime of aluminum electrolytic capacitors and ambient temperature follows Arrhenius' rule that the lifetime is approximately halved with each 10°C rise in ambient temperature.

#### 6. Life expectancy

Select the capacitors to meet the service life of a device.

#### 7. Charge and discharge

Do not use capacitors in circuits where heavy charge and discharge cycles are frequently repeated. Frequent and sharp heavy discharging cycles will result in decreasing capacitance and damage to the capacitors due to generated heat. Specified capacitors can be designed to enduring such a condition. Rapid charging/discharging may be repeated in a circuit where the ripple voltage at the two terminals of the aluminum electrolytic capacitor fluctuates greatly. If the variation range of voltage exceeds 70Vp-p, please consult us.

#### 8. Failure modes of capacitors

Non-solid aluminum electrolytic capacitors, in general, have a lifetime which ends in an open circuit, the period is dependent upon temperature. Consequently, lifetime of capacitors can be extended by reducing the ambient temperature and/or ripple current.

#### 9. Insulating

- a) Electrically isolate the following parts of a capacitor from the negative terminal, the positive terminal and the circuit traces.
  - The outer can case of a non-solid aluminum electrolytic capacitors.
  - The dummy terminal of a non-solid aluminum electrolytic capacitors, which is designed for mounting stability.
- b) The outer sleeve of a capacitor is not assured as an insulator (Except for screw type). For applications that require an insulated outer sleeve, a custom-designed capacitor is recommended.

#### 10. Conditions

Do not use/expose capacitors to the following conditions.

- a) Oil, water, salty water. Avoid storage in damp locations.
- b) Direct sunlight.
- c) Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.
- d) Ozone, ultraviolet rays or radiation.
- e) Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or the product specification.

#### 11. Mounting

- a) The electrolytic paper and the electrolytic-conductive electrolyte in a non-solid aluminum electrolytic capacitor are flammable. Leaking electrolyte on a printed circuit board can gradually erode the copper traces, possibly causing smoke or burning by short-circuiting the copper traces.
 

Verify the following points when designing a PC board.

  - Provide the appropriate hole spacing on the PC board to match the terminal spacing of the capacitor.
  - Make the following open space over the vent so that the vent can operate correctly.

Case diameter	Clearance
Ø6.3 to Ø16mm	2mm minimum
Ø18 to Ø35mm	3mm minimum
Ø40mm or more	5mm minimum

- Do not place any wires or copper traces over the vent of the capacitor.
- Installing a capacitor with the vent facing the PC board needs an appropriate ventilation hole in PC board.
- Do not pass any copper traces beneath the seal side of a capacitor. The trace must pass 1 or 2mm to the side of the capacitor.
- Avoid placing any heat-generating objects adjacent to a capacitor or even on the reverse side of the PC board.
- Do not pass anything via holes or underneath a capacitor.
- In designing double-sided PC boards, do not locate any copper trace under the seal side of a capacitor.
- b) Do not mount the terminal side of a screw mount capacitor downwards. If a screw terminal capacitor is mounted on its side, make sure the positive terminal is higher than the negative terminal. Do not fasten the screws of the terminals and the mounting clamps over

the specified torque prescribed in the catalog or the product specifications.

- c) For a surface mount capacitor, design the copper pads of the PC board in accordance with the catalog or the product specifications.

#### 12. Others

- a) The electrical characteristics of capacitors vary in respect to temperature, frequency and service life. Design the device circuits by taking these changes into account.
- b) Capacitors mounted in parallel need the current to flow equally through the individual capacitors.
- c) Capacitors mounted in series require resistors in parallel with the individual capacitors to balance the voltage.
- d) Using capacitor for applications which always consider safety. Consult with our factory before use in applications which can affect human life.(space equipment, aerial equipment, nuclear equipment, medical equipment, vehicle control equipment, etc.) Please note that the product which is designed only for specific usage can not be used for other purposes.(ex.Photo flash type, etc.)

### Installing Capacitors

#### 1. Installing

- a) Used capacitors are not reusable, except in the case that the capacitors are detached from a device for periodic inspection to measure their electrical characteristics.
- b) If the capacitors have self-charged, discharge the capacitors through a resistor of approximately 1k before use.
- c) If capacitors are stored at a temperature of 35°C or more and more than 75% RH, the leakage current may increase. In this case, they can be reformed by applying the rated voltage through a resistor of approximately 1k .
- d) Verify the rated capacitance and voltage of the capacitors when installing.
- e) Verify the polarity of the capacitors.
- f) Do not use the capacitors if they have been dropped on the floor.
- g) Do not deform the cases of capacitors.
- h) Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors. Some standard pre-formed leads are available.
- i) For pin terminals or snap-in terminals, insert the terminals into PC board and press the capacitor downward until the bottom of the capacitor body reaches PC board surface.
- j) Do not apply any mechanical force in excess of the limits prescribed in the catalogs or the product specifications of the capacitors. Also, note the capacitors may be damaged by mechanical shocks caused by the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

#### 2. Soldering and Solderability

- a) When soldering with a soldering iron
  - Soldering conditions (temperature and time) should be within the limits prescribed in the catalogs or the product specifications.
  - If the terminal spacing of a capacitor does not fit the terminal hole spacing of the PC board, reform the terminals in a manner to minimize a mechanical stress into the body of the capacitor.
  - Remove the capacitors from the PC board , after the solder is completely melted, reworking by using a soldering iron minimizes the mechanical stress to the capacitors.
  - Do not touch the capacitor body with the hot tip of the soldering iron.
- b) Flow soldering
  - Do not dip the body of a capacitor into the solder bath, only dip the terminals in. The soldering must be done on the reverse side of PC board.
  - Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalogs or the product specifications.
  - Do not apply flux to any part of capacitors other than their terminals.
  - Make sure the capacitors do not come into contact with any other components while soldering.
- c) Reflow soldering
  - Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalogs or the product specifications.
  - When setting the temperature infrared heaters, consider that the infrared absorption causes material to be discolored and change in appearance.
  - Do not solder capacitors more than once using reflow. If needed, be sure to consult us first.
  - Make sure capacitors do not come into contact with copper traces.
- d) Do not re-use surface mount capacitors which have already been soldered. In addition, when installing a new capacitor onto the assembly board to rework, remove old residual flux from the surface of the PC board, and then use a soldering iron within the prescribed conditions.
- e) Confirm whether reflow soldering is applicable for the capacitors before operation.

#### 3. Handling after soldering

- Do not apply any mechanical stress to the capacitor after soldering onto the PC board.
- a) Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.
- b) Do not use the capacitors for lifting or carrying the assembly board.
- c) Do not hit or poke the capacitor after soldering to PC board. When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.
- d) Do not drop the assembly board.

#### 4. Cleaning PC board

- a) Do not wash capacitors by using the following cleaning agents.
  - Halogenated solvents: cause capacitors to fail due to corrosion.
  - Alkali system solvents: corrode (dissolve) an aluminum case.
  - Petroleum and terpene system solvents: cause the rubber seal material to deteriorate.
  - Xylene: causes the rubber seal material to deteriorate.
  - Acetone: erases the marking. Solvent-proof capacitors are only suitable for washing within the cleaning conditions prescribed in the catalogs or the product specifications. In particular, ultrasonic cleaning will accelerate damaging capacitors.

- b) Verify the following points when washing capacitors.
- Monitor conductivity, pH, specific gravity, and the water content of cleaning agents. Contamination adversely affects these characteristics.
  - Be sure not to keep the capacitors in an atmosphere containing the cleaning agent or in an air tight container.
- In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature should be less than the maximum rated category temperature of the capacitor) over 10 minutes. Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when voltage is applied. This corrosion causes extremely high leakage current, which in turn, causes venting and an open circuit.

**5. Precautions for using adhesives and coating**

- a) Do not use any adhesive and coating materials containing halogenated solvent.
- b) Verify the following before using adhesive and coating material.
- Remove flux and dust leftover between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
  - Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover over the whole surface of the rubber seal with the adhesive or coating materials.
  - For permissible heat conditions for curing adhesives or coating materials, follow the instructions in the catalogs or the product specifications of the capacitors.
  - Covering over the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot be released completely. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.
- c) Some of coating material cannot be cured over the capacitor. Please note that loose luster and whitening on the surface of the outer sleeve might be caused according to the kind of solvents used for mounting adhesives and coating agents.

**6. Fumigation**

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects, most often, it becomes necessary to fumigate the shipments. Precautions during "Fumigation" using halogenated chemical such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials used, such as, cardboard boxes and vinyl bags. Penetration of the halogenated gas can cause corrosion of electrolytic capacitors.

**The Operation of Devices**

- a) Do not touch a capacitor directly with bare hands.
- b) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill conductive liquid such as acid or alkaline solution over the capacitor.
- c) Do not use capacitors in circumstance where they would be subject to exposure to the following materials:
- Oil, water, salty water or damp location.
  - Direct sunlight.
  - Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid,

- chlorine or its compounds, and ammonium.
- Ozone, ultraviolet rays or radiation.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or product specification.

**Maintenance Inspection**

- a) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Also, do not apply any mechanical stress to the terminals of the capacitors.
- b) The following items should be checked during the periodic inspections.
- Significant damage in appearance: venting and electrolyte leakage.
  - Electrical characteristics: leakage current, capacitance, tan and other characteristics prescribed in the catalog or product specifications.
- We recommend replacing the capacitors if the parts are out of specification.

**In Case of Venting**

- a) If a non-solid aluminum electrolytic capacitor expels gas when venting, it will discharge odors or smoke, or burn in the case of a short-circuit failure. Immediately turn off or unplug the main power supply of the device.
- b) When venting, a non-solid aluminum electrolytic capacitor blows out gas with a temperature of over 100°C. (A solid aluminum electrolytic capacitor discharges decomposition gas or burning gas while the outer resin case is burning.) Never expose the face close to a venting capacitor.
- If your eyes inadvertently become exposed to the spouting gas or you inhale it, immediately flush the open eyes with large amounts of water and gargle with water respectively. If electrolyte is on the skin, wash the electrolyte away from the skin with soap and plenty of water. Do not lick the electrolyte of non-solid aluminum electrolytic capacitors.

**Storage**

- We recommend the following conditions for storage.
- a) Do not store capacitors at a high temperature or in high humidity. Store the capacitors indoors at a temperature of 5 to 35°C and a relative humidity of 75% or below.
- b) Store the capacitors in places free from water, oil or salt water.
- c) Store the capacitors in places free from toxic gases (hydrogen sulfide, sulfurous acid, chlorine, ammonium, etc.)
- d) Store the capacitors in places free from ozone, ultraviolet rays or radiation.
- e) Keep capacitors in the original package.

**Disposal**

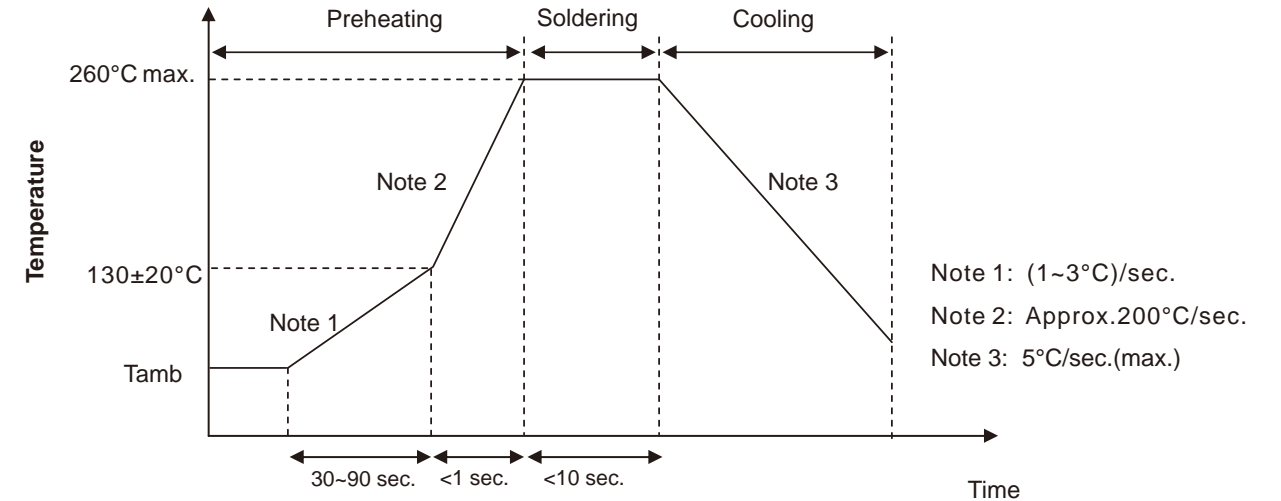
Please consult with a local industrial waste disposal specialist when disposing aluminum electrolytic capacitors.

**Catalog**

Specifications in the catalog may be subject to change without notice. Please consult us first before use. Hunan Aihua Group reserves the right of final interpretation of all the content.

**Soldering Recommendation**

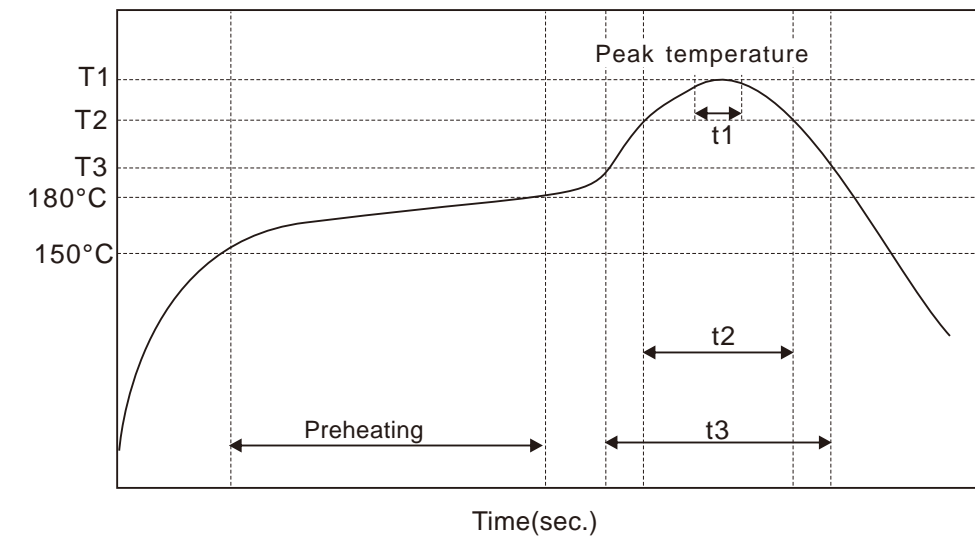
■ **Flow Soldering(Radial Lead Type)**



■ **Reflow Soldering**

- (For Polymer SMD Type)

**Recommended Reflow Profile**



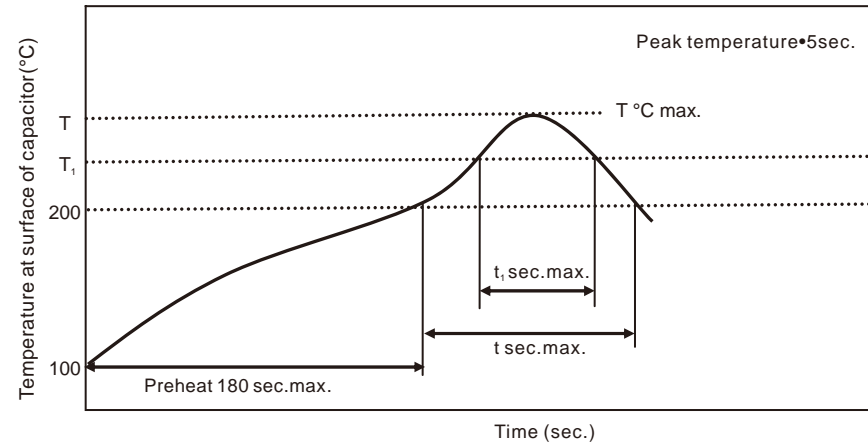
Item	Preheating	T1(°C)	T2(°C)	T3(°C)	t1(sec.)	t2(sec.)	t3(sec.)	Reflow cycle
Condition 1	150°C to 180°C Within 90 sec.	260	230	200	10	40	60	1
Condition 2		250	230	200	10	40	60	2



• (For Liquid SMD Type)

Case size: 6.3~ 10mm:

- Temperature at surface of capacitor shall not exceed T°C.
- The duration for over 200°C temperature and T<sub>1</sub>°C at surface of capacitor shall not exceed t and t<sub>1</sub> seconds, respectively.
- Preheat shall be done at 100°C to 200°C and for Maximum 180 seconds.



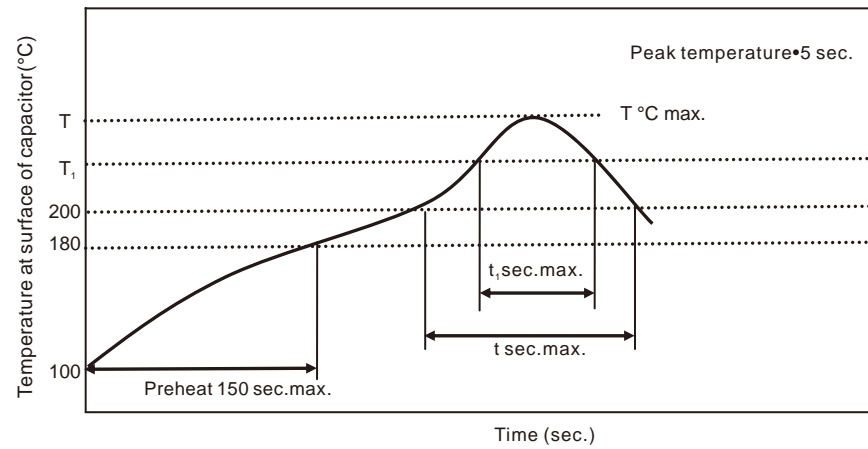
Case size (mm)	T(°C)	T <sub>1</sub> (°C)	t(sec.)	t <sub>1</sub> (sec.)	Reflow cycle
6.3	250	230	90	40	1
8	240	230	90	30	1
10	240	230	60	30	1

Peak temperature  
The duration over 200°C (max.)  
The duration over T<sub>1</sub>°C

■ Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

Case size: 12.5~ 18mm:

- Temperature at surface of capacitor shall not exceed T°C.
- The duration for over 200°C temperature and T<sub>1</sub>°C at surface of capacitor shall not exceed t and t<sub>1</sub> seconds, respectively.
- Preheat shall be done at 100°C to 180°C and for Maximum 150 seconds.

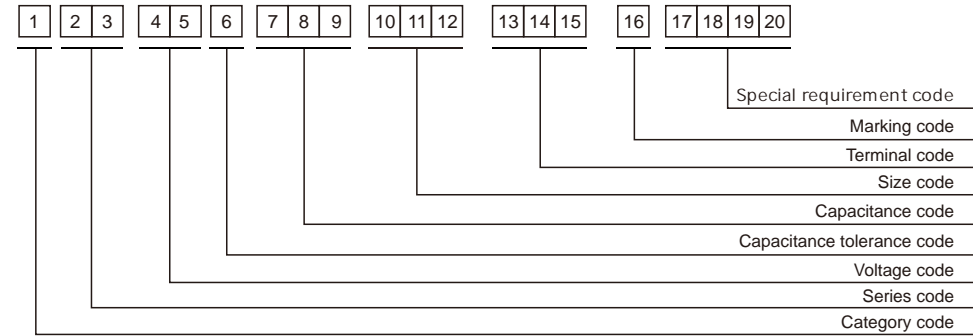


Case size (mm)	Rated Voltage (Vdc)	T(°C)	T <sub>1</sub> (°C)	t(sec.)	t <sub>1</sub> (sec.)	Reflow cycle
12.5~ 18	100	240	230	60	30	1
	120	230	220	60	30	

Peak temperature  
The duration over 200°C (max.)  
The duration over T<sub>1</sub>°C

■ Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

Part Numbering System(Conductive polymer solid & hybrid capacitors)



Category code

Type	Code
	1
Conductive polymer aluminum solid capacitor	S
Conductive polymer hybrid aluminum electrolytic capacitor	H

Voltage code

wV (V)	Code	
	4	5
2	0	B
2.5	0	E
3	0	D
4	0	G
6.3	0	J
6.5	0	F
6.8	0	C
7	0	Q
7.5	0	A
10	1	A
12	1	T
14	1	L
16	1	C
18	1	Q
20	1	D
22	1	I
25	1	E
30	1	S
32	1	F
35	1	V
38	1	N
40	1	G
50	1	H
63	1	J
80	1	B
100	1	K
160	2	C
180	2	L
200	2	D
220	2	N
250	2	E
315	2	F

Capacitance tolerance code

Tol. (%)	Code	
	6	
-10 +10	K	
-20 +20	M	
-10 +30	Q	
-10 +50	T	
-10 +20	V	
-8 +20	H	
0 +20	A	
0 +30	A	
-5 +20	C	
+6 +20	J	
+6 +30	O	
-10 -20	B	
-5 +5	D	
0 +10	E	
-5 -20	F	
-15 +5	N	
-15 +15	W	
-15~+20	G	
-35~+10	L	
+4~+30	I	

Capacitance code

Cap (µF)	Code		
	7	8	9
0.10	R	1	0
0.22	R	2	2
1	0	1	0
2.2	2	R	2
9.8	9	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
56	5	6	0
68	6	8	0
100	1	0	1
150	1	5	1
180	1	8	1
220	2	2	1
270	2	7	1
470	4	7	1
560	5	6	1
680	6	8	1
820	8	2	1
1000	1	0	2
1200	1	2	2
2200	2	2	2
3300	3	3	2

Series code

Series name	Code		
	2	3	
Radial Type	PR	P R	
	PZ	P Z	
	PU	P U	
	PD	P D	
	PH	P H	
	PT	P T	
	PK	P K	
	PV	P V	
	PF	P F	
	PL	P L	
	Surface Mount type	VS	V S
		VZ	V Z
VD		V D	
VF		V F	

Size code

D (mm)	Code		L (mm)	Code	
	10			11	12
4	C		5	0	5
4.5	A		7	0	7
5	D		7.5	7	R
5.5	B		8	0	8
6.3	E		9	0	9
6.8	Q		10	1	0
7	R		11	1	1
8	F		12	1	2
10	G		16	1	6
11	H		20	2	0
12	J		25	2	5
12.5	W		10.5	A	R
13	K		11.5	B	R
14	X		12.5	C	R
16	L				
18	M				
19	Z				
20	N				

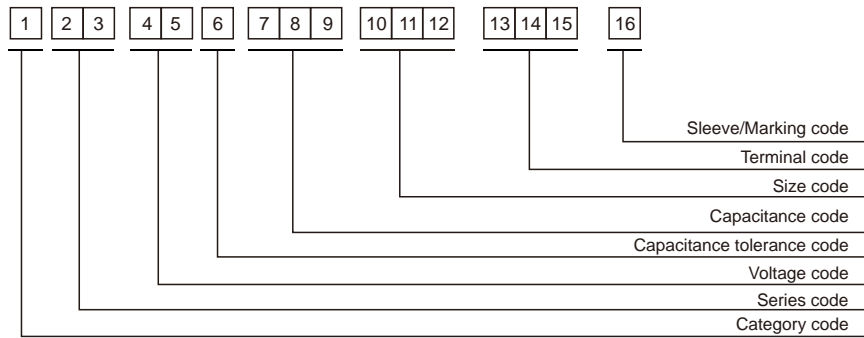
Terminal code

Specification	Code	Size			Specification	Code		
		13	14	15		13	14	15
Bulk packing (standard lead pitch)	O	0	0	0	Base plate(SMD type)	D	0	0
Bulk packing (special lead pitch)	O	-	-	-	Taping (SMD type)	E	0	0

Marking code

Marking	Code
	16
Dark blue	B
Baby blue	L
Bright red	R
Sky-blue	S
Black	H
Purple-blue sleeve	V
Red sleeve	O
Black sleeve	A

Part Numbering System



Category code

Type	Code
Aluminum Electrolytic Capacitor	E

Voltage code

WV (V <sub>dc</sub> )	Code	
	4	5
2.5	0	E
3	0	D
4	0	G
6.3	0	J
6.8	0	C
7	0	Q
7.5	0	A
10	1	A
12	1	T
16	1	C
25	1	E
35	1	V
40	1	G
50	1	H
63	1	J
80	1	B
100	1	K
160	2	C
180	2	L
200	2	D
220	2	N
250	2	E
315	2	F
350	2	V
380	2	P
400	2	G
420	2	T
450	2	W
500	2	H
550	2	J
600	2	K

Capacitance tolerance code

ToL (%)	Code	
	6	
-10 +10	K	
-20 +20	M	
-10 +30	Q	
-10 +20	V	
0 +20	A	
-5 +20	C	
-10 -20	B	
-5 +5	D	
-0 +10	E	
-5 -20	F	
-15 +5	N	

Capacitance code

Cap (μF)	Code		
	7	8	9
0.10	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1	0	1	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1000	1	0	2
2200	2	2	2
3300	3	3	2
4700	4	7	2
6800	6	8	2
10000	1	0	3
22000	2	2	3
33000	3	3	3
68000	6	8	3

Series code

Series name	Code	
	2	3
WH	W	H
CD11GE	G	E
CD11GES	G	X
CD11GAS	G	W
CD11GHS	G	S
NR	N	R

Size code

D (mm)	Code	L (mm)	Code
			11 12
4	C	5	0 5
5	D	7	0 7
6.3	E	11	1 1
8	F	12	1 2
10	G	16	1 6
11	H	20	2 0
12	J	25	2 5
12.5	W	30	3 0
13	K	35	3 5
14	X	40	4 0
16	L	46	4 6
18	M	50	5 0
19	Z	60	6 0
20	N	80	8 0
22	O	100	A 0
25	P	115	B 5
30	Q	120	C 0
35	R	130	D 0
40	Y	140	E 0
51.6	S	160	G 0
64.3	T	200	K 0
76.9	U	220	M 0
91	V	236	N 6
100	A	250	P 0

Terminal code

Specification	Code		
	13	14	15
Bulk packing	O	-	-
4-8 Taping F=5.0mm	P	5	0
10-12.5 Taping F=5.0mm	B	5	0
Lead Cut L=3.5mm	C	3	5
Lead Cut L=11.0mm	C	B	0
Lead Forming Cut L=4.5mm	F	-	-
Kink&Cut L=4.5mm	J	-	-
Snap-in type Terminal 4.0mm in length	K	-	-
Three Terminal	T	-	-
Ring clip mounting standard design	A	0	0
Ring clip mounting special design	S	-	-

Sleeve/Marking code

Sleeve/Marking	Code
PVC	C
PET	T
Dark blue	B
Bright red	R
Sky-blue	S
Light blue	T
Pink	Z
Black	H
Purple-blue	V
Red	O

Lead Forming

Taping Specifications (Unit: mm)

Fig.1 code: X

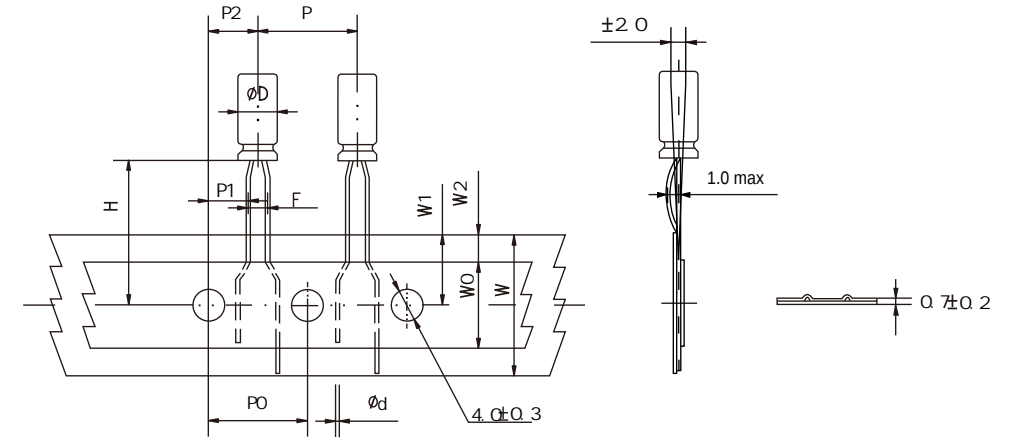


Fig.2 code: B

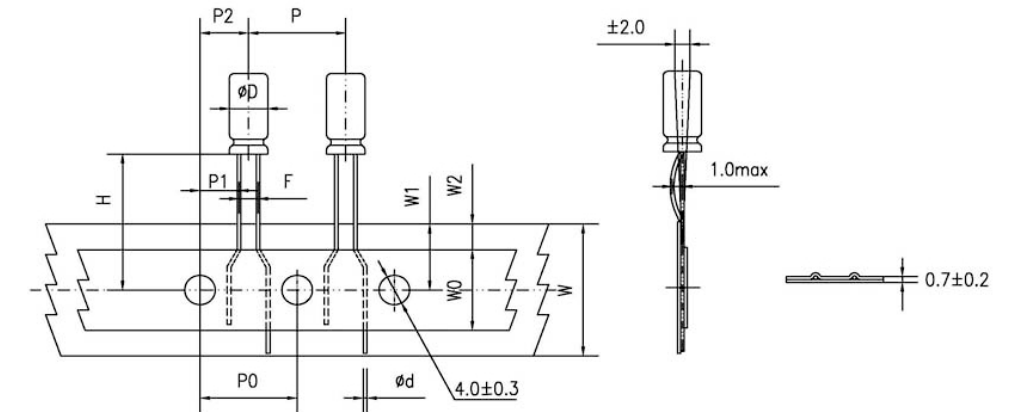


Fig.3 code: B

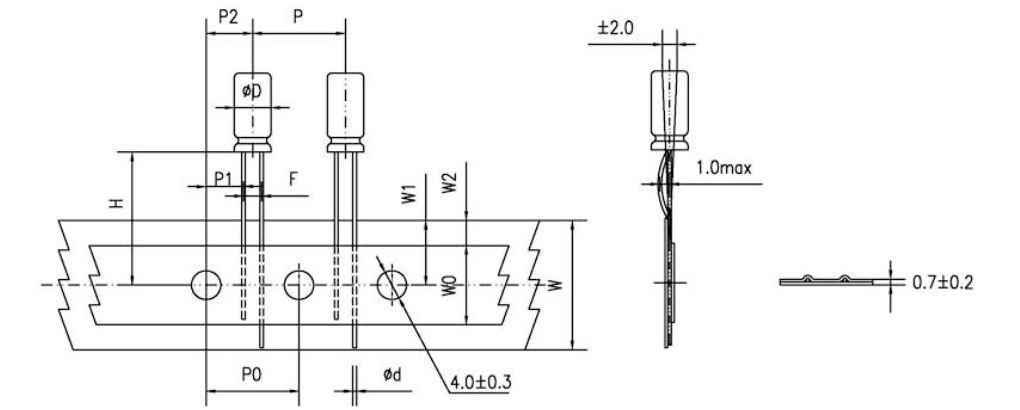
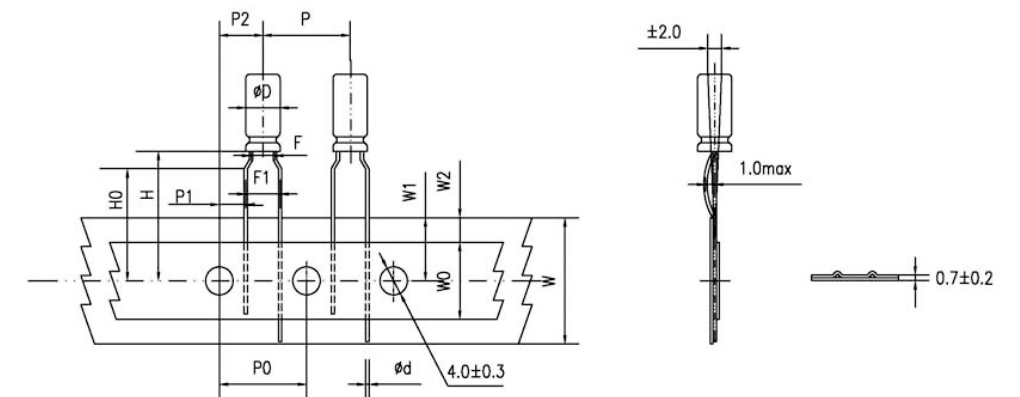


Fig.4 code: P





Lead Forming

Specification Fig.1 & Fig.2 & Fig.3

(mm)

Items	Symbol	Case size										Tolerance		
		4x5 4x7		5x5 5x7		5x11		6.3x5	6.3x7 6.3x9 6.3x11 6.3x12	8x5/7 8x9/11 8x11.5 8x12	8x16 8x20		10x9 10x12 10x13/16 10x20/25	12.5x16 12.5x20 13x20
Pin Code		X	B	X	B	X	B	B	B	B	B	B	B	
Lead wire diameter	d	0.45		0.45		0.5		0.45	0.5	0.5	0.5/0.6	0.6	0.6	±0.05
Pitch of body	P	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	15	±1.0
Feed hole pitch	P0	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	15	±0.2
Distance from hole center to lead	P1	5.1	5.6	5.1	5.35	5.1	5.35	5.1	5.1	4.6	4.6	3.85	5.0	±0.7
Distance from feed hole center to body center	P2	6.35		6.35		6.35		6.35	6.35	6.35	6.35	7.5	±1.0	
Lead-to-lead distance	F	2.5	1.5	2.5	2.0	2.5	2.0	2.5	2.5	3.5	3.5	5.0	5.0	±0.5
Height of body from tape center	H	18.5		18.5		18.5		18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Base tape width	W	18.0		18.0		18.0		18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0		6.0		6.0		6.0	8.0	8.0	8.0	11.0	11.0	min
Hole position	W1	9.0		9.0		9.0		9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Hole down tape position	W2	1.5		1.5		1.5		1.5	1.5	1.5	1.5	1.5	1.5	max

Specification Fig.4

(mm)

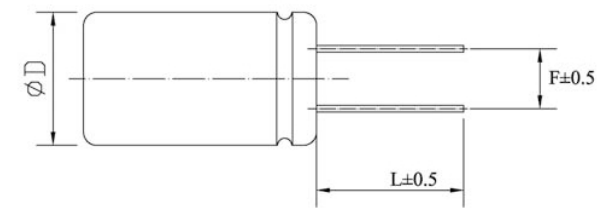
Items	Symbol	Case size									Tolerance	
		4x5 4x7	5x5	5x7	5x11	6.3x5	6.3x7 6.3x9	6.3x11 6.3x12	8x5/7 8x9/11 8x11.5/12	8x16 8x20		
Pin Code		P	P	P	P	P	P	P	P	P		
Lead wire diameter	d	0.45		0.45		0.45		0.5	0.45	0.5	0.5/0.6	±0.05
Pitch of body	P	12.7		12.7		12.7		12.7	12.7	12.7	12.7	±1.0
Feed hole pitch	P0	12.7		12.7		12.7		12.7	12.7	12.7	12.7	±0.2
Distance from hole center to lead	P1	3.85		3.85		3.85		3.85	3.85	3.85	3.85	±0.7
Distance from feed hole center to body center	P2	6.35		6.35		6.35		6.35	6.35	6.35	6.35	±1.0
Lead-to-lead distance	F	1.5	2.0	2.0	2.0	2.5	2.5	2.5	3.5	3.5	3.5	±0.5
Lead to lead distance	F1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	±0.5
Height of body from tape center	H	18.5		18.5		18.5		18.5	18.5	18.5	18.5	±0.75
Lead wire clinch height	H0	16.0		16.0		16.0		16.0	16.0	16.0	16.0	±0.5
Base tape width	W	18.0		18.0		18.0		18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0		6.0		6.0		6.0	6.0	8.0	8.0	min
Hole position	W1	9.0		9.0		9.0		9.0	9.0	9.0	9.0	+0.75 -0.5
Hole down tape position	W2	1.5		1.5		1.5		1.5	1.5	1.5	1.5	max

Lead Forming

Lead Forming & Cut

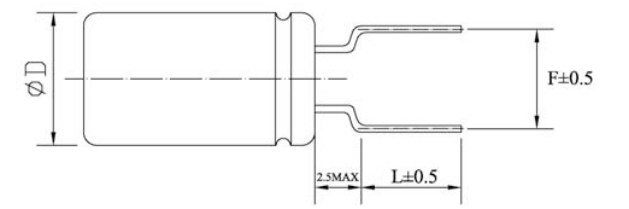
Code:C

RANGE: 4~ 18



Code:F

RANGE: 4~ 8



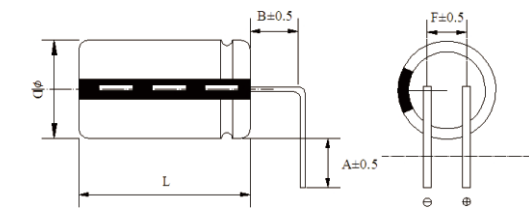
(mm)

D	F	L	D	F	L
4	1.5	3.0~12.0	4	5.0	3.5, 4.5, 5.0, 7.0
5	2.0	3.0~12.0	5	5.0	3.5, 4.5, 5.0, 7.0
6.3	2.5	3.0~12.0	6.3	5.0	3.5, 4.5, 5.0, 7.0
8	3.5	3.0~12.0	8	5.0	3.5, 4.5, 5.0, 7.0
10	5.0	3.0~12.0	-	-	-
12.5	5.0	3.0~12.0	-	-	-
16	7.5	3.0~12.0	-	-	-
18	7.5	3.0~12.0	-	-	-

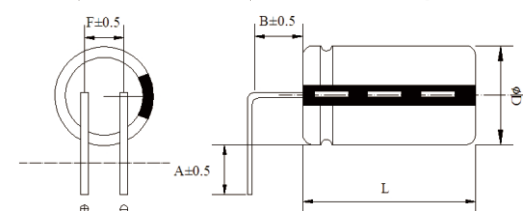
Code:R/L

RANGE: 10~ 18

Right horizontal forming



Left horizontal forming

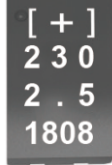


(mm)

D	F	A	B
10~12.5	5.0	2.5, 3.0, 3.5, 4.0, 4.5, 5.0	1.5, 2.5
16~18	7.5	2.5, 3.0, 3.5, 4.0, 4.5, 5.0	1.5, 2.5

# A1 series

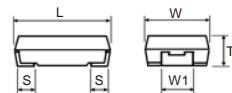
- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- RoHS Compliant and lead-free



## SPECIFICATIONS

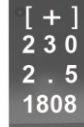
Items	Characteristics
Category Temperature Range	-55~+105°C
Rated Working Voltage Range	2~25 Vdc
Nominal Capacitance Range	2.2~470µF
Capacitance Tolerance	±20%(M) -35%~+10%(L) (at 20°C,120Hz)
DC Leakage Current	I ≤ 0.1CV Where, I: Leakage current (µA), C:Nominal capacitance (µF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc) 2 2.5 4 6.3 7.5 10 12.5 16 20 25
	Dissipation Factor (max.) 0.06 0.10 (at 20°C,120Hz)
ESR(100kHz, 20°C)	Value in characteristics table
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.
	Appearance No significant damage
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value
	ESR 150% of the initial specified value
Humidity Test	After subjecting to 90%~95% RH for 500 hours at 60°C(no voltage), the capacitors shall meet the requirement as Endurance.
	Rated Voltage(Vdc) 2~2.5 4 6.3~7.5 8~16 25
	Capacitance Change +70,-20% +60,-20% +50,-20% +40,-20%
	D.F. (tan δ) 200% of the initial specified value
	Leakage Current The initial specified value
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.
	Appearance No significant damage
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value
	ESR 150% of the initial specified value
Leakage Current The initial specified value	

## DIMENSIONS[mm]



Case Size	L±0.3(mm)	W±0.2(mm)	T±0.1(mm)	W1±0.2(mm)	S±0.2(mm)
7.3x4.3x1.9	7.3	4.3	1.9	2.4	1.3

## MARKING



## PART NUMBERING SYSTEM



- Special code
- Terminal code
- Size code
- Capacitance code
- Capacitance tolerance code
- Voltage code
- Series code
- Category code

# A1 series

## STANDARD RATINGS

VV (Vdc)	Cap (µF)	Size (LxWxT mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms)100kHz	Leakage Current (µA max.)20°C	Part Number	
2	68	7.3x4.3x1.9	40	1800	13.6	SA10BM680A19R40XXX	
	100	7.3x4.3x1.9	16	2000	20	SA10BM101A19R16XXX	
	150	7.3x4.3x1.9	9	3000	30	SA10BM151A19R09XXX	
	220	7.3x4.3x1.9	9	3000	44	SA10BM221A19R09XXX	
	220	7.3x4.3x1.9	9	3000	44	SA10BL221A19R09XXX	
	270	7.3x4.3x1.9	9	3500	54	SA10BM271A19R09XXX	
	300	7.3x4.3x1.9	9	3500	60	SA10BM301A19R09XXX	
	330	7.3x4.3x1.9	6	3500	66	SA10BM331A19R06XXX	
	330	7.3x4.3x1.9	7	3500	66	SA10BM331A19R07XXX	
	330	7.3x4.3x1.9	9	3500	66	SA10BM331A19R09XXX	
	330	7.3x4.3x1.9	7	3500	66	SA10BL331A19R07XXX	
	330	7.3x4.3x1.9	9	3500	198	SA10BL331A19R0935X	
	330	7.3x4.3x1.9	9	5400	66	SA10BL331A19R0954X	
	330	7.3x4.3x1.9	9	3500	66	SA10BL331A19R09XXX	
	470	7.3x4.3x1.9	4.5	3500	94	SA10BM471A19R04XXX	
	470	7.3x4.3x1.9	6	3500	94	SA10BM471A19R06XXX	
	470	7.3x4.3x1.9	9	3500	94	SA10BM471A19R09XXX	
	2.5	47	7.3x4.3x1.9	40	1800	11.75	SA10EM470A19R40XXX
100		7.3x4.3x1.9	16	2000	25	SA10EM101A19R16XXX	
150		7.3x4.3x1.9	9	3000	37.5	SA10EM151A19R09XXX	
180		7.3x4.3x1.9	9	3000	45	SA10EM181A19R09XXX	
220		7.3x4.3x1.9	9	3000	55	SA10EM221A19R09XXX	
220		7.3x4.3x1.9	9	3000	55	SA10EL221A19R0930X	
220		7.3x4.3x1.9	9	3000	55	SA10EL221A19R09XXX	
270		7.3x4.3x1.9	9	3500	67.5	SA10EM271A19R09XXX	
330		7.3x4.3x1.9	4.5	3500	82.5	SA10EM331A19R04XXX	
330		7.3x4.3x1.9	7	3500	82.5	SA10EM331A19R07XXX	
330		7.3x4.3x1.9	9	3500	82.5	SA10EM331A19R09XXX	
470		7.3x4.3x1.9	4.5	3500	117.5	SA10EM471A19R04XXX	
470		7.3x4.3x1.9	6	3500	117.5	SA10EM471A19R06XXX	
4		68	7.3x4.3x1.9	20	1900	27.2	SA10GM680A19R20XXX
		82	7.3x4.3x1.9	16	2100	32.8	SA10GM820A19R16XXX
	120	7.3x4.3x1.9	16	2100	48	SA10GM121A19R16XXX	
	150	7.3x4.3x1.9	16	2100	60	SA10GM151A19R16XXX	
	6.3	4.7	7.3x4.3x1.9	120	1000	2.96	SA10JM47R7A19RA2XXX
10		7.3x4.3x1.9	55	1000	6.3	SA10JM100A19R55XXX	
22		7.3x4.3x1.9	45	1000	13.9	SA10JM220A19R45XXX	
22		7.3x4.3x1.9	80	1000	13.86	SA10JM220A19R80XXX	
33		7.3x4.3x1.9	80	1800	20.79	SA10JM330A19R80XXX	
47		7.3x4.3x1.9	25	1800	29.61	SA10JM470A19R25XXX	
47		7.3x4.3x1.9	35	1800	29.61	SA10JM470A19R35XXX	
47		7.3x4.3x1.9	40	1800	29.61	SA10JM470A19R40XXX	
68		7.3x4.3x1.9	15	2000	42.84	SA10JM680A19R15XXX	
100		7.3x4.3x1.9	15	2000	63	SA10JM101A19R15XXX	
100		7.3x4.3x1.9	20	1900	63	SA10JM101A19R20XXX	
120		7.3x4.3x1.9	10	3000	75.6	SA10JM121A19R10XXX	
150		7.3x4.3x1.9	10	3000	94.5	SA10JM151A19R10XXX	

# A1 series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size (LxWxT mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms) 100kHz	Leakage Current (μA max.) 20°C	Part Number
6.3	150	7.3x4.3x1.9	15	3000	94.5	SA10JM151A19R15XXX
	180	7.3x4.3x1.9	15	3000	113.4	SA10JM181A19R15XXX
	220	7.3x4.3x1.9	10	3000	138.6	SA10JM221A19R10XXX
	220	7.3x4.3x1.9	15	3000	138.6	SA10JM221A19R1530X
	220	7.3x4.3x1.9	15	3000	138.6	SA10JL221A19R15XXX
	220	7.3x4.3x1.9	15	3000	138.6	SA10JL221A19R1530X
	220	7.3x4.3x1.9	15	3000	138.6	SA10JM221A19R15XXX
10	10	7.3x4.3x1.9	55	1000	10	SA11AM100A19R55XXX
	22	7.3x4.3x1.9	120	1600	22	SA11AM220A19RA2XXX
	27	7.3x4.3x1.9	80	1000	27	SA11AM270A19R80XXX
	33	7.3x4.3x1.9	25	1800	33	SA11AM330A19R25XXX
	39	7.3x4.3x1.9	25	1800	39	SA11AM390A19R25XXX
	47	7.3x4.3x1.9	40	1800	47	SA11AM470A19R40XXX
	68	7.3x4.3x1.9	40	1800	68	SA11AM680A19R40XXX
	100	7.3x4.3x1.9	15	2500	100	SA11AM101A19R15XXX
	100	7.3x4.3x1.9	40	2500	100	SA11AM101A19R40XXX
	16	4.7	7.3x4.3x1.9	120	1000	7.52
6.8		7.3x4.3x1.9	70	1000	10.88	SA11CM6R8A19R70XXX
10		7.3x4.3x1.9	60	1000	16	SA11CM100A19R60XXX
15		7.3x4.3x1.9	40	1000	24	SA11CM150A19R40XXX
22		7.3x4.3x1.9	30	1600	35.2	SA11CM220A19R30XXX
22		7.3x4.3x1.9	60	1400	35.2	SA11CM220A19R60XXX
33		7.3x4.3x1.9	80	1400	52.8	SA11CM330A19R80XXX
47		7.3x4.3x1.9	55	1400	75.2	SA11CM470A19R55XXX
25	2.2	7.3x4.3x1.9	350	800	5.5	SA11EM2R2A19RC0XXX
	4.7	7.3x4.3x1.9	120	1000	11.75	SA11EM4R7A19RA2XXX
	6.8	7.3x4.3x1.9	80	1000	17	SA11EM6R8A19R80XXX
	10	7.3x4.3x1.9	35	1000	25	SA11EM100A19R35XXX
	10	7.3x4.3x1.9	60	1400	25	SA11EM100A19R60XXX
	10	7.3x4.3x1.9	80	1400	25	SA11EM100A19R80XXX
	15	7.3x4.3x1.9	60	1400	37.5	SA11EM150A19R60XXX
	22	7.3x4.3x1.9	60	1400	55	SA11EM220A19R60XXX
	33	7.3x4.3x1.9	40	1400	82.5	SA11EM330A19R40XXX
	33	7.3x4.3x1.9	60	1400	82.5	SA11EM330A19R60XXX
	33	7.3x4.3x1.9	80	1400	82.5	SA11EM330A19R8014X
	33	7.3x4.3x1.9	80	1400	82.5	SA11EM330A19R80XXX

Specifications may be subject to change without notice.

# A2 series

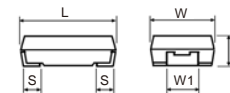
- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- RoHS Compliant and lead-free

[ + ]  
230  
2.5  
1808

SPECIFICATIONS

Items	Characteristics											
Category Temperature Range	-55~+105°C											
Rated Working Voltage Range	2~16V <sub>dc</sub>											
Nominal Capacitance Range	6.8~470μF											
Capacitance Tolerance	±20%(M) -35%~+10%(L) (at 20°C, 120Hz)											
DC Leakage Current	I ≤ 0.1CV (at 20°C after 2 minutes) Where, I: Leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V)											
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2	2.5	4	6.3	7.5	10	12.5	16	20	25	
	Dissipation Factor (max.)	0.06					0.10					(at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table											
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25											
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.											
	Appearance	No significant damage										
	Capacitance Change	±20% of the initial value										
	Dissipation Factor	150% of the initial specified value										
	ESR	150% of the initial specified value										
	Leakage Current	The initial specified value										
Humidity Test	After subjecting to 90%~95% RH for 500 hours at 60°C (no voltage), the capacitors shall meet the requirement as Endurance.											
	Rated Voltage(V <sub>dc</sub> )	2~2.5	4	6.3~7.5	8~16	25						
	Capacitance Change	+70,-20%	+60,-20%	+50,-20%	+40,-20%							
	D.F. (tan δ)	200% of the initial specified value										
	Leakage Current	The initial specified value										
	Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.										
Appearance		No significant damage										
Capacitance Change		±20% of the initial value										
Dissipation Factor		150% of the initial specified value										
ESR		150% of the initial specified value										
Leakage Current		The initial specified value										

DIMENSIONS[mm]

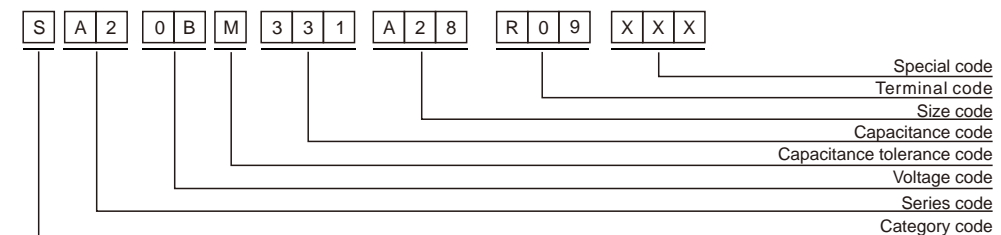


Case Size	L±0.3(mm)	W±0.2(mm)	T±0.1(mm)	W1±0.2(mm)	S±0.2(mm)
7.3x4.3x2.8	7.3	4.3	2.8	2.4	1.3

MARKING

[ + ]  
230  
2.5  
1808

PART NUMBERING SYSTEM



Conductive Polymer Multilayer Type

# A2 series

STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size (LxWxT mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms) 100kHz	Leakage Current (µA max) 20°C	Part Number
2	100	7.3x4.3x2.8	16	2000	20	SA20BM101A28R16XXX
	150	7.3x4.3x2.8	9	3000	30	SA20BM151A28R09XXX
	220	7.3x4.3x2.8	9	3000	44	SA20BM221A28R09XXX
	270	7.3x4.3x2.8	9	3500	54	SA20BM271A28R09XXX
	330	7.3x4.3x2.8	9	3500	66	SA20BM331A28R09XXX
	470	7.3x4.3x2.8	9	3500	94	SA20BM471A28R09XXX
2.5	100	7.3x4.3x2.8	16	2000	25	SA20EM101A28R16XXX
	150	7.3x4.3x2.8	9	3000	37.5	SA20EM151A28R09XXX
	180	7.3x4.3x2.8	12	2500	45	SA20EM181A28R12XXX
	220	7.3x4.3x2.8	10	3000	55	SA20EM221A28R10XXX
	270	7.3x4.3x2.8	9	3500	67.5	SA20EM271A28R09XXX
	330	7.3x4.3x2.8	7	3500	82.5	SA20EM331A28R07XXX
	330	7.3x4.3x2.8	9	3500	82.5	SA20EM331A28R09XXX
	470	7.3x4.3x2.8	4.5	3500	117.5	SA20EM471A28R04XXX
	470	7.3x4.3x2.8	6	3500	117.5	SA20EM471A28R06XXX
	470	7.3x4.3x2.8	9	3500	117.5	SA20EM471A28R09XXX
4	68	7.3x4.3x2.8	20	1900	27.2	SA20GM680A28R20XXX
	82	7.3x4.3x2.8	16	2100	32.8	SA20GM820A28R16XXX
	150	7.3x4.3x2.8	18	2100	60	SA20GM151A28R18XXX
6.3	10	7.3x4.3x2.8	55	1000	6.3	SA20JM100A28R55XXX
	22	7.3x4.3x2.8	45	1000	13.86	SA20JM220A28R45XXX
	33	7.3x4.3x2.8	25	1800	20.79	SA20JM330A28R25XXX
	47	7.3x4.3x2.8	25	1800	29.61	SA20JM470A28R25XXX
	68	7.3x4.3x2.8	15	2000	42.84	SA20JM680A28R15XXX
	100	7.3x4.3x2.8	15	2000	63	SA20JM101A28R15XXX
	150	7.3x4.3x2.8	10	3000	94.5	SA20JM151A28R10XXX
	150	7.3x4.3x2.8	15	3000	94.5	SA20JM151A28R15XXX
	220	7.3x4.3x2.8	10	3000	138.6	SA20JM221A28R10XXX
	220	7.3x4.3x2.8	15	3000	138.6	SA20JM221A28R15XXX
10	10	7.3x4.3x2.8	55	1000	10	SA21AM100A28R55XXX
	22	7.3x4.3x2.8	28	1600	22	SA21AM220A28R28XXX
	33	7.3x4.3x2.8	25	1800	33	SA21AM330A28R25XXX
	68	7.3x4.3x2.8	15	2000	68	SA21AM680A28R15XXX
	100	7.3x4.3x2.8	15	2500	100	SA21AM101A28R15XXX
	100	7.3x4.3x2.8	40	2500	100	SA21AM101A28R40XXX
16	6.8	7.3x4.3x2.8	70	1000	10.88	SA21CM6R8A28R70XXX
	10	7.3x4.3x2.8	60	1000	16	SA21CM100A28R60XXX
	15	7.3x4.3x2.8	40	1000	24	SA21CM150A28R40XXX
	22	7.3x4.3x2.8	30	1600	35.2	SA21CM220A28R30XXX
	22	7.3x4.3x2.8	60	1400	35.2	SA21CM220A28R60XXX
	33	7.3x4.3x2.8	30	1600	52.8	SA21CM330A28R30XXX
47	7.3x4.3x2.8	30	1600	75.2	SA21CM470A28R30XXX	

Specifications may be subject to change without notice.

# PZ series

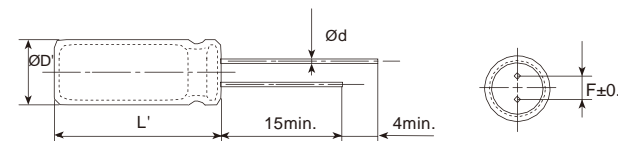
- Endurance: +105°C 2,000 hours
- Standard substance
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- RoHS Compliant and lead-free



SPECIFICATIONS

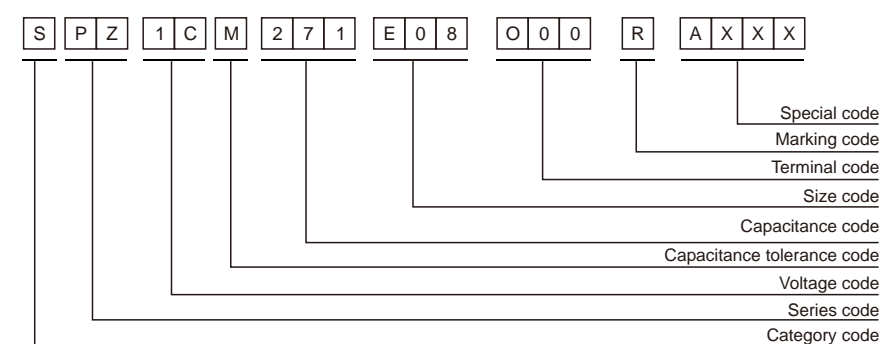
Items	Characteristics
Category Temperature Range	-55~+105°C
Rated Working Voltage Range	6.3~125 Vdc
Nominal Capacitance Range	4.7~5600µF
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
DC Leakage Current	I ≤ 0.2CV or 500µA, whichever is greater. Where, I: Max. leakage current (µA), C: Nominal capacitance (µF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc) 6.3 6.8 7 7.5 10 12 16 20 25 35 50 63 80 100 125 (at 20°C, 120Hz)
	Dissipation Factor (Max.) 0.08 0.12 0.15
ESR(100kHz, 20°C)	Value in characteristics table
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.
	Appearance No significant damage
	Capacitance Change ±20% of the initial value
	Dissipation Factor(tan δ) 150% of the initial specified value
	ESR 150% of the initial specified value
Humidity Test	After subjecting 90 ~ 95% RH for 2,000 hours at 60°C. no voltage, The capacitors shall meet the requirements as Endurance.
	Leakage Current The initial specified value
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.
	Appearance No significant damage
	Capacitance Change ±20% of the initial value
	Dissipation Factor(tan δ) 150% of the initial specified value
	ESR 150% of the initial specified value
Leakage Current The initial specified value	

DIMENSIONS[mm]



	5	5.5	6.3	8	10
øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~+0.5		øD-0.3~+0.3		øD-0.1~+0.5
L'	L+1.0max.				L-0.5~+1

PART NUMBERING SYSTEM



Conductive Polymer Radial Type



**PZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxDL (mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA) (max.)	Part Number	
6.3	100	5x7	30	1800	500	SPZ0JM101D07000RAXXX	
	220	5x7	20	3500	500	SPZ0JM221D07000RAXXX	
	220	6.3x7	20	3900	500	SPZ0JM221E07000RAXXX	
	270	5x7	20	3800	500	SPZ0JM271D07000RAXXX	
	330	5x8	20	4000	500	SPZ0JM331D08000RAXXX	
	330	6.3x5	25	3160	500	SPZ0JM331E05000RAXXX	
	330	6.3x8	15	4000	500	SPZ0JM331E08000RAXXX	
	390	5x9	20	4100	500	SPZ0JM391D09000RAXXX	
	470	5x10	20	4300	592	SPZ0JM471D10000RAXXX	
	470	5.5x9	20	4100	592	SPZ0JM471B09000RAXXX	
	470	6.3x8	15	4400	592	SPZ0JM471E08000RAXXX	
	500	5x9	20	4100	630	SPZ0JM501D09000RAXXX	
	560	5.5x9	20	4300	706	SPZ0JM561B09000RAXXX	
	560	6.3x8	20	4800	706	SPZ0JM561E08000RAXXX	
	680	5.5x9	20	4800	857	SPZ0JM681B09000RAXXX	
	680	6.3x9	20	5080	857	SPZ0JM681E09000RAXXX	
	680	8x9	20	4600	857	SPZ0JM681F09000RAXXX	
	820	5.5x12	20	5000	1033	SPZ0JM821B12000RAXXX	
	820	6.3x9	20	5080	1033	SPZ0JM821E09000RAXXX	
	1000	6.3x10	10	5150	1260	SPZ0JM102E10000RAXXX	
	1000	8x11	10	5200	1260	SPZ0JM102F11000RAXXX	
	1200	6.3x11	10	5200	1512	SPZ0JM122E11000RAXXX	
	1200	8x11	10	5300	1512	SPZ0JM122F11000RAXXX	
	1500	8x11	10	5400	1890	SPZ0JM152F11000RAXXX	
	1500	10x12	10	5500	1890	SPZ0JM152G12000RAXXX	
	1800	10x10	10	5560	2268	SPZ0JM182G10000RAXXX	
	2200	8x14	10	5700	2772	SPZ0JM222F14000RAXXX	
	2200	10x12	10	5800	2772	SPZ0JM222G12000RAXXX	
	3300	10x14	10	5900	4158	SPZ0JM332G14000RAXXX	
	4700	10x17	10	6100	5000	SPZ0JM472G17000RAXXX	
5600	10x18	10	6300	5000	SPZ0JM562G18000RAXXX		
6.8	220	5x7	20	3300	500	SPZ0CM221D07000RAXXX	
	270	5x7	20	3600	500	SPZ0CM271D07000RAXXX	
	270	6.3x8	20	3900	500	SPZ0CM271E08000RAXXX	
	330	5x8	20	3800	500	SPZ0CM331D08000RAXXX	
	330	6.3x5	25	3100	500	SPZ0CM331E05000RAXXX	
	390	5x9	20	3900	530	SPZ0CM391D09000RAXXX	
	470	5x9	20	4100	639	SPZ0CM471D09000RAXXX	
	470	6.3x7	20	3700	639	SPZ0CM471E07000RAXXX	
	560	6.3x8	20	4500	762	SPZ0CM561E08000RAXXX	
	680	6.3x9	20	4800	925	SPZ0CM681E09000RAXXX	
	820	6.3x9	20	4900	1115	SPZ0CM821E09000RAXXX	
	1000	6.3x11	12	5100	1360	SPZ0CM102E11000RAXXX	
	1000	8x11	10	5150	1360	SPZ0CM102F11000RAXXX	
	7	220	5x7	20	3200	500	SPZ0QM221D07000RAXXX
		270	5x8	20	3400	500	SPZ0QM271D08000RAXXX
330		5x9	20	3600	500	SPZ0QM331D09000RAXXX	
470		5.5x9	20	3600	658	SPZ0QM471B09000RAXXX	
470		6.3x8	20	3800	658	SPZ0QM471E08000RAXXX	
560		6.3x8	20	4000	784	SPZ0QM561E08000RAXXX	
680		6.3x9	12	4200	952	SPZ0QM681E09000RAXXX	
820		6.3x10	12	4500	1148	SPZ0QM821E10000RAXXX	
820		8x9	12	4600	1148	SPZ0QM821F09000RAXXX	
7.5		220	5x7	20	3100	500	SPZ0AM221D07000RAXXX
	270	5x8	20	3300	500	SPZ0AM271D08000RAXXX	
	330	5x8	20	3500	500	SPZ0AM331D08000RAXXX	
	390	5x9	20	3500	585	SPZ0AM391D09000RAXXX	
	470	5x9	20	3550	705	SPZ0AM471D09000RAXXX	
	470	5.5x9	20	3550	705	SPZ0AM471B09000RAXXX	
	470	6.3x7	25	3200	705	SPZ0AM471E07000RAXXX	
	500	5.5x9	20	3600	750	SPZ0AM501B09000RAXXX	
	560	6.3x8	20	3900	840	SPZ0AM561E08000RAXXX	
	680	6.3x9	12	4100	1020	SPZ0AM681E09000RAXXX	
	820	6.3x10	12	4400	1230	SPZ0AM821E10000RAXXX	
	820	8x9	12	4550	1230	SPZ0AM821F09000RAXXX	
	1000	6.3x11	12	4500	1500	SPZ0AM102E11000RAXXX	
	1000	8x11	12	4700	1500	SPZ0AM102F11000RAXXX	
	1200	8x11	12	4800	1800	SPZ0AM122F11000RAXXX	
1500	8x11	12	4900	2250	SPZ0AM152F11000RAXXX		
1800	8x14	12	5100	2700	SPZ0AM182F14000RAXXX		
2200	10x12	12	5700	3300	SPZ0AM222G12000RAXXX		
10	47	5x7	35	2200	500	SPZ1AM470D07000RAXXX	
	56	5x7	35	2250	500	SPZ1AM560D07000RAXXX	
	68	5x7	35	2300	500	SPZ1AM680D07000RAXXX	
	82	5x7	35	2350	500	SPZ1AM820D07000RAXXX	
	100	5x7	35	2400	500	SPZ1AM101D07000RAXXX	
	100	6.3x5	30	2300	500	SPZ1AM101E05000RAXXX	
	120	5x7	20	2450	500	SPZ1AM121D07000RAXXX	
	150	5x7	20	2500	500	SPZ1AM151D07000RAXXX	
	180	5x8	20	2700	500	SPZ1AM181D08000RAXXX	
	180	6.3x7	20	2800	500	SPZ1AM181E07000RAXXX	
	220	5x9	20	2820	500	SPZ1AM221D09000RAXXX	
	220	6.3x5	25	2800	500	SPZ1AM221E05000RAXXX	
	220	6.3x8	15	3160	500	SPZ1AM221E08000RAXXX	
	270	6.3x8	20	3100	540	SPZ1AM271E08000RAXXX	
	330	6.3x8	20	3300	660	SPZ1AM331E08000RAXXX	
330	8x9	15	3400	660	SPZ1AM331F09000RAXXX		
390	6.3x8	20	3400	780	SPZ1AM391E08000RAXXX		
470	5.5x9	20	3400	940	SPZ1AM471B09000RAXXX		
470	6.3x8	20	3500	940	SPZ1AM471E08000RAXXX		

**PZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxDL (mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA) (max.)	Part Number	
10	470	8x9	15	3550	940	SPZ1AM471F09000RAXXX	
	560	6.3x10	13	3600	1120	SPZ1AM561E10000RAXXX	
	560	8x9	15	3600	1120	SPZ1AM561F09000RAXXX	
	680	8x11	12	3900	1360	SPZ1AM681F11000RAXXX	
	820	8x11	12	4000	1640	SPZ1AM821F11000RAXXX	
	1000	8x11	12	4200	2000	SPZ1AM102F11000RAXXX	
	1000	10x12	10	5300	2000	SPZ1AM102G12000RAXXX	
	1200	10x12	10	5450	2400	SPZ1AM122G12000RAXXX	
	1500	8x14	10	4800	3000	SPZ1AM152F14000RAXXX	
	1500	10x12	10	5500	3000	SPZ1AM152G12000RAXXX	
	1800	10x13	10	5800	3600	SPZ1AM182G13000RAXXX	
	2200	10x15	10	6100	4400	SPZ1AM222G15000RAXXX	
	3300	10x18	10	6200	5000	SPZ1AM332G18000RAXXX	
	12	330	5.5x9	20	3100	792	SPZ1TM331B09000RAXXX
		330	6.3x8	20	3100	792	SPZ1TM331E08000RAXXX
470		5.5x9	20	3200	1128	SPZ1TM471B09000RAXXX	
470		6.3x9	20	3450	1128	SPZ1TM471E09000RAXXX	
560		6.3x10	15	3400	1344	SPZ1TM561E10000RAXXX	
680		6.3x11	15	3600	1632	SPZ1TM681E11000RAXXX	
820		8x11	12	3800	1968	SPZ1TM821F11000RAXXX	
1000		8x12	12	4000	2400	SPZ1TM102F12000RAXXX	
1200		8x14	12	4400	2880	SPZ1TM122F14000RAXXX	
1500		8x16	12	4800	3600	SPZ1TM152F16000RAXXX	
16	22	5x9	80	1600	500	SPZ1CM220D09000RAXXX	
	47	5x7	20	2050	500	SPZ1CM470D07000RAXXX	
	56	5x7	20	2100	500	SPZ1CM560D07000RAXXX	
	68	5x7	20	2150	500	SPZ1CM680D07000RAXXX	
	82	5x8	20	2200	500	SPZ1CM820D08000RAXXX	
	100	5x7	20	2250	500	SPZ1CM101D07000RAXXX	
	100	6.3x5	25	2100	500	SPZ1CM101E05000RAXXX	
	100	6.3x8	20	2800	500	SPZ1CM101E08000RAXXX	
	120	5x8	20	2350	500	SPZ1CM121D08000RAXXX	
	150	5x8	20	2400	500	SPZ1CM151D08000RAXXX	
	180	5x8	20	2450	576	SPZ1CM181D08000RAXXX	
	180	6.3x7	16	2500	576	SPZ1CM181E07000RAXXX	
	220	5x10	20	2600	704	SPZ1CM221D10000RAXXX	
	220	6.3x8	20	2700	704	SPZ1CM221E08000RAXXX	
	220	6.3x10	15	2900	704	SPZ1CM221E10000RAXXX	
20	270	5.5x9	20	2750	864	SPZ1CM271B09000RAXXX	
	270	6.3x8	20	2800	864	SPZ1CM271E08000RAXXX	
	270	8x9	20	2900	864	SPZ1CM271F09000RAXXX	
	330	5.5x9	20	2900	1056	SPZ1CM331B09000RAXXX	
	330	6.3x9	20	2900	1056	SPZ1CM331E09000RAXXX	
	470	5.5x11	20	3100	1504	SPZ1CM471B11000RAXXX	
	470	6.3x11	15	3200	1504	SPZ1CM471E11000RAXXX	
	470	8x11	11	4600	1504	SPZ1CM471F11000RAXXX	
	560	8x11	11	3200	1792	SPZ1CM561F11000RAXXX	
	560	8x13	15	3300	1792	SPZ1CM561F13000RAXXX	
	560	10x12	11	3500	1792	SPZ1CM561G12000RAXXX	
	680	8x11	15	3400	2176	SPZ1CM681F11000RAXXX	
	680	10x12	11	3600	2176	SPZ1CM681G12000RAXXX	
	820	8x13	11	3500	2624	SPZ1CM821F13000RAXXX	
	820	10x12	11	3800	2624	SPZ1CM821G12000RAXXX	
1000	8x14	11	3600	3200	SPZ1CM102F14000RAXXX		
1000	10x12	11	4000	3200	SPZ1CM102G12000RAXXX		
1200	10x12	12	4200	3840	SPZ1CM122G12000RAXXX		
1200	10x15	12	4300	3840	SPZ1CM122G15000RAXXX		
1500	10x12	12	4800	4800	SPZ1CM152G12000RAXXX		
1500	10x18	12	4800	4800	SPZ1CM152G18000RAXXX		
1800	10x14	12	5400	5000	SPZ1CM182G14000RAXXX		
2200	10x15	12	5500	5000	SPZ1CM222G15000RAXXX		
2200	10x17	12	5800	5000	SPZ1CM222G17000RAXXX		
25	120	6.3x8	30	2300	500	SPZ1DM121E08000RAXXX	
	150	6.3x10	20	2350	600	SPZ1DM151E10000RAXXX	
	220	8x11	20	2550	880	SPZ1DM221F11000RAXXX	
	270	8x11	20	2700	1080	SPZ1DM271F11000RAXXX	
	330	6.3x10	20	2100	1320	SPZ1DM331E10000RAXXX	
	330	8x11	20	2800	1320	SPZ1DM331F11000RAXXX	
	470	8x11	20	2400	1880	SPZ1DM471F11000RAXXX	
	470	8x16	20	3000	1880	SPZ1DM471F16000RAXXX	
	470	10x12	20	2900	1880	SPZ1DM471G12000RAXXX	
	560	8x16	20	3200	2240	SPZ1DM561F16000RAXXX	
	560	10x12	20	3100	2240	SPZ1DM561G12000RAXXX	
	680	8x14	20	2700	2720	SPZ1DM681F14000RAXXX	
	680	10x15	20	3300	2720	SPZ1DM681G15000RAXXX	
	820	10x18	20	3400	3280	SPZ1DM821G18000RAXXX	
	1000	10x18	20	3900	4000	SPZ1DM102G18000RAXXX	
25	6.8	6.3x5	100	1100	500	SPZ1EM68E05000RAXXX	
	10	5x8	70	1800	500	SPZ1EM100D08000RAXXX	
	22	5x9	60	1810	500	SPZ1EM220D09	



**PZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxDL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number	
25	120	6.3x8	30	2500	600	SPZ1EM121E08000RAXXX	
	150	6.3x10	20	2800	750	SPZ1EM151E10000RAXXX	
	180	6.3x10	20	2800	900	SPZ1EM181E10000RAXXX	
	180	8x9	30	2500	900	SPZ1EM181F09000RAXXX	
	220	5.5x11	20	1900	1100	SPZ1EM221B11000RAXXX	
	220	8x11	20	3000	1100	SPZ1EM221F11000RAXXX	
	220	10x12	20	3500	1100	SPZ1EM221G12000RAXXX	
	270	8x11	20	3000	1350	SPZ1EM271F11000RAXXX	
	330	8x11	20	3100	1650	SPZ1EM331F11000RAXXX	
	330	10x10	25	2800	1650	SPZ1EM331G10000RAXXX	
	330	10x12	20	3800	1650	SPZ1EM331G12000RAXXX	
	470	8x11	20	3000	2350	SPZ1EM471F11000RAXXX	
	470	8x16	20	3400	2350	SPZ1EM471F16000RAXXX	
	470	10x10	25	2800	2350	SPZ1EM471G10000RAXXX	
	470	10x12	20	4000	2350	SPZ1EM471G12000RAXXX	
	560	8x12	20	3100	2800	SPZ1EM561F12000RAXXX	
	560	10x12	20	4000	2800	SPZ1EM561G12000RAXXX	
	680	8x14	20	3400	3400	SPZ1EM681F14000RAXXX	
	680	10x12	20	4100	3400	SPZ1EM681G12000RAXXX	
	680	10x15	20	4300	3400	SPZ1EM681G15000RAXXX	
	820	8x16	20	3600	4100	SPZ1EM821F16000RAXXX	
	820	10x12	20	4100	4100	SPZ1EM821G12000RAXXX	
	820	10x18	20	4500	4100	SPZ1EM821G18000RAXXX	
	1000	10x18	20	4500	5000	SPZ1EM102G18000RAXXX	
	35	4.7	5x8	60	1700	500	SPZ1VM4R7D08000RAXXX
10		5x8	60	1800	500	SPZ1VM100D08000RAXXX	
15		5x8	60	1850	500	SPZ1VM150D08000RAXXX	
22		5x9	100	1950	500	SPZ1VM220D09000RAXXX	
33		5x9	50	2000	500	SPZ1VM330D09000RAXXX	
39		5x9	50	2050	500	SPZ1VM390D09000RAXXX	
47		6.3x7	50	2100	500	SPZ1VM470E07000RAXXX	
56		6.3x7	50	2150	500	SPZ1VM560E07000RAXXX	
68		6.3x7	50	2200	500	SPZ1VM680E07000RAXXX	
82		6.3x7	50	2250	574	SPZ1VM820E07000RAXXX	
100		6.3x8	50	2350	700	SPZ1VM101E08000RAXXX	
100		8x11	40	2600	700	SPZ1VM101F11000RAXXX	
120		6.3x10	40	2500	840	SPZ1VM121E10000RAXXX	
150		6.3x10	40	2550	1050	SPZ1VM151E10000RAXXX	
180		6.3x11	40	2600	1260	SPZ1VM181E11000RAXXX	
220		6.3x11	40	2600	1540	SPZ1VM221E11000RAXXX	
220		8x11	40	2800	1540	SPZ1VM221F11000RAXXX	
220		10x12	30	2900	1540	SPZ1VM221G12000RAXXX	
270		10x12	30	3000	1890	SPZ1VM271G12000RAXXX	
330		10x12	30	3100	2310	SPZ1VM331G12000RAXXX	
470		10x13	20	3290	3290	SPZ1VM471G13000RAXXX	
560		10x14	20	3300	3920	SPZ1VM561G14000RAXXX	
680		10x16	20	3400	4760	SPZ1VM681G16000RAXXX	
820		10x18	20	3500	5000	SPZ1VM821G18000RAXXX	
1000		10x18	20	3700	5000	SPZ1VM102G18000RAXXX	
50	4.7	5x8	60	1600	500	SPZ1HM4R7D08000RAXXX	
	10	5x8	70	1630	500	SPZ1HM100D08000RAXXX	
	15	6.3x7	35	1850	500	SPZ1HM150E07000RAXXX	
	22	5x8	70	1660	500	SPZ1HM150D08000RAXXX	
	22	6.3x7	40	1900	500	SPZ1HM220E07000RAXXX	
	33	6.3x7	40	2000	500	SPZ1HM330E07000RAXXX	
	47	6.3x8	35	2100	500	SPZ1HM470E08000RAXXX	
	56	6.3x8	35	2120	560	SPZ1HM560E08000RAXXX	
	68	6.3x10	30	2150	680	SPZ1HM680E10000RAXXX	
	100	8x9	40	2100	1000	SPZ1HM101F09000RAXXX	
	100	8x11	30	2300	1000	SPZ1HM101F11000RAXXX	
	120	8x11	30	2400	1200	SPZ1HM121F11000RAXXX	
	150	10x12	30	2500	1500	SPZ1HM151G12000RAXXX	
	180	10x12	30	2600	1800	SPZ1HM181G12000RAXXX	
	220	10x12	30	2700	2200	SPZ1HM221G12000RAXXX	
	270	10x13	20	2900	2700	SPZ1HM271G13000RAXXX	
	330	10x15	20	3000	3300	SPZ1HM331G15000RAXXX	
	440	10x18	20	3100	4400	SPZ1HM441G18000RAXXX	
	470	10x18	20	3150	4700	SPZ1HM471G18000RAXXX	
	63	4.7	6.3x8	60	1600	500	SPZ1JM4R7E08000RAXXX
		6.8	6.3x8	60	1650	500	SPZ1JM6R8E08000RAXXX
		10	6.3x5	60	1600	500	SPZ1JM100E05000RAXXX
		33	6.3x8	30	1700	500	SPZ1JM330E08000RAXXX
		39	6.3x8	30	1750	500	SPZ1JM390E08000RAXXX
		47	6.3x9	30	1900	592	SPZ1JM470E09000RAXXX
56		8x9	30	1800	706	SPZ1JM560F09000RAXXX	
68		8x11	30	2000	857	SPZ1JM680F11000RAXXX	
82		8x11	30	2100	1033	SPZ1JM820F11000RAXXX	
100		10x12	30	2200	1260	SPZ1JM101G12000RAXXX	
150		10x12	30	2500	1890	SPZ1JM151G12000RAXXX	
180		10x13	20	2600	2268	SPZ1JM181G13000RAXXX	
220		10x15	20	2650	2772	SPZ1JM221G15000RAXXX	
270		10x17	20	2850	3402	SPZ1JM271G17000RAXXX	
330		10x18	20	2950	4158	SPZ1JM331G18000RAXXX	
80	4.7	6.3x8	60	1500	500	SPZ1BM4R7E08000RAXXX	
	6.8	6.3x8	60	1550	500	SPZ1BM6R8E08000RAXXX	
	22	6.3x10	60	1650	500	SPZ1BM220E10000RAXXX	
	33	8x11	35	1700	528	SPZ1BM330F11000RAXXX	
	47	10x12	35	1850	752	SPZ1BM470G12000RAXXX	

**PZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxDL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number
80	68	10x12	35	1900	1088	SPZ1BM680G12000RAXXX
	100	10x14	35	2100	1600	SPZ1BM101G14000RAXXX
100	4.7	6.3x8	120	1400	500	SPZ1KM4R7E08000RAXXX
	6.8	6.3x8	120	1450	500	SPZ1KM6R8E08000RAXXX
	10	6.3x10	50	1500	500	SPZ1KM100E10000RAXXX
	10	8x11	50	1550	500	SPZ1KM100F11000RAXXX
	15	8x11	50	1550	500	SPZ1KM150F11000RAXXX
	22	10x12	35	1600	500	SPZ1KM220G12000RAXXX
	33	10x14	35	1650	660	SPZ1KM330G14000RAXXX
	47	10x16	35	1800	940	SPZ1KM470G16000RAXXX
125	33	10x14	35	1800	825	SPZ2IM330G14000RAXXX
	47	10x16	35	1800	1175	SPZ2IM470G16000RAXXX

Specifications subject to change without notice.

Conductive Polymer Radial Type

PD series

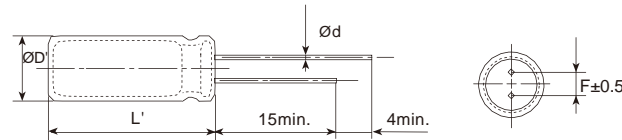
- Endurance: +105°C 2,000 hours
- Small Size
- Recommended Applications: High order main board, Industrial computer
- RoHS Compliant and lead-free



SPECIFICATIONS

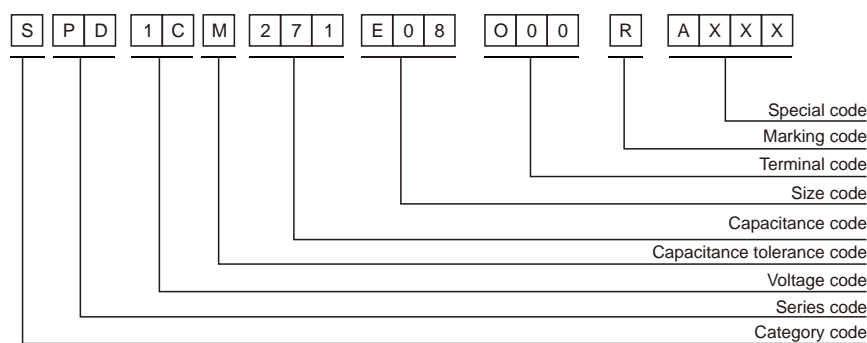
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	6.3~35 V <sub>dc</sub>	
Nominal Capacitance Range	33~4700μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	
	Dissipation Factor (Max.)	
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25	
	Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value
Humidity Test	After subjecting to 90%~95% RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the endurance characteristics listed above.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

DIMENSIONS[mm]



	5	5.5	6.3	8	10
øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~+0.5	øD-0.3~+0.3	øD-0.1~+0.5		
L'	L+1.0max.			L-0.5~+1	

PART NUMBERING SYSTEM



PD series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
6.3	220	5x7	18	3600	500	SPD0JM221D07000RAXXX	
	270	5x7	18	3900	500	SPD0JM271D07000RAXXX	
	330	5x8	18	4200	500	SPD0JM331D08000RAXXX	
	390	5x9	18	4300	500	SPD0JM391D09000RAXXX	
	470	5x10	18	4500	592	SPD0JM471D10000RAXXX	
	470	5.5x9	18	4300	592	SPD0JM471B09000RAXXX	
	470	6.3x7	18	4000	592	SPD0JM471E07000RAXXX	
	500	5x9	18	4300	630	SPD0JM501D09000RAXXX	
	560	5.5x9	18	4500	706	SPD0JM561B09000RAXXX	
	560	6.3x7	18	4400	706	SPD0JM561E07000RAXXX	
	680	5.5x9	18	5000	857	SPD0JM681B09000RAXXX	
	680	6.3x9	18	5300	857	SPD0JM681E09000RAXXX	
	820	5.5x11	18	5000	1033	SPD0JM821B11000RAXXX	
	820	6.3x9	18	5300	1033	SPD0JM821E09000RAXXX	
	1000	6.3x10	9	5400	1260	SPD0JM102E10000RAXXX	
	1000	8x9	10	5000	1260	SPD0JM102F09000RAXXX	
	1500	8x11	9	5600	1890	SPD0JM152F11000RAXXX	
	1800	10x10	9	5800	2268	SPD0JM182G10000RAXXX	
	2200	8x14	9	5900	2772	SPD0JM222F14000RAXXX	
	2200	10x12	9	6000	2772	SPD0JM222G12000RAXXX	
	3300	10x14	9	6100	4158	SPD0JM332G14000RAXXX	
	6.8	47	6.3x5	40	1100	500	SPD0CM470E05000RAXXX
		82	6.3x5	40	1100	500	SPD0CM820E05000RAXXX
		100	5x7	30	1800	500	SPD0CM101D07000RAXXX
150		5x7	30	2600	500	SPD0CM151D07000RAXXX	
220		5x7	20	3500	500	SPD0CM221D07000RAXXX	
220		6.3x8	15	3600	500	SPD0CM221E08000RAXXX	
270		5x7	20	3800	500	SPD0CM271D07000RAXXX	
330		5x8	20	4000	500	SPD0CM331D08000RAXXX	
330		6.3x5	25	3160	500	SPD0CM331E05000RAXXX	
390		5x9	20	4100	530	SPD0CM391D09000RAXXX	
470		5x10	20	4300	639	SPD0CM471D10000RAXXX	
470		5.5x9	20	4100	639	SPD0CM471B09000RAXXX	
470		6.3x7	20	3900	639	SPD0CM471E07000RAXXX	
500		5x9	20	4100	680	SPD0CM501D09000RAXXX	
560		6.3x7	20	4200	762	SPD0CM561E07000RAXXX	
560		5.5x9	20	4300	762	SPD0CM561B09000RAXXX	
680		5.5x9	20	4800	925	SPD0CM681B09000RAXXX	
680		6.3x9	20	5080	925	SPD0CM681E09000RAXXX	
680		8x9	20	4600	925	SPD0CM681F09000RAXXX	
820		5.5x10	20	4800	1115	SPD0CM821B10000RAXXX	
820		6.3x9	20	5080	1115	SPD0CM821E09000RAXXX	
820		8x9	15	4700	1115	SPD0CM821F09000RAXXX	
1000		6.3x10	10	5150	1360	SPD0CM102E10000RAXXX	
1000		8x9	12	4800	1360	SPD0CM102F09000RAXXX	
1000		8x11	10	5200	1360	SPD0CM102F11000RAXXX	
1200		6.3x11	10	5200	1632	SPD0CM122E11000RAXXX	
1200		8x11	10	5300	1632	SPD0CM122F11000RAXXX	
1500		8x11	10	5400	2040	SPD0CM152F11000RAXXX	
1500		10x12	10	5500	2040	SPD0CM152G12000RAXXX	
1800		10x10	10	5560	2448	SPD0CM182G10000RAXXX	
2200		8x14	10	5700	2992	SPD0CM222F14000RAXXX	
2200		10x12	10	5800	2992	SPD0CM222G12000RAXXX	
3300		10x14	10	5900	4488	SPD0CM332G14000RAXXX	
4700		10x17	10	6100	5000	SPD0CM472G17000RAXXX	
7		220	5x7	20	3200	500	SPD0QM221D07000RAXXX
		270	5x8	20	3400	500	SPD0QM271D08000RAXXX
	330	5x9	20	3600	500	SPD0QM331D09000RAXXX	
	470	5.5x9	20	3600	658	SPD0QM471B09000RAXXX	
	470	6.3x8	20	3800	658	SPD0QM471E08000RAXXX	
	560	6.3x8	20	4000	784	SPD0QM561E08000RAXXX	
	680	6.3x8	12	4200	952	SPD0QM681E08000RAXXX	
	820	6.3x10	12	4500	1148	SPD0QM821E10000RAXXX	
	820	8x9	12	4600	1148	SPD0QM821F09000RAXXX	
	220	5x7	20	3100	500	SPD0AM221D07000RAXXX	
	270	5x8	20	3300	500	SPD0AM271D08000RAXXX	
	330	5x9	20	3500	500	SPD0AM331D09000RAXXX	
390	5x9	20	3500	585	SPD0AM391D09000RAXXX		
470	5x9	20	3550	705	SPD0AM471D09000RAXXX		
470	5.5x8	25	3100	705	SPD0AM471B08000RAXXX		
470	6.3x7	25	3200	705	SPD0AM471E07000RAXXX		
500	5.5x9	20	3600	750	SPD0AM501B09000RAXXX		
560	6.3x8	20	3900	840	SPD0AM561E08000RAXXX		
680	6.3x9	12	4100	1020	SPD0AM681E09000RAXXX		
820	6.3x10	12	4400	1230	SPD0AM821E10000RAXXX		
820	8x9	12	4550	1230	SPD0AM821F09000RAXXX		
1000	6.3x11	12	4500	1500	SPD0AM102E11000RAXXX		
1000	8x11	12	4700	1500	SPD0AM102F11000RAXXX		
1200	8x11	12	4800	1800	SPD0AM122F11000RAXXX		
1500	8x11	12	4900	2250	SPD0AM152F11000RAXXX		
1800	8x14	12	5100	2700	SPD0AM182F14000RAXXX		
2200	10x12	12	5700	3300	SPD0AM222G12000RAXXX		



**PD series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
10	100	5x7	31	2500	500	SPD1AM101D07O00RAXXX
	100	6.3x5	27	2400	500	SPD1AM101E05O00RAXXX
	120	5x7	18	2500	500	SPD1AM121D07O00RAXXX
	150	5x7	18	2600	500	SPD1AM151D07O00RAXXX
	180	5x8	18	2800	500	SPD1AM181D08O00RAXXX
	180	6.3x7	18	2900	500	SPD1AM181E07O00RAXXX
	220	5x9	18	2900	500	SPD1AM221D09O00RAXXX
	220	6.3x5	22	2900	500	SPD1AM221E05O00RAXXX
	270	6.3x8	18	3200	540	SPD1AM271E08O00RAXXX
	330	6.3x8	18	3400	660	SPD1AM331E08O00RAXXX
	390	6.3x8	18	3500	780	SPD1AM391E08O00RAXXX
	470	5.5x9	18	3500	940	SPD1AM471B09O00RAXXX
	470	6.3x8	18	3600	940	SPD1AM471E08O00RAXXX
	470	8x9	13	3700	940	SPD1AM471F09O00RAXXX
	560	6.3x10	11	3700	1120	SPD1AM561E10O00RAXXX
	560	8x9	13	3700	1120	SPD1AM561F09O00RAXXX
	680	8x8	18	3400	1360	SPD1AM681F08O00RAXXX
	820	8x11	10	4200	1640	SPD1AM821F11O00RAXXX
1000	8x11	10	4400	2000	SPD1AM102F11O00RAXXX	
1200	8x12	9	4700	2400	SPD1AM122F12O00RAXXX	
1500	8x14	9	5000	3000	SPD1AM152F14O00RAXXX	
1800	10x13	9	6000	3600	SPD1AM182G13O00RAXXX	
12	47	5x7	35	2200	500	SPD1TM470D07O00RAXXX
	56	5x7	35	2250	500	SPD1TM560D07O00RAXXX
	68	5x7	35	2300	500	SPD1TM680D07O00RAXXX
	82	5x7	35	2350	500	SPD1TM820D07O00RAXXX
	100	5x7	35	2400	500	SPD1TM101D07O00RAXXX
	100	6.3x5	30	2300	500	SPD1TM101E05O00RAXXX
	120	5x7	20	2450	500	SPD1TM121D07O00RAXXX
	150	5x7	20	2500	500	SPD1TM151D07O00RAXXX
	180	5x8	20	2700	500	SPD1TM181D08O00RAXXX
	180	6.3x7	20	2800	500	SPD1TM181E07O00RAXXX
	220	5x9	20	2820	528	SPD1TM221D09O00RAXXX
	220	6.3x5	25	2800	528	SPD1TM221E05O00RAXXX
	220	6.3x8	15	3160	528	SPD1TM221E08O00RAXXX
	270	6.3x8	20	3100	648	SPD1TM271E08O00RAXXX
	330	6.3x8	20	3300	792	SPD1TM331E08O00RAXXX
	330	6.3x10	12	3500	792	SPD1TM331E10O00RAXXX
	330	8x9	15	3400	792	SPD1TM331F09O00RAXXX
	390	6.3x8	20	3400	936	SPD1TM391E08O00RAXXX
	470	5.5x9	20	3400	1128	SPD1TM471B09O00RAXXX
	470	6.3x8	20	3500	1128	SPD1TM471E08O00RAXXX
	470	8x9	15	3550	1128	SPD1TM471F09O00RAXXX
	470	8x11	12	5650	1128	SPD1TM471F11O00RAXXX
	560	6.3x10	13	3600	1344	SPD1TM561E10O00RAXXX
	560	8x9	15	3600	1344	SPD1TM561F09O00RAXXX
	680	6.3x11	15	3800	1632	SPD1TM681E11O00RAXXX
	680	8x8	20	3300	1632	SPD1TM681F08O00RAXXX
	680	8x11	12	3900	1632	SPD1TM681F11O00RAXXX
	820	8x11	12	4000	1968	SPD1TM821F11O00RAXXX
	1000	8x11	12	4200	2400	SPD1TM102F11O00RAXXX
	1000	10x12	10	5300	2400	SPD1TM102G12O00RAXXX
1200	10x12	10	5450	2880	SPD1TM122G12O00RAXXX	
1500	8x14	10	4800	3600	SPD1TM152F14O00RAXXX	
1500	10x12	10	5500	3600	SPD1TM152G12O00RAXXX	
1800	10x13	10	5800	4320	SPD1TM182G13O00RAXXX	
2200	10x15	10	6100	5000	SPD1TM222G15O00RAXXX	
3300	10x18	10	6200	5000	SPD1TM332G18O00RAXXX	
16	100	5x7	18	2300	500	SPD1CM101D07O00RAXXX
	100	6.3x5	22	2200	500	SPD1CM101E05O00RAXXX
	120	5x8	18	2400	500	SPD1CM121D08O00RAXXX
	150	5x8	18	2500	500	SPD1CM151D08O00RAXXX
	180	5x8	18	2500	576	SPD1CM181D08O00RAXXX
	180	6.3x5	27	2300	576	SPD1CM181E05O00RAXXX
	220	5x10	18	2700	704	SPD1CM221D10O00RAXXX
	220	6.3x5	25	2800	704	SPD1CM221E05O00RAXXX
	220	6.3x8	18	2800	704	SPD1CM221E08O00RAXXX
	270	6.3x8	18	2900	864	SPD1CM271E08O00RAXXX
	330	6.3x7	18	3000	1056	SPD1CM331E07O00RAXXX
	470	5.5x11	18	3100	1504	SPD1CM471B11O00RAXXX
	470	8x9	11	3400	1504	SPD1CM471F09O00RAXXX
	560	8x11	13	3300	1792	SPD1CM561F11O00RAXXX
	680	8x11	13	3500	2176	SPD1CM681F11O00RAXXX
	820	8x13	9	3600	2624	SPD1CM821F13O00RAXXX
	1000	8x14	10	3700	3200	SPD1CM102F14O00RAXXX
	1200	10x12	10	4400	3840	SPD1CM122G12O00RAXXX
1500	10x12	10	5000	4800	SPD1CM152G12O00RAXXX	
20	33	5x8	40	1900	500	SPD1DM330D08O00RAXXX
	39	5x8	40	1950	500	SPD1DM390D08O00RAXXX
	47	5x8	40	2200	500	SPD1DM470D08O00RAXXX
	56	5x9	40	2100	500	SPD1DM560D09O00RAXXX

**PD series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
20	68	6.3x8	30	2100	500	SPD1DM680E08O00RAXXX
	82	6.3x8	30	2150	500	SPD1DM820E08O00RAXXX
	100	6.3x8	30	2200	500	SPD1DM101E08O00RAXXX
	120	6.3x8	30	2300	500	SPD1DM121E08O00RAXXX
	150	6.3x10	20	2350	600	SPD1DM151E10O00RAXXX
	180	8x9	30	2450	720	SPD1DM181F09O00RAXXX
	220	8x11	20	2550	880	SPD1DM221F11O00RAXXX
	270	8x11	20	2700	1080	SPD1DM271F11O00RAXXX
	330	6.3x11	20	2100	1320	SPD1DM331E11O00RAXXX
	330	8x11	20	2800	1320	SPD1DM331F11O00RAXXX
	470	8x11	20	2400	1880	SPD1DM471F11O00RAXXX
	470	8x16	20	3000	1880	SPD1DM471F16O00RAXXX
	470	10x12	20	2900	1880	SPD1DM471G12O00RAXXX
	680	8x14	20	2700	2720	SPD1DM681F14O00RAXXX
	680	10x15	20	3300	2720	SPD1DM681G15O00RAXXX
	820	10x18	20	3400	3280	SPD1DM821G18O00RAXXX
	1000	10x18	20	3900	4000	SPD1DM102G18O00RAXXX
	25	47	5x9	54	2000	500
56		5x9	54	2100	500	SPD1EM560D09O00RAXXX
68		6.3x7	27	2200	500	SPD1EM680E07O00RAXXX
82		6.3x7	27	2200	500	SPD1EM820E07O00RAXXX
100		6.3x8	27	2600	500	SPD1EM101E08O00RAXXX
120		6.3x8	27	2600	600	SPD1EM121E08O00RAXXX
150		6.3x10	18	2900	750	SPD1EM151E10O00RAXXX
180		6.3x10	18	2900	900	SPD1EM181E10O00RAXXX
220		5.5x10	18	1900	1100	SPD1EM221B10O00RAXXX
270		8x11	18	3100	1350	SPD1EM271F11O00RAXXX
330		8x11	18	3200	1650	SPD1EM331F11O00RAXXX
470		8x11	18	3100	2350	SPD1EM471F11O00RAXXX
470		10x10	25	2300	2350	SPD1EM471G10O00RAXXX
560		10x12	18	4200	2800	SPD1EM561G12O00RAXXX
680		8x14	18	3500	3400	SPD1EM681F14O00RAXXX
680		10x12	18	4300	3400	SPD1EM681G12O00RAXXX
820		8x16	18	3700	4100	SPD1EM821F16O00RAXXX
820		10x12	18	4300	4100	SPD1EM821G12O00RAXXX
1000	10x13	18	4400	5000	SPD1EM102G13O00RAXXX	
35	47	6.3x7	45	2200	500	SPD1VM470E07O00RAXXX
	56	6.3x7	45	2200	500	SPD1VM560E07O00RAXXX
	68	6.3x7	45	2300	500	SPD1VM680E07O00RAXXX
	82	6.3x7	45	2300	574	SPD1VM820E07O00RAXXX
	100	6.3x8	45	2400	700	SPD1VM101E08O00RAXXX
	120	6.3x9	45	2500	840	SPD1VM121E09O00RAXXX
	150	6.3x10	36	2600	1050	SPD1VM151E10O00RAXXX
	220	6.3x11	36	2700	1540	SPD1VM221E11O00RAXXX
	220	8x11	36	2900	1540	SPD1VM221F11O00RAXXX
	270	10x12	27	3100	1890	SPD1VM271G12O00RAXXX
	330	10x12	27	3200	2310	SPD1VM331G12O00RAXXX
	470	10x13	18	3300	3290	SPD1VM471G13O00RAXXX
	680	10x16	18	3500	4760	SPD1VM681G16O00RAXXX

Specifications subject to change without notice.

Conductive Polymer Radial Type

**PV series**

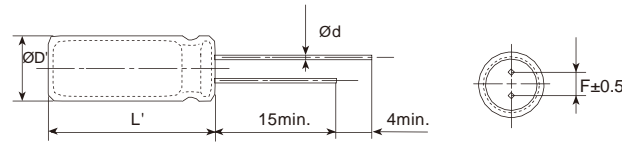
- Endurance: 2,000 hours at 125°C
- High voltage
- Recommended Applications: System Board, Display Card, Small Charger, and intelligent TV
- RoHS Compliant and lead-free



**SPECIFICATIONS**

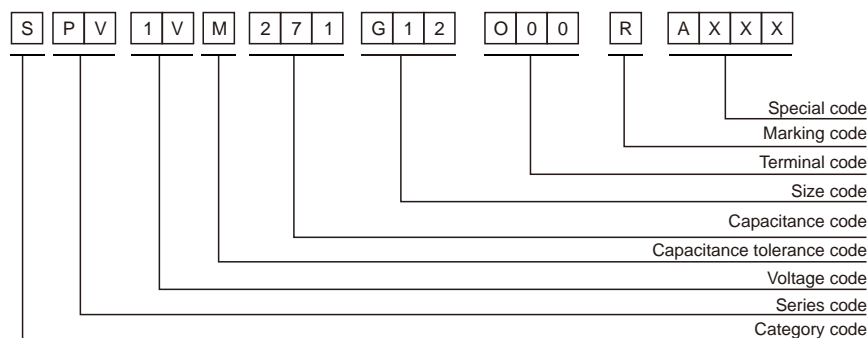
Items	Characteristics	
Category Temperature Range	-55~+125°C	
Rated Working Voltage Range	35~125 V <sub>dc</sub>	
Nominal Capacitance Range	4.7~1000µF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I 0.2CV or 500µA, whichever is greater. Where, I: Max. leakage current (µA), C: Nominal capacitance (µF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	35    50    63    80    100    125
	Dissipation Factor (Max.)	0.12    0.15 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25	
	Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 2,000 hours at 125°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value
Humidity Test	After subjecting to 90%~95% RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

**DIMENSIONS[mm]**



	5	5.5	6.3	8	10
øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~+0.5		øD-0.3~+0.3		
L'	L+1.0max.			L-0.5~+1	

**PART NUMBERING SYSTEM**



**PV series**

**STANDARD RATINGS**

WV (Vdc)	Cap (µF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA <sub>rms</sub> /125°C, 100kHz)	Leakage Current (µA)(max.)	Part Number
35	4.7	5x8	90	500	500	SPV1VM4R7D08000RAXXX
	10	5x8	90	500	500	SPV1VM100D08000RAXXX
	15	5x8	90	500	500	SPV1VM150D08000RAXXX
	22	5x9	150	500	500	SPV1VM220D09000RAXXX
	33	5x9	75	600	500	SPV1VM330D09000RAXXX
	39	5x9	75	600	500	SPV1VM390D09000RAXXX
	47	6.3x7	75	600	500	SPV1VM470E07000RAXXX
	56	6.3x7	75	600	500	SPV1VM560E07000RAXXX
	68	6.3x7	75	600	500	SPV1VM680E07000RAXXX
	82	6.3x7	75	600	574	SPV1VM820E07000RAXXX
	100	6.3x8	75	700	700	SPV1VM101E08000RAXXX
	100	6.3x10	60	700	700	SPV1VM101E10000RAXXX
	100	8x11	60	700	700	SPV1VM101F11000RAXXX
	120	6.3x10	60	700	840	SPV1VM121E10000RAXXX
	150	6.3x10	60	700	1050	SPV1VM151E10000RAXXX
	220	8x11	60	800	1540	SPV1VM221F11000RAXXX
	220	10x12	45	800	1540	SPV1VM221G12000RAXXX
	270	10x12	45	900	1890	SPV1VM271G12000RAXXX
	330	10x12	45	900	2310	SPV1VM331G12000RAXXX
	470	10x13	30	900	3290	SPV1VM471G13000RAXXX
50	560	10x14	30	900	3920	SPV1VM561G14000RAXXX
	680	10x16	30	1000	4760	SPV1VM681G16000RAXXX
	820	10x18	30	1000	5000	SPV1VM821G18000RAXXX
	1000	10x18	30	1100	5000	SPV1VM102G18000RAXXX
	4.7	5x8	90	400	500	SPV1HM4R7D08000RAXXX
	10	5x8	105	500	500	SPV1HM100D08000RAXXX
	10	6.3x7	52	500	500	SPV1HM100E07000RAXXX
	15	5x8	105	400	500	SPV1HM150D08000RAXXX
	22	6.3x7	60	500	500	SPV1HM220E07000RAXXX
	33	6.3x7	60	600	500	SPV1HM330E07000RAXXX
	47	6.3x8	52	600	500	SPV1HM470E08000RAXXX
	56	6.3x8	52	600	560	SPV1HM560E08000RAXXX
	68	6.3x10	45	600	680	SPV1HM680E10000RAXXX
	100	8x9	60	600	1000	SPV1HM101F09000RAXXX
	100	8x11	45	600	1000	SPV1HM101F11000RAXXX
	150	10x12	45	700	1500	SPV1HM151G12000RAXXX
	220	10x12	45	800	2200	SPV1HM221G12000RAXXX
	270	10x13	30	800	2700	SPV1HM271G13000RAXXX
	330	10x15	30	800	3300	SPV1HM331G15000RAXXX
	440	10x18	30	900	4400	SPV1HM441G18000RAXXX
470	10x18	30	900	4700	SPV1HM471G18000RAXXX	
63	4.7	6.3x8	90	400	500	SPV1JM4R7E08000RAXXX
	6.8	6.3x8	90	400	500	SPV1JM6R8E08000RAXXX
	10	6.3x5	90	400	500	SPV1JM100E05000RAXXX
	33	6.3x8	45	500	500	SPV1JM330E08000RAXXX
	39	6.3x8	45	500	500	SPV1JM390E08000RAXXX
	68	8x11	45	600	857	SPV1JM680F11000RAXXX
	82	8x11	45	600	1033	SPV1JM820F11000RAXXX
	100	10x12	45	600	1260	SPV1JM101G12000RAXXX
	150	10x12	45	700	1890	SPV1JM151G12000RAXXX
	180	10x13	30	700	2268	SPV1JM181G13000RAXXX
	220	10x15	30	700	2772	SPV1JM221G15000RAXXX
	270	10x17	30	800	3402	SPV1JM271G17000RAXXX
	330	10x18	30	800	4158	SPV1JM331G18000RAXXX
	4.7	6.3x8	90	400	500	SPV1BM4R7E08000RAXXX
	6.8	6.3x8	90	400	500	SPV1BM6R8E08000RAXXX
	22	6.3x10	90	400	500	SPV1BM220E10000RAXXX
	33	8x11	52	500	528	SPV1BM330F11000RAXXX
	47	10x12	52	500	752	SPV1BM470G12000RAXXX
	68	10x12	52	500	1088	SPV1BM680G12000RAXXX
	100	10x14	52	600	1600	SPV1BM101G14000RAXXX
100	4.7	6.3x8	180	400	500	SPV1KM4R7E08000RAXXX
	6.8	6.3x8	180	400	500	SPV1KM6R8E08000RAXXX
	10	6.3x10	75	400	500	SPV1KM100E10000RAXXX
	10	8x11	75	400	500	SPV1KM100F11000RAXXX
	15	8x11	75	400	500	SPV1KM150F11000RAXXX
	22	10x12	52	400	500	SPV1KM220G12000RAXXX
	33	10x14	52	400	660	SPV1KM330G14000RAXXX
	47	10x16	52	400	940	SPV1KM470G16000RAXXX
125	33	10x14	52	400	825	SPV2IM330G14000RAXXX
	47	10x16	52	400	1175	SPV2IM470G16000RAXXX

Specifications subject to change without notice.



# PH series

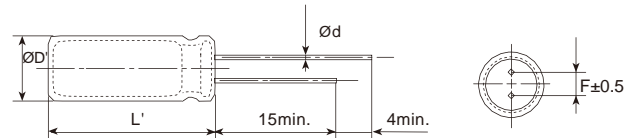
- Endurance: 2,000 hours at 105°C
- High Capacitance
- Recommended Applications: Charger. Ripple current can be applied.
- RoHS Compliant and lead-free



## SPECIFICATIONS

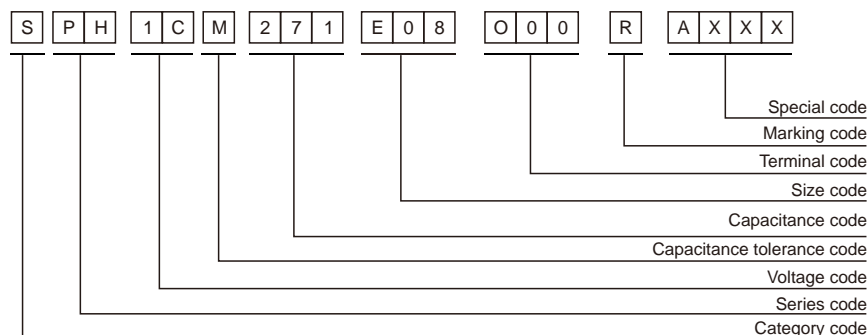
Items	Characteristics											
Category Temperature Range	-55~+105°C											
Rated Working Voltage Range	6.3~25 V <sub>dc</sub>											
Nominal Capacitance Range	10~2200μF											
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)											
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)											
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	6.8	7	7.5	10	12	16	20	25		
	Dissipation Factor (Max.)	0.08										0.12
ESR(100kHz, 20°C)	Value in characteristics table											
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25											
Endurance	After applying rated voltage for 2,000 hours at 105°C,the capacitors shall meet the following requirements.											
	Appearance	No significant damage										
	Capacitance Change	±20% of the initial value										
	Dissipation Factor	150% of the initial specified value										
	ESR	150% of the initial specified value										
	Leakage Current	The initial specified value										
Humidity Test	After subjecting to 90%~95% RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.											
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.											
	Appearance	No significant damage										
	Capacitance Change	±20% of the initial value										
	Dissipation Factor	150% of the initial specified value										
	ESR	150% of the initial specified value										
	Leakage Current	The initial specified value										

## DIMENSIONS[mm]



∅D	5	5.5	6.3	8	10
∅d	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
∅D'	∅D-0.1~+0.5		∅D-0.3~+0.3		∅D-0.1~+0.5
L'	L+1.0max.				L-0.5~+1

## PART NUMBERING SYSTEM



# PH series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
6.3	220	5x7	16	4000	500	SPH0JM221D07O00RAXXX	
	270	5x7	16	4300	500	SPH0JM271D07O00RAXXX	
	330	5x8	16	4600	500	SPH0JM331D08O00RAXXX	
	330	6.3x5	20	3600	500	SPH0JM331E05O00RAXXX	
	330	6.3x8	12	4600	500	SPH0JM331E08O00RAXXX	
	390	5x9	16	4700	500	SPH0JM391D09O00RAXXX	
	470	5x10	16	4900	592	SPH0JM471D10O00RAXXX	
	470	5.5x9	16	4700	592	SPH0JM471B09O00RAXXX	
	470	6.3x8	12	5000	592	SPH0JM471E08O00RAXXX	
	500	5x9	16	4700	630	SPH0JM501D09O00RAXXX	
	560	5.5x9	16	4900	706	SPH0JM561B09O00RAXXX	
	560	6.3x8	16	5500	706	SPH0JM561E08O00RAXXX	
	680	5.5x9	16	5500	857	SPH0JM681B09O00RAXXX	
	680	6.3x9	16	5800	857	SPH0JM681E09O00RAXXX	
	680	8x9	16	5200	857	SPH0JM681F09O00RAXXX	
	820	6.3x9	16	5800	1033	SPH0JM821E09O00RAXXX	
	1000	6.3x10	8	5900	1260	SPH0JM102E10O00RAXXX	
	1000	8x9	9	5500	1260	SPH0JM102F09O00RAXXX	
	1000	8x11	8	5900	1260	SPH0JM102F11O00RAXXX	
	1200	8x11	8	6000	1512	SPH0JM122F11O00RAXXX	
	1500	8x11	8	6200	1890	SPH0JM152F11O00RAXXX	
	1500	10x12	8	6300	1890	SPH0JM152G12O00RAXXX	
	1800	10x10	8	6300	2268	SPH0JM182G10O00RAXXX	
	2200	8x14	8	6500	2772	SPH0JM222F14O00RAXXX	
2200	10x12	8	6600	2772	SPH0JM222G12O00RAXXX		
6.8	220	5x7	18	3500	500	SPH0CM221D07O00RAXXX	
	270	5x7	18	3800	500	SPH0CM271D07O00RAXXX	
	270	6.3x8	18	4100	500	SPH0CM271E08O00RAXXX	
	330	5x8	18	4000	500	SPH0CM331D08O00RAXXX	
	330	6.3x5	23	3300	500	SPH0CM331E05O00RAXXX	
	390	5x9	18	4100	530	SPH0CM391D09O00RAXXX	
	470	5x9	18	4300	639	SPH0CM471D09O00RAXXX	
	470	6.3x7	18	3900	639	SPH0CM471E07O00RAXXX	
	560	6.3x8	18	4700	762	SPH0CM561E08O00RAXXX	
	680	6.3x9	18	5000	925	SPH0CM681E09O00RAXXX	
	820	6.3x9	18	5100	1115	SPH0CM821E09O00RAXXX	
	1000	6.3x11	11	5400	1360	SPH0CM102E11O00RAXXX	
	1000	8x11	9	5400	1360	SPH0CM102F11O00RAXXX	
	7	150	5x6	27	1600	500	SPH0QM151D06O00RAXXX
		220	5x7	18	3400	500	SPH0QM221D07O00RAXXX
		270	5x8	18	3600	500	SPH0QM271D08O00RAXXX
330		5x9	18	3800	500	SPH0QM331D09O00RAXXX	
470		5.5x9	18	3800	658	SPH0QM471B09O00RAXXX	
470		6.3x8	18	4000	658	SPH0QM471E08O00RAXXX	
560		6.3x8	18	4200	784	SPH0QM561E08O00RAXXX	
680		6.3x9	11	4400	952	SPH0QM681E09O00RAXXX	
820		6.3x10	11	4700	1148	SPH0QM821E10O00RAXXX	
820		8x9	11	4800	1148	SPH0QM821F09O00RAXXX	
7.5		220	5x7	18	3300	500	SPH0AM221D07O00RAXXX
		270	5x8	18	3500	500	SPH0AM271D08O00RAXXX
		330	5x9	18	3700	500	SPH0AM331D09O00RAXXX
		390	5x9	18	3700	585	SPH0AM391D09O00RAXXX
		470	5x9	18	3700	705	SPH0AM471D09O00RAXXX
		470	5.5x9	18	3700	705	SPH0AM471B09O00RAXXX
	470	6.3x7	23	3400	705	SPH0AM471E07O00RAXXX	
	500	5.5x9	18	3800	750	SPH0AM501B09O00RAXXX	
	560	6.3x8	18	4100	840	SPH0AM561E08O00RAXXX	
	680	6.3x9	11	4300	1020	SPH0AM681E09O00RAXXX	
	820	6.3x10	11	4600	1230	SPH0AM821E10O00RAXXX	
	820	8x9	11	4800	1230	SPH0AM821F09O00RAXXX	
	1000	6.3x11	11	4700	1500	SPH0AM102E11O00RAXXX	
	1000	8x11	11	4900	1500	SPH0AM102F11O00RAXXX	
	1200	8x11	11	5000	1800	SPH0AM122F11O00RAXXX	
	10	47	5x7	28	2500	500	SPH1AM470D07O00RAXXX
56		5x7	28	2500	500	SPH1AM560D07O00RAXXX	
68		5x7	28	2600	500	SPH1AM680D07O00RAXXX	
82		5x7	28	2700	500	SPH1AM820D07O00RAXXX	
100		5x7	28	2700	500	SPH1AM101D07O00RAXXX	
100		6.3x5	24	2600	500	SPH1AM101E05O00RAXXX	
150		5x7	16	2800	500	SPH1AM151D07O00RAXXX	
180		6.3x7	16	3200	500	SPH1AM181E07O00RAXXX	
220		5x9	16	3200	500	SPH1AM221D09O00RAXXX	

Conductive Polymer Radial Type



**PH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number	
10	220	6.3x5	20	3200	500	SPH1AM221E05O00RAXXX	
	220	6.3x8	12	3600	500	SPH1AM221E08O00RAXXX	
	270	6.3x8	16	3500	540	SPH1AM271E08O00RAXXX	
	330	6.3x8	16	3700	660	SPH1AM331E08O00RAXXX	
	330	8x9	12	3900	660	SPH1AM331F09O00RAXXX	
	390	6.3x8	16	3900	780	SPH1AM391E08O00RAXXX	
	470	5.5x9	16	3900	940	SPH1AM471B09O00RAXXX	
	470	6.3x8	16	3900	940	SPH1AM471E08O00RAXXX	
	470	8x9	12	4000	940	SPH1AM471F09O00RAXXX	
	560	6.3x10	10	4100	1120	SPH1AM561E10O00RAXXX	
	560	8x9	12	4100	1120	SPH1AM561F09O00RAXXX	
	680	8x11	9	4400	1360	SPH1AM681F11O00RAXXX	
	820	8x11	9	4600	1640	SPH1AM821F11O00RAXXX	
	1000	8x11	9	4800	2000	SPH1AM102F11O00RAXXX	
	1000	10x12	8	6000	2000	SPH1AM102G12O00RAXXX	
	1200	8x12	8	5100	2400	SPH1AM122F12O00RAXXX	
	1200	10x12	8	6200	2400	SPH1AM122G12O00RAXXX	
	1500	8x14	8	5500	3000	SPH1AM152F14O00RAXXX	
	1500	10x12	8	6300	3000	SPH1AM152G12O00RAXXX	
	1800	10x13	8	6600	3600	SPH1AM182G13O00RAXXX	
	2200	10x15	8	7000	4400	SPH1AM222G15O00RAXXX	
	12	330	5.5x9	18	3300	792	SPH1TM331B09O00RAXXX
330		6.3x8	18	3300	792	SPH1TM331E08O00RAXXX	
470		5.5x9	18	3400	1128	SPH1TM471B09O00RAXXX	
470		6.3x9	18	3600	1128	SPH1TM471E09O00RAXXX	
560		6.3x10	14	3600	1344	SPH1TM561E10O00RAXXX	
680		6.3x11	14	3800	1632	SPH1TM681E11O00RAXXX	
680		8x10	14	3900	1632	SPH1TM681F10O00RAXXX	
820		8x11	11	4000	1968	SPH1TM821F11O00RAXXX	
1000		8x12	11	4200	2400	SPH1TM102F12O00RAXXX	
1200		8x14	11	4600	2880	SPH1TM122F14O00RAXXX	
1500		8x16	11	5000	3600	SPH1TM152F16O00RAXXX	
16		22	5x9	64	1800	500	SPH1CM220D09O00RAXXX
		47	5x7	16	2300	500	SPH1CM470D07O00RAXXX
		56	5x7	16	2400	500	SPH1CM560D07O00RAXXX
	68	5x7	16	2400	500	SPH1CM680D07O00RAXXX	
	82	5x8	16	2500	500	SPH1CM820D08O00RAXXX	
	100	5x7	16	2500	500	SPH1CM101D07O00RAXXX	
	100	6.3x5	20	2400	500	SPH1CM101E05O00RAXXX	
	100	6.3x8	16	3200	500	SPH1CM101E08O00RAXXX	
	120	5x8	16	2700	500	SPH1CM121D08O00RAXXX	
	150	5x8	16	2700	500	SPH1CM151D08O00RAXXX	
	180	5x8	16	2800	576	SPH1CM181D08O00RAXXX	
	180	6.3x7	12	2800	576	SPH1CM181E07O00RAXXX	
	220	5x10	16	2900	704	SPH1CM221D10O00RAXXX	
	220	6.3x8	16	3100	704	SPH1CM221E08O00RAXXX	
	220	6.3x10	12	3300	704	SPH1CM221E10O00RAXXX	
	270	5.5x9	16	3100	864	SPH1CM271B09O00RAXXX	
	270	6.3x8	16	3100	864	SPH1CM271E08O00RAXXX	
	270	8x9	16	3300	864	SPH1CM271F09O00RAXXX	
	330	5.5x9	16	3300	1056	SPH1CM331B09O00RAXXX	
	330	6.3x9	16	3300	1056	SPH1CM331E09O00RAXXX	
	470	6.3x11	12	3400	1504	SPH1CM471E11O00RAXXX	
	470	8x11	12	5200	1504	SPH1CM471F11O00RAXXX	
	560	8x11	12	3600	1792	SPH1CM561F11O00RAXXX	
	560	8x13	12	3700	1792	SPH1CM561F13O00RAXXX	
	560	10x12	9	4000	1792	SPH1CM561G12O00RAXXX	
	680	8x11	12	3900	2176	SPH1CM681F11O00RAXXX	
	680	10x12	9	4100	2176	SPH1CM681G12O00RAXXX	
	820	8x13	8	4000	2624	SPH1CM821F13O00RAXXX	
	820	10x12	9	4300	2624	SPH1CM821G12O00RAXXX	
	1000	10x12	9	4600	3200	SPH1CM102G12O00RAXXX	
	1200	10x15	9	4900	3840	SPH1CM122G15O00RAXXX	
	1500	10x12	9	5500	4800	SPH1CM152G12O00RAXXX	
	1500	10x18	9	6300	4800	SPH1CM152G18O00RAXXX	
	1800	10x14	9	6200	5000	SPH1CM182G14O00RAXXX	
2200	10x15	9	6300	5000	SPH1CM222G15O00RAXXX		
2200	10x17	9	6600	5000	SPH1CM222G17O00RAXXX		
20	33	5x8	36	2000	500	SPH1DM330D08O00RAXXX	
	39	5x8	36	2000	500	SPH1DM390D08O00RAXXX	
	47	5x8	36	2300	500	SPH1DM470D08O00RAXXX	
	56	5x9	36	2200	500	SPH1DM560D09O00RAXXX	
	68	6.3x8	27	2200	500	SPH1DM680E08O00RAXXX	
	82	6.3x8	27	2300	500	SPH1DM820E08O00RAXXX	
	100	6.3x8	27	2300	500	SPH1DM101E08O00RAXXX	
	120	6.3x8	27	2400	500	SPH1DM121E08O00RAXXX	

**PH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number	
20	150	6.3x10	18	2500	600	SPH1DM151E10O00RAXXX	
	180	8x9	27	2600	720	SPH1DM181F09O00RAXXX	
	220	8x11	18	2700	880	SPH1DM221F11O00RAXXX	
	270	8x11	18	2800	1080	SPH1DM271F11O00RAXXX	
	330	6.3x11	18	2200	1320	SPH1DM331E11O00RAXXX	
	330	8x11	18	2900	1320	SPH1DM331F11O00RAXXX	
	470	8x11	18	2500	1880	SPH1DM471F11O00RAXXX	
	470	8x16	18	3200	1880	SPH1DM471F16O00RAXXX	
	470	10x12	18	3000	1880	SPH1DM471G12O00RAXXX	
	560	8x16	18	3400	2240	SPH1DM561F16O00RAXXX	
	560	10x12	18	3300	2240	SPH1DM561G12O00RAXXX	
	680	8x14	18	2800	2720	SPH1DM681F14O00RAXXX	
	680	10x15	18	3500	2720	SPH1DM681G15O00RAXXX	
	820	10x18	18	3600	3280	SPH1DM821G18O00RAXXX	
	1000	10x18	18	4100	4000	SPH1DM102G18O00RAXXX	
	25	10	5x8	56	2000	500	SPH1EM100D08O00RAXXX
		22	5x9	48	2000	500	SPH1EM220D09O00RAXXX
		33	5x9	48	2100	500	SPH1EM330D09O00RAXXX
		39	5x8	48	2100	500	SPH1EM390D08O00RAXXX
		47	5x9	48	2200	500	SPH1EM470D09O00RAXXX
		56	5x9	48	2300	500	SPH1EM560D09O00RAXXX
		68	6.3x7	24	2400	500	SPH1EM680E07O00RAXXX
82		6.3x7	24	2400	500	SPH1EM820E07O00RAXXX	
100		6.3x8	24	2800	500	SPH1EM101E08O00RAXXX	
100		6.3x10	16	3200	500	SPH1EM101E10O00RAXXX	
100		8x11	16	3400	500	SPH1EM101F11O00RAXXX	
120		6.3x8	24	2800	600	SPH1EM121E08O00RAXXX	
150		6.3x10	16	3200	750	SPH1EM151E10O00RAXXX	
180		6.3x10	16	3200	900	SPH1EM181E10O00RAXXX	
180		8x9	24	2800	900	SPH1EM181F09O00RAXXX	
220		5.5x11	16	2100	1100	SPH1EM221B11O00RAXXX	
220		8x11	16	3400	1100	SPH1EM221F11O00RAXXX	
220		10x12	16	4000	1100	SPH1EM221G12O00RAXXX	
270		8x11	16	3400	1350	SPH1EM271F11O00RAXXX	
330		8x11	16	3500	1650	SPH1EM331F11O00RAXXX	
330		10x10	20	3200	1650	SPH1EM331G10O00RAXXX	
330		10x12	16	4300	1650	SPH1EM331G12O00RAXXX	
470		8x11	16	3400	2350	SPH1EM471F11O00RAXXX	
470		8x16	16	3900	2350	SPH1EM471F16O00RAXXX	
470		10x10	20	3200	2350	SPH1EM471G10O00RAXXX	
470		10x12	16	4600	2350	SPH1EM471G12O00RAXXX	
560		8x12	16	3500	2800	SPH1EM561F12O00RAXXX	
560		10x12	16	4600	2800	SPH1EM561G12O00RAXXX	
680		8x14	16	3900	3400	SPH1EM681F14O00RAXXX	
680		10x12	16	4700	3400	SPH1EM681G12O00RAXXX	
680		10x15	16	4900	3400	SPH1EM681G15O00RAXXX	
820		10x12	16	4700	4100	SPH1EM821G12O00RAXXX	
820		10x18	16	5100	4100	SPH1EM821G18O00RAXXX	
1000		10x18	16	5100	5000	SPH1EM102G18O00RAXXX	

Specifications subject to change without notice.

Conductive Polymer Radial Type

**PT series**

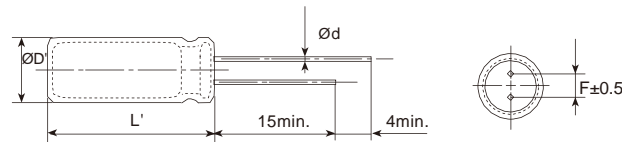
- Endurance: 2,000 hours at 125°C
- Long Life, High Temperature
- Recommended Applications: Lamps Power, LED Power, Service Equipment
- RoHS Compliant and lead-free



**SPECIFICATIONS**

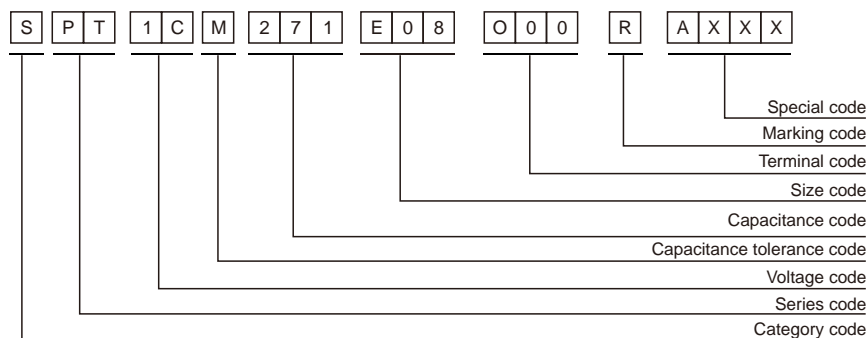
Items	Characteristics	
Category Temperature Range	-55~+125°C	
Rated Working Voltage Range	6.3~25 V <sub>dc</sub>	
Nominal Capacitance Range	22~5600μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	
	Dissipation Factor (Max.)	
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 2,000 hours at 125°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Humidity Test	After subjecting to 90%~95% RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.	
	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
Surge Test	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

**DIMENSIONS[mm]**



	5	5.5	6.3	8	10
øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~-+0.5	øD-0.3~-+0.3	øD-0.1~-+0.5		
L'	L+1.0max.			L-0.5~-+1	

**PART NUMBERING SYSTEM**



**PT series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxDL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
6.3	220	5x7	30	1000	500	SPT0JM221D07000RAXXX	
	270	5x7	30	1100	500	SPT0JM271D07000RAXXX	
	330	5x8	30	1200	500	SPT0JM331D08000RAXXX	
	330	6.3x8	22	1200	500	SPT0JM331E08000RAXXX	
	390	5x9	30	1200	500	SPT0JM391D09000RAXXX	
	470	5x10	30	1200	592	SPT0JM471D10000RAXXX	
	470	5.5x9	30	1200	592	SPT0JM471B09000RAXXX	
	470	6.3x8	22	1300	592	SPT0JM471E08000RAXXX	
	560	6.3x8	30	1400	706	SPT0JM561E08000RAXXX	
	560	5.5x9	30	1200	706	SPT0JM561B09000RAXXX	
	680	5.5x9	30	1400	857	SPT0JM681B09000RAXXX	
	680	6.3x9	30	1500	857	SPT0JM681E09000RAXXX	
	680	8x9	30	1300	857	SPT0JM681F09000RAXXX	
	820	6.3x9	30	1500	1033	SPT0JM821E09000RAXXX	
	1000	6.3x10	15	1500	1260	SPT0JM102E10000RAXXX	
	1000	8x9	18	1400	1260	SPT0JM102F09000RAXXX	
	1000	8x11	15	1500	1260	SPT0JM102F11000RAXXX	
	1200	8x11	15	1500	1512	SPT0JM122F11000RAXXX	
	1500	8x11	15	1600	1890	SPT0JM152F11000RAXXX	
	1500	10x12	15	1600	1890	SPT0JM152G12000RAXXX	
1800	10x10	15	1600	2268	SPT0JM182G10000RAXXX		
2200	8x14	15	1700	2772	SPT0JM222F14000RAXXX		
2200	10x12	15	1700	2772	SPT0JM222G12000RAXXX		
3300	10x14	15	1700	4158	SPT0JM332G14000RAXXX		
4700	10x17	15	1800	5000	SPT0JM472G17000RAXXX		
5600	10x18	15	1800	5000	SPT0JM562G18000RAXXX		
6.8	220	5x7	28	900	500	SPT0CM221D07000RAXXX	
	270	5x7	28	1000	500	SPT0CM271D07000RAXXX	
	330	5x8	28	1100	500	SPT0CM331D08000RAXXX	
	330	6.3x5	35	900	500	SPT0CM331E05000RAXXX	
	470	5x9	28	1200	639	SPT0CM471D09000RAXXX	
	470	6.3x7	28	1100	639	SPT0CM471E07000RAXXX	
	560	6.3x8	28	1300	762	SPT0CM561E08000RAXXX	
	680	6.3x9	28	1400	925	SPT0CM681E09000RAXXX	
	820	6.3x9	28	1400	1115	SPT0CM821E09000RAXXX	
	1000	6.3x11	17	1500	1360	SPT0CM102E11000RAXXX	
7	220	5x7	28	900	500	SPT0QM221D07000RAXXX	
	270	5x8	28	1000	500	SPT0QM271D08000RAXXX	
	330	5x9	28	1000	500	SPT0QM331D09000RAXXX	
	470	5.5x9	28	1000	658	SPT0QM471B09000RAXXX	
	470	6.3x7	28	1100	658	SPT0QM471E07000RAXXX	
	560	6.3x8	28	1200	784	SPT0QM561E08000RAXXX	
	680	6.3x9	17	1200	952	SPT0QM681E09000RAXXX	
	820	6.3x10	17	1300	1148	SPT0QM821E10000RAXXX	
	820	8x9	17	1300	1148	SPT0QM821F09000RAXXX	
	1200	8x11	17	1440	1800	SPT0AM122F11000RAXXX	
7.5	220	5x7	28	900	500	SPT0AM221D07000RAXXX	
	270	5x7	28	900	500	SPT0AM271D07000RAXXX	
	330	5x9	28	1000	500	SPT0AM331D09000RAXXX	
	390	5x9	28	1000	585	SPT0AM391D09000RAXXX	
	470	5.5x9	28	1000	705	SPT0AM471B09000RAXXX	
	470	6.3x7	35	900	705	SPT0AM471E07000RAXXX	
	500	5.5x9	28	1000	750	SPT0AM501B09000RAXXX	
	560	6.3x8	28	1100	840	SPT0AM561E08000RAXXX	
	680	6.3x9	17	1200	1020	SPT0AM681E09000RAXXX	
	820	6.3x10	17	1300	1230	SPT0AM821E10000RAXXX	
	820	8x9	17	1300	1230	SPT0AM821F09000RAXXX	
	1200	8x11	17	1440	1800	SPT0AM122F11000RAXXX	
	10	47	5x7	52	600	500	SPT1AM470D07000RAXXX
		56	5x7	52	600	500	SPT1AM560D07000RAXXX
68		5x7	52	600	500	SPT1AM680D07000RAXXX	
82		5x7	52	700	500	SPT1AM820D07000RAXXX	
100		5x7	52	700	500	SPT1AM101D07000RAXXX	
120		5x7	30	700	500	SPT1AM121D07000RAXXX	
150		5x7	30	700	500	SPT1AM151D07000RAXXX	
180		5x8	30	800	500	SPT1AM181D08000RAXXX	
220		5x9	30	800	500	SPT1AM221D09000RAXXX	
220		6.3x8	22	900	500	SPT1AM221E08000RAXXX	
270		6.3x8	30	900	540	SPT1AM271E08000RAXXX	
330		6.3x8	30	900	660	SPT1AM331E08000RAXXX	
330		8x9	22	1000	660	SPT1AM331F09000RAXXX	
390		6.3x8	30	1000	780	SPT1AM391E08000RAXXX	
470		5.5x9	30	1000	940	SPT1AM471B09000RAXXX	
470		6.3x8	30	1000	940	SPT1AM471E08000RAXXX	
470		8x9	22	1000	940	SPT1AM471F09000RAXXX	
560		6.3x10	19	1000	1120	SPT1AM561E10000RAXXX	

Conductive Polymer Radial Type



**PT series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL (mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
10	560	8x9	22	1000	1120	SPT1AM561F09O00RAXXX	
	680	8x11	18	1100	1360	SPT1AM681F11O00RAXXX	
	820	8x11	18	1200	1640	SPT1AM821F11O00RAXXX	
	1000	8x11	18	1200	2000	SPT1AM102F11O00RAXXX	
	1000	10x12	15	1500	2000	SPT1AM102G12O00RAXXX	
	1200	8x12	15	1300	2400	SPT1AM122F12O00RAXXX	
	1200	10x12	15	1600	2400	SPT1AM122G12O00RAXXX	
	1500	10x12	15	1600	3000	SPT1AM152G12O00RAXXX	
	1800	10x13	15	1700	3600	SPT1AM182G13O00RAXXX	
	2200	10x15	15	1800	4400	SPT1AM222G15O00RAXXX	
	3300	10x18	15	1800	5000	SPT1AM332G18O00RAXXX	
	12	330	5.5x9	28	900	792	SPT1TM331B09O00RAXXX
470		5.5x9	28	900	1128	SPT1TM471B09O00RAXXX	
470		6.3x9	28	1000	1128	SPT1TM471E09O00RAXXX	
560		6.3x10	21	1000	1344	SPT1TM561E10O00RAXXX	
680		6.3x11	21	1100	1632	SPT1TM681E11O00RAXXX	
820		8x11	17	1100	1968	SPT1TM821F11O00RAXXX	
1000		8x12	17	1200	2400	SPT1TM102F12O00RAXXX	
1200		8x14	17	1300	2880	SPT1TM122F14O00RAXXX	
1500		8x16	17	1400	3600	SPT1TM152F16O00RAXXX	
16		47	5x7	30	600	500	SPT1CM470D07O00RAXXX
		56	5x7	30	600	500	SPT1CM560D07O00RAXXX
		68	5x7	30	600	500	SPT1CM680D07O00RAXXX
	82	5x8	30	600	500	SPT1CM820D08O00RAXXX	
	100	5x7	30	600	500	SPT1CM101D07O00RAXXX	
	100	6.3x5	37	600	500	SPT1CM101E05O00RAXXX	
	100	6.3x8	30	800	500	SPT1CM101E08O00RAXXX	
	120	5x8	30	700	500	SPT1CM121D08O00RAXXX	
	150	5x8	30	700	500	SPT1CM151D08O00RAXXX	
	180	5x8	30	700	576	SPT1CM181D08O00RAXXX	
	180	6.3x7	24	700	576	SPT1CM181E07O00RAXXX	
	220	5x10	30	700	704	SPT1CM221D10O00RAXXX	
	220	6.3x8	30	800	704	SPT1CM221E08O00RAXXX	
	220	6.3x10	22	800	704	SPT1CM221E10O00RAXXX	
	270	5.5x9	30	800	864	SPT1CM271B09O00RAXXX	
	270	6.3x8	30	800	864	SPT1CM271E08O00RAXXX	
	270	8x9	30	800	864	SPT1CM271F09O00RAXXX	
	330	5.5x9	30	800	1056	SPT1CM331B09O00RAXXX	
	330	6.3x9	30	800	1056	SPT1CM331E09O00RAXXX	
	470	6.3x11	22	900	1504	SPT1CM471E11O00RAXXX	
	470	8x11	22	1300	1504	SPT1CM471F11O00RAXXX	
	560	8x11	22	900	1792	SPT1CM561F11O00RAXXX	
	560	8x13	22	900	1792	SPT1CM561F13O00RAXXX	
	560	10x12	18	1000	1792	SPT1CM561G12O00RAXXX	
	680	8x11	22	1000	2176	SPT1CM681F11O00RAXXX	
	680	10x12	18	1000	2176	SPT1CM681G12O00RAXXX	
	820	8x13	16	1000	2624	SPT1CM821F13O00RAXXX	
	820	10x12	18	1100	2624	SPT1CM821G12O00RAXXX	
1000	8x14	18	1200	3200	SPT1CM102F14O00RAXXX		
1000	10x12	18	1200	3200	SPT1CM102G12O00RAXXX		
1500	10x18	18	1600	4800	SPT1CM152G18O00RAXXX		
1800	10x14	18	1600	5000	SPT1CM182G14O00RAXXX		
2200	10x18	18	1700	5000	SPT1CM222G18O00RAXXX		
20	82	6.3x8	42	1290	500	SPT1DM820E08O00RAXXX	
	120	6.3x8	42	700	500	SPT1DM121E08O00RAXXX	
	150	6.3x10	28	700	600	SPT1DM151E10O00RAXXX	
	220	8x11	28	700	880	SPT1DM221F11O00RAXXX	
	270	8x11	28	800	1080	SPT1DM271F11O00RAXXX	
	470	8x11	28	700	1880	SPT1DM471F11O00RAXXX	
	470	10x12	28	800	1880	SPT1DM471G12O00RAXXX	
	560	10x12	28	900	2240	SPT1DM561G12O00RAXXX	
	680	10x15	28	900	2720	SPT1DM681G15O00RAXXX	
	820	10x18	28	1000	3280	SPT1DM821G18O00RAXXX	
1000	10x18	28	1100	4000	SPT1DM102G18O00RAXXX		
25	22	5x9	90	500	500	SPT1EM220D09O00RAXXX	
	33	5x9	90	500	500	SPT1EM330D09O00RAXXX	
	39	5x8	90	500	500	SPT1EM390D08O00RAXXX	
	47	5x9	90	500	500	SPT1EM470D09O00RAXXX	
	56	5x9	90	600	500	SPT1EM560D09O00RAXXX	
	68	6.3x7	45	600	500	SPT1EM680E07O00RAXXX	
	82	6.3x7	45	600	500	SPT1EM820E07O00RAXXX	
	100	6.3x8	45	700	500	SPT1EM101E08O00RAXXX	
	100	6.3x10	30	800	500	SPT1EM101E10O00RAXXX	
	100	8x11	30	900	500	SPT1EM101F11O00RAXXX	
	120	6.3x8	45	700	600	SPT1EM121E08O00RAXXX	
	150	6.3x10	30	800	750	SPT1EM151E10O00RAXXX	

**PT series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL (mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
25	180	6.3x10	30	800	900	SPT1EM181E10O00RAXXX
	180	8x9	45	700	900	SPT1EM181F09O00RAXXX
	220	8x11	30	900	1100	SPT1EM221F11O00RAXXX
	220	10x12	30	1000	1100	SPT1EM221G12O00RAXXX
	270	8x11	30	900	1350	SPT1EM271F11O00RAXXX
	330	8x11	30	900	1650	SPT1EM331F11O00RAXXX
	330	10x10	37	800	1650	SPT1EM331G10O00RAXXX
	330	10x12	30	1100	1650	SPT1EM331G12O00RAXXX
	470	8x16	30	1000	2350	SPT1EM471F16O00RAXXX
	470	10x12	30	1200	2350	SPT1EM471G12O00RAXXX
	560	10x12	30	1200	2800	SPT1EM561G12O00RAXXX
	680	10x12	30	1200	3400	SPT1EM681G12O00RAXXX
	680	10x15	30	1200	3400	SPT1EM681G15O00RAXXX
	820	10x18	30	1200	4100	SPT1EM821G18O00RAXXX
	1000	10x18	30	1300	5000	SPT1EM102G18O00RAXXX

Specifications subject to change without notice.

Conductive Polymer Radial Type

# PK series

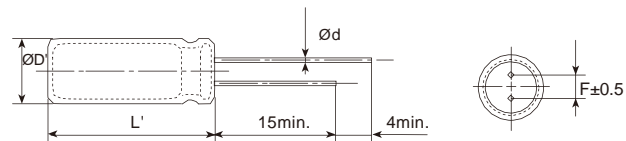
- Endurance: 3,000 hours at 135°C
- High Temperature Resistance
- Recommended Applications: Large LED lamp power supply
- RoHS Compliant and lead-free



**SPECIFICATIONS**

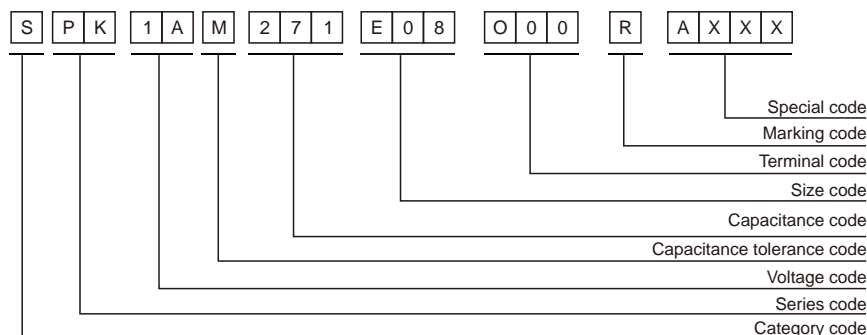
Items	Characteristics				
Category Temperature Range	-55~+135°C				
Rated Working Voltage Range	6.3~25 V <sub>dc</sub>				
Nominal Capacitance Range	100~1500μF				
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)				
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)				
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25
	Dissipation Factor (Max.)	0.08	0.12 (at 20°C,120Hz)		
ESR(100kHz, 20°C)	Value in characteristics table				
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25				
Endurance	After applying rated voltage for 3,000 hours at 135°C, the capacitors shall meet the following requirements.				
	Appearance	No significant damage			
	Capacitance Change	±20% of the initial value			
	Dissipation Factor	150% of the initial specified value			
	ESR	150% of the initial specified value			
Leakage Current	The initial specified value				
Humidity Test	After subjecting to 90~95% RH for 2,000 hours at 60°C without voltage applied,the capacitors shall meet the specified values for the Endurance characteristics listed above.				
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.				
	Appearance	No significant damage			
	Capacitance Change	±20% of the initial value			
	Dissipation Factor	150% of the initial specified value			
	ESR	150% of the initial specified value			
Leakage Current	The initial specified value				

**DIMENSIONS[mm]**



øD	6.3	8	10
ød	0.5	0.6	0.6
F	2.5	3.5	5.0
øD'	øD-0.1~+0.5		
L'	L+1.0max.	L-0.5~+1	

**PART NUMBERING SYSTEM**



# PK series

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ,20°C,100kHz)(max.)	Rated ripple current (mA <sub>rms</sub> /135°C,100kHz)	Leakage Current (μA)(max.)	Part Number
6.3	330	6.3x8	22	400	500	SPK0JM331E08O00RAXXX
	470	6.3x8	22	400	592	SPK0JM471E08O00RAXXX
	560	6.3x8	30	400	706	SPK0JM561E08O00RAXXX
	680	8x9	30	400	857	SPK0JM681F09O00RAXXX
	820	8x11	15	500	1033	SPK0JM821F11O00RAXXX
	1000	8x11	15	500	1260	SPK0JM102F11O00RAXXX
	1200	8x11	15	500	1512	SPK0JM122F11O00RAXXX
	1500	10x12	15	500	1890	SPK0JM152G12O00RAXXX
10	180	6.3x7	30	200	500	SPK1AM181E07O00RAXXX
	220	6.3x8	22	300	500	SPK1AM221E08O00RAXXX
	270	6.3x8	30	300	540	SPK1AM271E08O00RAXXX
	330	6.3x10	18	300	660	SPK1AM331E10O00RAXXX
	470	8x11	18	500	940	SPK1AM471F11O00RAXXX
	680	8x11	18	300	1360	SPK1AM681F11O00RAXXX
	1000	10x12	15	500	2000	SPK1AM102G12O00RAXXX
	1200	10x12	15	500	2400	SPK1AM122G12O00RAXXX
16	100	6.3x8	30	200	500	SPK1CM101E08O00RAXXX
	470	8x11	22	400	1504	SPK1CM471F11O00RAXXX
	560	10x12	18	300	1792	SPK1CM561G12O00RAXXX
	680	10x12	18	300	2176	SPK1CM681G12O00RAXXX
25	180	8x11	30	300	900	SPK1EM181F11O00RAXXX
	270	10x12	30	300	1350	SPK1EM271G12O00RAXXX

Specifications subject to change without notice.

**PF series**

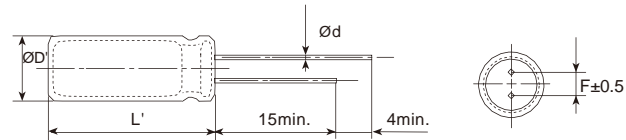
- Endurance: 3,000~5,000 hours at 105°C
- Long life time
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- RoHS Compliant and lead-free



**SPECIFICATIONS**

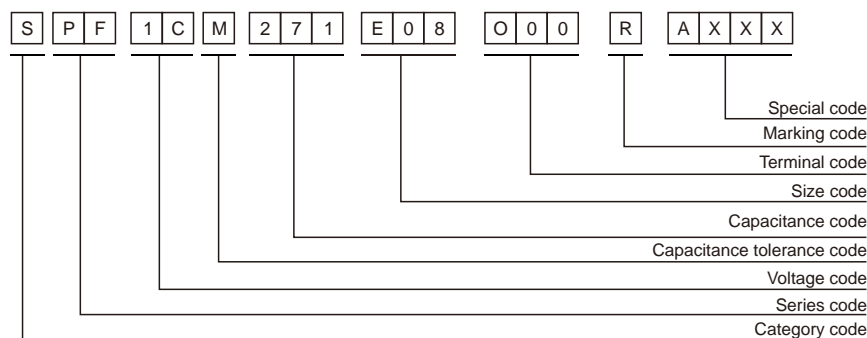
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	6.3~125 V <sub>dc</sub>	
Nominal Capacitance Range	4.7~5600μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage (V <sub>dc</sub> ) 6.3 : 6.8 : 7 : 7.5 : 10 : 12 : 16 : 20 : 25 : 35 : 50 : 63 : 80 : 100 : 125 (at 20°C, 120Hz) Dissipation Factor (Max.) 0.08 0.12 0.15	
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 3,000 ~ 5,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Humidity Test	After subjecting to 90~95%RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.	
	Leakage Current	The initial specified value
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Leakage Current	The initial specified value	

**DIMENSIONS[mm]**



	5	5.5	6.3	8	10
øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~+0.5	øD-0.3~+0.3	øD-0.1~+0.5		
L'	L+1.0max.			L-0.5~+1	

**PART NUMBERING SYSTEM**



**PF series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
6.3	220	5x7	22	3100	500	SPF0JM221D07000RAXXX	
	270	5x7	22	3400	500	SPF0JM271D07000RAXXX	
	330	5x8	22	3600	500	SPF0JM331D08000RAXXX	
	330	6.3x5	27	2800	500	SPF0JM331E05000RAXXX	
	330	6.3x8	16	3600	500	SPF0JM331E08000RAXXX	
	390	5x9	22	3600	500	SPF0JM391D09000RAXXX	
	470	5x10	22	3800	592	SPF0JM471D10000RAXXX	
	470	5.5x9	22	3600	592	SPF0JM471B09000RAXXX	
	470	6.3x8	16	3900	592	SPF0JM471E08000RAXXX	
	560	5.5x9	22	3800	706	SPF0JM561B09000RAXXX	
	560	6.3x8	22	4300	706	SPF0JM561E08000RAXXX	
	680	5.5x9	22	4300	857	SPF0JM681B09000RAXXX	
	680	6.3x9	22	4500	857	SPF0JM681E09000RAXXX	
	680	8x9	22	4100	857	SPF0JM681F09000RAXXX	
	820	6.3x9	22	4500	1033	SPF0JM821E09000RAXXX	
	1000	6.3x10	11	4600	1260	SPF0JM102E10000RAXXX	
	1000	8x9	13	4300	1260	SPF0JM102F09000RAXXX	
	1000	8x11	11	4600	1260	SPF0JM102F11000RAXXX	
	1200	8x11	11	4700	1512	SPF0JM122F11000RAXXX	
	1500	8x11	11	4800	1890	SPF0JM152F11000RAXXX	
	1500	10x12	11	4900	1890	SPF0JM152G12000RAXXX	
	1800	10x10	11	5000	2268	SPF0JM182G10000RAXXX	
	2200	8x14	11	5100	2772	SPF0JM222F14000RAXXX	
	2200	10x12	11	5200	2772	SPF0JM222G12000RAXXX	
3300	10x14	11	5300	4158	SPF0JM332G14000RAXXX		
4700	10x17	11	5400	5000	SPF0JM472G17000RAXXX		
5600	10x18	11	5600	5000	SPF0JM562G18000RAXXX		
6.8	220	5x7	22	2900	500	SPF0CM221D07000RAXXX	
	270	5x7	22	3200	500	SPF0CM271D07000RAXXX	
	330	5x8	22	3400	500	SPF0CM331D08000RAXXX	
	390	5x9	22	3500	530	SPF0CM391D09000RAXXX	
	470	5x9	22	3600	639	SPF0CM471D09000RAXXX	
	470	6.3x7	22	3300	639	SPF0CM471E07000RAXXX	
	560	6.3x8	22	4000	762	SPF0CM561E08000RAXXX	
	680	6.3x9	22	4300	925	SPF0CM681E09000RAXXX	
	820	6.3x9	22	4400	1115	SPF0CM821E09000RAXXX	
	1000	6.3x11	13	4600	1360	SPF0CM102E11000RAXXX	
	1000	8x11	11	4600	1360	SPF0CM102F11000RAXXX	
	7	220	5x7	22	2800	500	SPF0QM221D07000RAXXX
		270	5x8	22	3000	500	SPF0QM271D08000RAXXX
		330	5x9	22	3200	500	SPF0QM331D09000RAXXX
		470	5.5x9	22	3200	658	SPF0QM471B09000RAXXX
		470	6.3x8	22	3400	658	SPF0QM471E08000RAXXX
560		6.3x8	22	3600	784	SPF0QM561E08000RAXXX	
680		6.3x9	13	3700	952	SPF0QM681E09000RAXXX	
820		6.3x10	13	4000	1148	SPF0QM821E10000RAXXX	
820		8x9	13	4100	1148	SPF0QM821F09000RAXXX	
7.5		220	5x7	22	2700	500	SPF0AM221D07000RAXXX
		270	5x8	22	2900	500	SPF0AM271D08000RAXXX
		330	5x9	22	3100	500	SPF0AM331D09000RAXXX
	470	5.5x9	22	3100	705	SPF0AM471B09000RAXXX	
	470	6.3x7	28	2800	705	SPF0AM471E07000RAXXX	
	500	5.5x9	22	3200	750	SPF0AM501B09000RAXXX	
	560	6.3x8	22	3500	840	SPF0AM561E08000RAXXX	
	680	6.3x9	13	3600	1020	SPF0AM681E09000RAXXX	
	820	6.3x10	13	3900	1230	SPF0AM821E10000RAXXX	
	820	8x9	13	4000	1230	SPF0AM821F09000RAXXX	
	1200	8x11	13	4300	1800	SPF0AM122F11000RAXXX	
	10	47	5x7	38	1900	500	SPF1AM470D07000RAXXX
		56	5x7	38	2000	500	SPF1AM560D07000RAXXX
		68	5x7	38	2000	500	SPF1AM680D07000RAXXX
82		5x7	38	2100	500	SPF1AM820D07000RAXXX	
100		5x7	38	2100	500	SPF1AM101D07000RAXXX	
120		5x7	22	2200	500	SPF1AM121D07000RAXXX	
150		5x7	22	2200	500	SPF1AM151D07000RAXXX	
220		5x9	22	2500	500	SPF1AM221D09000RAXXX	
220		6.3x8	16	2800	500	SPF1AM221E08000RAXXX	
270		6.3x8	22	2700	540	SPF1AM271E08000RAXXX	
330		6.3x8	22	2900	660	SPF1AM331E08000RAXXX	
330		8x9	16	3000	660	SPF1AM331F09000RAXXX	
390		6.3x9	22	3000	780	SPF1AM391E08000RAXXX	
470		5.5x9	22	3000	940	SPF1AM471B09000RAXXX	
470		6.3x8	22	3100	940	SPF1AM471E08000RAXXX	
470		8x9	16	3100	940	SPF1AM471F09000RAXXX	

Conductive Polymer Radial Type



**PF series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number
10	560	6.3x10	14	3200	1120	SPF1AM561E10O00RAXXX
	560	8x9	16	3200	1120	SPF1AM561F09O00RAXXX
	680	8x11	13	3500	1360	SPF1AM681F11O00RAXXX
	820	8x11	13	3600	1640	SPF1AM821F11O00RAXXX
	1000	8x11	13	3700	2000	SPF1AM102F11O00RAXXX
	1000	10x12	11	4700	2000	SPF1AM102G12O00RAXXX
	1200	8x12	11	4000	2400	SPF1AM122F12O00RAXXX
	1200	10x12	11	4900	2400	SPF1AM122G12O00RAXXX
	1500	10x12	11	4900	3000	SPF1AM152G12O00RAXXX
	1800	10x13	11	5200	3600	SPF1AM182G13O00RAXXX
	2200	10x15	11	5400	4400	SPF1AM222G15O00RAXXX
	3300	10x18	11	5500	5000	SPF1AM332G18O00RAXXX
12	330	5.5x9	22	2700	792	SPF1TM331B09O00RAXXX
	470	5.5x9	22	2800	1128	SPF1TM471B09O00RAXXX
	470	6.3x9	22	3100	1128	SPF1TM471E09O00RAXXX
	680	6.3x11	17	3200	1632	SPF1TM681E11O00RAXXX
	820	8x11	13	3400	1968	SPF1TM821F11O00RAXXX
	1000	8x12	13	3600	2400	SPF1TM102F12O00RAXXX
	1200	8x14	13	3900	2880	SPF1TM122F14O00RAXXX
	1500	8x16	13	4300	3600	SPF1TM152F16O00RAXXX
16	47	5x7	22	1800	500	SPF1CM470D07O00RAXXX
	56	5x7	22	1800	500	SPF1CM560D07O00RAXXX
	68	5x7	22	1900	500	SPF1CM680D07O00RAXXX
	82	5x8	22	1900	500	SPF1CM820D08O00RAXXX
	100	5x7	22	2000	500	SPF1CM101D07O00RAXXX
	100	6.3x5	27	1800	500	SPF1CM101E05O00RAXXX
	120	5x8	22	2100	500	SPF1CM121D08O00RAXXX
	150	5x8	22	2100	500	SPF1CM151D08O00RAXXX
	180	5x8	22	2200	576	SPF1CM181D08O00RAXXX
	180	6.3x7	17	2200	576	SPF1CM181E07O00RAXXX
	220	5x10	22	2300	704	SPF1CM221D10O00RAXXX
	220	6.3x8	22	2400	704	SPF1CM221E08O00RAXXX
	220	6.3x10	16	2600	704	SPF1CM221E10O00RAXXX
	270	5.5x9	22	2400	864	SPF1CM271B09O00RAXXX
	270	6.3x8	22	2500	864	SPF1CM271E08O00RAXXX
	270	8x9	22	2600	864	SPF1CM271F09O00RAXXX
	330	5.5x9	22	2600	1056	SPF1CM331B09O00RAXXX
	330	6.3x9	22	2600	1056	SPF1CM331E09O00RAXXX
	470	6.3x11	16	2800	1504	SPF1CM471E11O00RAXXX
	470	8x11	16	4100	1504	SPF1CM471F11O00RAXXX
	560	8x11	16	2800	1792	SPF1CM561F11O00RAXXX
	560	8x13	16	2800	1792	SPF1CM561F13O00RAXXX
	680	8x11	16	3000	2176	SPF1CM681F11O00RAXXX
	680	10x12	13	3200	2176	SPF1CM681G12O00RAXXX
820	8x13	12	3100	2624	SPF1CM821F13O00RAXXX	
820	10x12	13	3400	2624	SPF1CM821G12O00RAXXX	
1000	8x14	13	3200	3200	SPF1CM102F14O00RAXXX	
1000	10x12	13	3600	3200	SPF1CM102G12O00RAXXX	
1200	10x12	13	3700	3840	SPF1CM122G12O00RAXXX	
1200	10x15	13	3800	3840	SPF1CM122G15O00RAXXX	
1500	10x18	13	4900	4800	SPF1CM152G18O00RAXXX	
1800	10x14	13	4800	5000	SPF1CM182G14O00RAXXX	
2200	10x15	13	4900	5000	SPF1CM222G15O00RAXXX	
2200	10x17	13	5200	5000	SPF1CM222G17O00RAXXX	
20	33	5x8	44	1700	500	SPF1DM330D08O00RAXXX
	39	5x8	44	1700	500	SPF1DM390D08O00RAXXX
	47	5x8	44	1900	500	SPF1DM470D08O00RAXXX
	56	5x9	44	1900	500	SPF1DM560D09O00RAXXX
	68	6.3x8	33	1900	500	SPF1DM680E08O00RAXXX
	82	6.3x8	33	1900	500	SPF1DM820E08O00RAXXX
	100	6.3x8	33	1900	500	SPF1DM101E08O00RAXXX
	120	6.3x8	33	2000	500	SPF1DM121E08O00RAXXX
	150	6.3x10	22	2100	600	SPF1DM151E10O00RAXXX
	220	8x9	33	2200	880	SPF1DM221F09O00RAXXX
	220	8x11	22	2200	880	SPF1DM221F11O00RAXXX
	270	8x11	22	2400	1080	SPF1DM271F11O00RAXXX
	330	8x11	22	2500	1320	SPF1DM331F11O00RAXXX
	470	10x12	22	2600	1880	SPF1DM471G12O00RAXXX
	680	10x12	22	2700	2720	SPF1DM681G12O00RAXXX
	680	10x15	22	2900	2720	SPF1DM681G15O00RAXXX
	820	10x18	22	3000	3280	SPF1DM821G18O00RAXXX
	1000	10x18	22	3500	4000	SPF1DM102G18O00RAXXX

**PF series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number
25	33	5x9	66	1600	500	SPF1EM330D09O00RAXXX
	39	5x8	66	1700	500	SPF1EM390D08O00RAXXX
	47	5x9	66	1700	500	SPF1EM470D09O00RAXXX
	56	5x9	66	1800	500	SPF1EM560D09O00RAXXX
	82	6.3x7	33	1900	500	SPF1EM820E07O00RAXXX
	100	6.3x8	33	2200	500	SPF1EM101E08O00RAXXX
	100	8x11	22	2700	500	SPF1EM101F11O00RAXXX
	120	6.3x8	33	2200	600	SPF1EM121E08O00RAXXX
	150	6.3x10	22	2500	750	SPF1EM151E10O00RAXXX
	180	8x9	33	2200	900	SPF1EM181F09O00RAXXX
	220	8x11	22	2700	1100	SPF1EM221F11O00RAXXX
	270	8x11	22	2700	1350	SPF1EM271F11O00RAXXX
	330	8x11	22	2700	1650	SPF1EM331F11O00RAXXX
	330	10x12	22	2500	1650	SPF1EM331G12O00RAXXX
	470	8x11	22	2700	2350	SPF1EM471F11O00RAXXX
	470	10x12	22	3600	2350	SPF1EM471G12O00RAXXX
	680	10x15	22	3800	3400	SPF1EM681G15O00RAXXX
	820	8x16	22	3200	4100	SPF1EM821F16O00RAXXX
35	820	10x18	22	4000	4100	SPF1EM821G18O00RAXXX
	1000	10x18	22	4000	5000	SPF1EM102G18O00RAXXX
	4.7	5x8	66	1500	500	SPF1VM47D08O00RAXXX
	10	5x8	66	1600	500	SPF1VM100D08O00RAXXX
	15	5x8	66	1600	500	SPF1VM150D08O00RAXXX
	22	5x9	110	1700	500	SPF1VM220D09O00RAXXX
	33	5x9	55	1800	500	SPF1VM330D09O00RAXXX
	39	5x9	55	1800	500	SPF1VM390D09O00RAXXX
	47	6.3x7	55	1800	500	SPF1VM470E07O00RAXXX
	56	6.3x7	55	1900	500	SPF1VM560E07O00RAXXX
	68	6.3x7	55	1900	500	SPF1VM680E07O00RAXXX
	82	6.3x7	55	2000	574	SPF1VM820E07O00RAXXX
	100	6.3x8	55	2100	700	SPF1VM101E08O00RAXXX
	100	8x11	44	2300	700	SPF1VM101F11O00RAXXX
	120	6.3x10	44	2200	840	SPF1VM121E10O00RAXXX
	150	6.3x10	44	2200	1050	SPF1VM151E10O00RAXXX
	220	8x11	44	2500	1540	SPF1VM221F11O00RAXXX
	220	10x12	33	2600	1540	SPF1VM221G12O00RAXXX
270	10x12	33	2700	1890	SPF1VM271G12O00RAXXX	
330	10x12	33	2700	2310	SPF1VM331G12O00RAXXX	
470	10x13	22	2800	3290	SPF1VM471G13O00RAXXX	
680	10x16	22	3000	4760	SPF1VM681G16O00RAXXX	
820	10x18	22	3100	5000	SPF1VM821G18O00RAXXX	
1000	10x18	22	3300	5000	SPF1VM102G18O00RAXXX	
50	4.7	5x8	66	1300	500	SPF1HM47D08O00RAXXX
	10	5x8	77	1400	500	SPF1HM100D08O00RAXXX
	10	6.3x7	38	1600	500	SPF1HM100E07O00RAXXX
	15	5x8	77	1400	500	SPF1HM150D08O00RAXXX
	22	6.3x7	44	1700	500	SPF1HM220E07O00RAXXX
	33	6.3x7	44	1800	500	SPF1HM330E07O00RAXXX
	47	6.3x8	38	1800	500	SPF1HM470E08O00RAXXX
	56	6.3x8	38	1900	560	SPF1HM560E08O00RAXXX
	68	6.3x10	33	1900	680	SPF1HM680E10O00RAXXX
	100	8x11	33	2000	1000	SPF1HM101F11O00RAXXX
	120	8x11	33	2100	1200	SPF1HM121F11O00RAXXX
	150	10x12	33	2200	1500	SPF1HM151G12O00RAXXX
	220	10x12	33	2400	2200	SPF1HM221G12O00RAXXX
	270	10x13	22	2600	2700	SPF1HM271G13O00RAXXX
	330	10x15	22	2700	3300	SPF1HM331G15O00RAXXX
	440	10x18	22	2700	4400	SPF1HM441G18O00RAXXX
	470	10x18	22	2800	4700	SPF1HM471G18O00RAXXX
	63	4.7	6.3x8	66	1400	500
6.8		6.3x8	66	1400	500	SPF1JM68E08O00RAXXX
10		6.3x5	66	1400	500	SPF1JM100E05O00RAXXX
33		6.3x8	33	1500	500	SPF1JM330E08O00RAXXX
39		6.3x8	33	1500	500	SPF1JM390E08O00RAXXX
47		6.3x9	33	1700	592	SPF1JM470E09O00RAXXX
56		8x9	33	1600	706	SPF1JM560F09O00RAXXX
68		8x11	33	1800	857	SPF1JM680F11O00RAXXX
82		8x11	33	1800	1033	SPF1JM820F11O00RAXXX
100		10x12	33	1900	1260	SPF1JM101G12O00RAXXX
150		10x12	33	2200	1890	SPF1JM151G12O00RAXXX
220		10x15	22	2300	2772	SPF1JM221G15O00RAXXX
270		10x17	22	2500	3402	SPF1JM271G17O00RAXXX
330		10x18	22	2600	4158	SPF1JM331G18O00RAXXX

Conductive Polymer Radial Type

# PF series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
80	4.7	6.3x8	66	1300	500	SPF1BM4R7E08O00RAXXX
	6.8	6.3x8	66	1300	500	SPF1BM6R8E08O00RAXXX
	22	6.3x10	66	1400	500	SPF1BM220E10O00RAXXX
	33	8x11	38	1500	528	SPF1BM330F11O00RAXXX
	47	10x12	38	1600	752	SPF1BM470G12O00RAXXX
	68	10x12	38	1700	1088	SPF1BM680G12O00RAXXX
100	100	10x14	38	1800	1600	SPF1BM101G14O00RAXXX
	4.7	6.3x8	132	1200	500	SPF1KM4R7E08O00RAXXX
	6.8	6.3x8	132	1300	500	SPF1KM6R8E08O00RAXXX
	10	6.3x10	55	1300	500	SPF1KM100E10O00RAXXX
	10	8x11	55	1300	500	SPF1KM100F11O00RAXXX
	15	8x11	55	1300	500	SPF1KM150F11O00RAXXX
	22	10x12	38	1400	500	SPF1KM220G12O00RAXXX
	33	10x14	38	1400	660	SPF1KM330G14O00RAXXX
125	47	10x16	38	1600	940	SPF1KM470G16O00RAXXX
	33	10x14	38	1400	825	SPF2IM330G14O00RAXXX
	47	10x16	38	1400	1175	SPF2IM470G16O00RAXXX

Specifications subject to change without notice.

# PU series

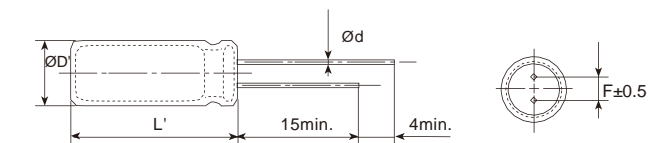
- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: High Order Main Board, Display Card
- RoHS Compliant and lead-free



SPECIFICATIONS

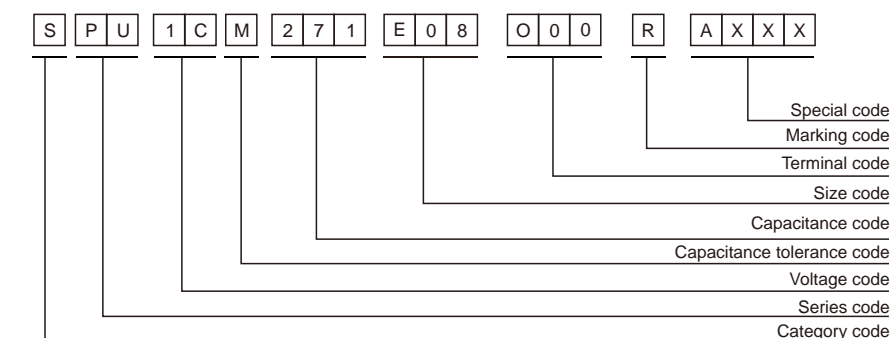
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	6.3~25 V <sub>dc</sub>	
Nominal Capacitance Range	39~5600μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3 6.8 7 7.5 10 12 16 20 25 (at 20°C, 120Hz)
	Dissipation Factor (Max.)	0.08 0.12 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Humidity Test	After subjecting to 90~95% RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.	
	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
Surge Test	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

DIMENSIONS[mm]



øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~+0.5		øD-0.3~+0.3		øD-0.1~+0.5
L'	L+1.0max.			L-0.5~+1	

PART NUMBERING SYSTEM





**PU series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size D×L(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number
6.3	220	5×7	14	3800	500	SPU0JM221D07O00RAXXX
	270	5×7	14	4100	500	SPU0JM271D07O00RAXXX
	330	5×8	14	4400	500	SPU0JM331D08O00RAXXX
	330	6.3×5	17	3400	500	SPU0JM331E05O00RAXXX
	330	6.3×8	10	4400	500	SPU0JM331E08O00RAXXX
	390	5×9	14	4500	500	SPU0JM391D09O00RAXXX
	470	5×10	14	4700	592	SPU0JM471D10O00RAXXX
	470	5.5×9	14	4500	592	SPU0JM471B09O00RAXXX
	470	6.3×8	10	4800	592	SPU0JM471E08O00RAXXX
	560	5.5×9	14	4700	706	SPU0JM561B09O00RAXXX
	560	6.3×8	8	5200	706	SPU0JM561E08O00RAXXX
	680	5.5×9	14	5200	857	SPU0JM681B09O00RAXXX
	680	6.3×9	14	5500	857	SPU0JM681E09O00RAXXX
	680	8×9	14	5000	857	SPU0JM681F09O00RAXXX
	820	6.3×9	14	5500	1033	SPU0JM821E09O00RAXXX
	1000	6.3×10	8	5600	1260	SPU0JM102E10O00RAXXX
	1000	8×11	8	5700	1260	SPU0JM102F11O00RAXXX
	1200	8×11	8	5800	1512	SPU0JM122F11O00RAXXX
	1500	8×11	8	5900	1890	SPU0JM152F11O00RAXXX
	1500	10×12	8	6000	1890	SPU0JM152G12O00RAXXX
1800	10×10	8	6100	2268	SPU0JM182G10O00RAXXX	
2200	8×14	8	6200	2772	SPU0JM222F14O00RAXXX	
2200	10×12	8	6300	2772	SPU0JM222G12O00RAXXX	
3300	10×14	8	6400	4158	SPU0JM332G14O00RAXXX	
4700	10×17	8	6700	5000	SPU0JM472G17O00RAXXX	
5600	10×18	8	6900	5000	SPU0JM562G18O00RAXXX	
6.8	220	5×7	15	3630	500	SPU0CM221D07O00RAXXX
	270	5×7	15	3960	500	SPU0CM271D07O00RAXXX
	330	5×8	15	4180	500	SPU0CM331D08O00RAXXX
	330	6.3×5	20	3410	500	SPU0CM331E05O00RAXXX
	390	5×9	15	4290	530	SPU0CM391D09O00RAXXX
	470	5×9	15	4510	639	SPU0CM471D09O00RAXXX
	470	6.3×7	15	4070	639	SPU0CM471E07O00RAXXX
	560	6.3×8	15	4950	762	SPU0CM561E08O00RAXXX
	680	6.3×9	15	5280	925	SPU0CM681E09O00RAXXX
	820	6.3×9	15	5390	1115	SPU0CM821E09O00RAXXX
	1000	6.3×11	10	5610	1360	SPU0CM102E11O00RAXXX
	1000	8×11	8	5665	1360	SPU0CM102F11O00RAXXX
7	220	5×7	18	3520	500	SPU0QM221D07O00RAXXX
	270	5×8	18	3740	500	SPU0QM271D08O00RAXXX
	330	5×9	18	3960	500	SPU0QM331D09O00RAXXX
	470	5.5×9	18	3960	658	SPU0QM471B09O00RAXXX
	470	6.3×8	18	4180	658	SPU0QM471E08O00RAXXX
	560	6.3×8	18	4400	784	SPU0QM561E08O00RAXXX
	680	6.3×9	11	4620	952	SPU0QM681E09O00RAXXX
	820	6.3×10	11	4950	1148	SPU0QM821E10O00RAXXX
	820	8×9	11	5060	1148	SPU0QM821F09O00RAXXX
	1000	8×11	11	5280	1800	SPU0AM122F11O00RAXXX
7.5	220	5×7	18	3410	500	SPU0AM221D07O00RAXXX
	270	5×8	18	3630	500	SPU0AM271D08O00RAXXX
	330	5×9	18	3850	500	SPU0AM331D09O00RAXXX
	390	5×9	18	3850	585	SPU0AM391D09O00RAXXX
	470	5.5×9	18	3905	705	SPU0AM471B09O00RAXXX
	470	6.3×7	23	3520	705	SPU0AM471E07O00RAXXX
	500	5.5×9	18	3960	750	SPU0AM501B09O00RAXXX
	560	6.3×8	18	4290	840	SPU0AM561E08O00RAXXX
	680	6.3×9	11	4510	1020	SPU0AM681E09O00RAXXX
	820	6.3×10	11	4840	1230	SPU0AM821E10O00RAXXX
10	47	5×7	24	2400	500	SPU1AM470D07O00RAXXX
	56	5×7	24	2400	500	SPU1AM560D07O00RAXXX
	68	5×7	24	2500	500	SPU1AM680D07O00RAXXX
	82	5×7	24	2500	500	SPU1AM820D07O00RAXXX
	100	5×7	24	2600	500	SPU1AM101D07O00RAXXX
	120	5×7	14	2600	500	SPU1AM121D07O00RAXXX
	150	5×7	14	2700	500	SPU1AM151D07O00RAXXX
	220	5×9	14	3100	500	SPU1AM221D09O00RAXXX
	220	6.3×8	10	3400	500	SPU1AM221E08O00RAXXX
	270	6.3×8	14	3400	540	SPU1AM271E08O00RAXXX
	330	6.3×8	14	3600	660	SPU1AM331E08O00RAXXX
	330	8×9	10	3700	660	SPU1AM331F09O00RAXXX
	390	6.3×8	14	3700	780	SPU1AM391E08O00RAXXX

**PU series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size D×L(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number	
10	470	5.5×9	14	3700	940	SPU1AM471B09O00RAXXX	
	470	6.3×8	14	3800	940	SPU1AM471E08O00RAXXX	
	470	8×9	10	3900	940	SPU1AM471F09O00RAXXX	
	560	6.3×10	9	3900	1120	SPU1AM561E10O00RAXXX	
	560	8×9	10	3900	1120	SPU1AM561F09O00RAXXX	
	680	8×11	8	4200	1360	SPU1AM681F11O00RAXXX	
	820	8×11	8	4400	1640	SPU1AM821F11O00RAXXX	
	1000	8×11	8	4600	2000	SPU1AM102F11O00RAXXX	
	1000	10×12	8	5800	2000	SPU1AM102G12O00RAXXX	
	1200	8×12	8	4900	2400	SPU1AM122F12O00RAXXX	
	1200	10×12	8	5900	2400	SPU1AM122G12O00RAXXX	
	1500	10×12	8	6000	3000	SPU1AM152G12O00RAXXX	
	1800	10×13	8	6300	3600	SPU1AM182G13O00RAXXX	
	2200	10×15	8	6700	4400	SPU1AM222G15O00RAXXX	
	3300	10×18	8	6800	5000	SPU1AM332G18O00RAXXX	
	12	330	5.5×9	18	3410	792	SPU1TM331B09O00RAXXX
		470	5.5×9	18	3520	1128	SPU1TM471B09O00RAXXX
		470	6.3×9	18	3795	1128	SPU1TM471E09O00RAXXX
560		6.3×10	14	3740	1344	SPU1TM561E10O00RAXXX	
680		6.3×11	14	3960	1632	SPU1TM681E11O00RAXXX	
680		8×10	14	4070	1632	SPU1TM681F10O00RAXXX	
820		8×11	11	4180	1968	SPU1TM821F11O00RAXXX	
1000		8×12	11	4400	2400	SPU1TM102F12O00RAXXX	
1200		8×14	11	4840	2880	SPU1TM122F14O00RAXXX	
1500		8×16	11	5280	3600	SPU1TM152F16O00RAXXX	
16		47	5×7	14	2200	500	SPU1CM470D07O00RAXXX
		56	5×7	14	2300	500	SPU1CM560D07O00RAXXX
	68	5×7	14	2300	500	SPU1CM680D07O00RAXXX	
	82	5×8	14	2400	500	SPU1CM820D08O00RAXXX	
	100	5×7	14	2400	500	SPU1CM101D07O00RAXXX	
	100	6.3×5	17	2300	500	SPU1CM101E05O00RAXXX	
	100	6.3×8	14	3000	500	SPU1CM101E08O00RAXXX	
	120	5×8	14	2500	500	SPU1CM121D08O00RAXXX	
	150	5×8	14	2600	500	SPU1CM151D08O00RAXXX	
	180	5×8	14	2600	576	SPU1CM181D08O00RAXXX	
	180	6.3×7	11	2700	576	SPU1CM181E07O00RAXXX	
	220	5×10	14	2800	704	SPU1CM221D10O00RAXXX	
	220	6.3×8	14	2900	704	SPU1CM221E08O00RAXXX	
	220	6.3×10	10	3100	704	SPU1CM221E10O00RAXXX	
	270	5.5×9	14	3000	864	SPU1CM271B09O00RAXXX	
	270	6.3×8	14	3000	864	SPU1CM271E08O00RAXXX	
	270	8×9	14	3100	864	SPU1CM271F09O00RAXXX	
	330	5.5×9	14	3100	1056	SPU1CM331B09O00RAXXX	
	330	6.3×9	14	3100	1056	SPU1CM331E09O00RAXXX	
	470	6.3×11	10	3500	1504	SPU1CM471E11O00RAXXX	
	470	8×11	10	5000	1504	SPU1CM471F11O00RAXXX	
	560	8×11	10	3500	1792	SPU1CM561F11O00RAXXX	
	560	8×13	10	3600	1792	SPU1CM561F13O00RAXXX	
	560	10×12	8	3800	1792	SPU1CM561G12O00RAXXX	
680	8×11	10	3700	2176	SPU1CM681F11O00RAXXX		
680	10×12	8	3900	2176	SPU1CM681G12O00RAXXX		
820	8×13	8	3800	2624	SPU1CM821F13O00RAXXX		
820	10×12	8	4100	2624	SPU1CM821G12O00RAXXX		
1000	8×14	8	3900	3200	SPU1CM102F14O00RAXXX		
1000	10×12	8	4400	3200	SPU1CM102G12O00RAXXX		
1200	10×15	8	4700	3840	SPU1CM122G15O00RAXXX		
1500	10×18	8	6000	4800	SPU1CM152G18O00RAXXX		
1800	10×15	9	5900	5000	SPU1CM182G15O00RAXXX		
2200	10×18	8	6300	5000	SPU1CM222G18O00RAXXX		
20	39	5×8	36	2145	500	SPU1DM390D08O00RAXXX	
	47	5×8	36	2420	500	SPU1DM470D08O00RAXXX	
	56	5×9	36	2310	500	SPU1DM560D09O00RAXXX	
	68	6.3×8	27	2310	500	SPU1DM680E08O00RAXXX	
	82	6.3×8	27	2365	500	SPU1DM820E08O00RAXXX	
	100	6.3×8	27	2420	500	SPU1DM101E08O00RAXXX	
	120	6.3×8	27	2530	500	SPU1DM121E08O00RAXXX	
	150	6.3×10	18	2585	600	SPU1DM151E10O00RAXXX	
	180	8×9	27	2695	720	SPU1DM181F09O00RAXXX	
	220	8×11	15	4100	880	SPU1DM221F11O00RAXXX	
	270	8×11	15	3500	1080	SPU1DM271F11O00RAXXX	
	330	8×11	15	3600	1320	SPU1DM331F11O00RAXXX	

Conductive Polymer  
Radial Type



PU series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
20	470	10x12	15	3700	1880	SPU1DM471G12O00RAXXX
	560	10x13	15	3800	2240	SPU1DM561G13O00RAXXX
	680	10x15	15	3900	2720	SPU1DM681G15O00RAXXX
	820	10x18	15	4000	3280	SPU1DM821G18O00RAXXX
	1000	10x18	15	4300	4000	SPU1DM102G18O00RAXXX
25	39	5x8	42	2000	500	SPU1EM390D08O00RAXXX
	47	5x9	42	2100	500	SPU1EM470D09O00RAXXX
	56	5x9	42	2200	500	SPU1EM560D09O00RAXXX
	68	6.3x7	21	2300	500	SPU1EM680E07O00RAXXX
	82	6.3x7	21	2300	500	SPU1EM820E07O00RAXXX
	100	6.3x8	21	2700	500	SPU1EM101E08O00RAXXX
	100	6.3x10	14	3000	500	SPU1EM101E10O00RAXXX
	100	8x11	14	3300	500	SPU1EM101F11O00RAXXX
	120	6.3x8	21	2700	600	SPU1EM121E08O00RAXXX
	150	6.3x10	14	3000	750	SPU1EM151E10O00RAXXX
	180	8x9	21	2700	900	SPU1EM181F09O00RAXXX
	220	8x11	14	3300	1100	SPU1EM221F11O00RAXXX
	220	10x12	14	3800	1100	SPU1EM221G12O00RAXXX
	270	8x11	14	3300	1350	SPU1EM271F11O00RAXXX
	330	8x11	14	3400	1650	SPU1EM331F11O00RAXXX
	330	10x12	14	4100	1650	SPU1EM331G12O00RAXXX
	470	8x16	14	3700	2350	SPU1EM471F16O00RAXXX
	470	10x12	14	4400	2350	SPU1EM471G12O00RAXXX
	560	10x12	14	4400	2800	SPU1EM561G12O00RAXXX
	680	10x15	14	4700	3400	SPU1EM681G15O00RAXXX
	820	10x18	14	4900	4100	SPU1EM821G18O00RAXXX
	1000	10x18	14	4900	5000	SPU1EM102G18O00RAXXX

Specifications subject to change without notice.

PR series

- Endurance : 5,000 hours at 105°C
- Low ESR, Ripple current resistance life
- Recommended Applications: Adaptor
- RoHS Compliant and lead-free

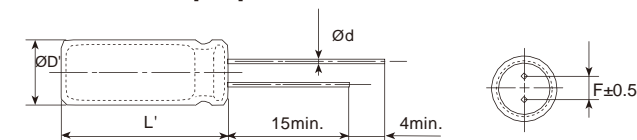
New



SPECIFICATIONS

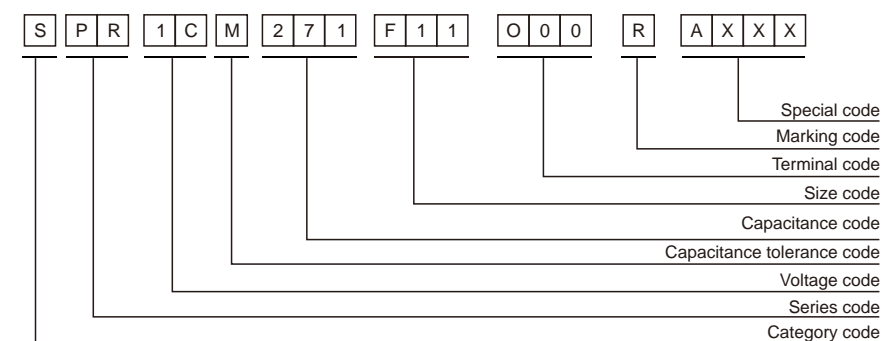
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	2.5~35 V <sub>dc</sub>	
Nominal Capacitance Range	47~1500μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2.5 6.3 10 16 25 35
	Dissipation Factor (Max.)	0.08 0.12 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage with rated ripple current for 5,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Humidity Test	After subjecting 90 ~ 95% RH for 2,000 hours at 60% no voltage, The capacitors shall meet the requirement as Endurance.	
	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Leakage Current	The initial specified value	

DIMENSIONS[mm]



øD	6.3	8	10
ød	0.5	0.6	0.6
F	2.5	3.5	5.0
øD'	øD-0.1~+0.5	øD-0.1~+0.5	
L'	L+1.0max.	L-0.5~+1	

PART NUMBERING SYSTEM



PR series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
2.5	560	6.3x8	12	2000	500	SPR0EM561E08O00RAXXX
	680	6.3x8	12	2000	500	SPR0EM681E08O00RAXXX
	820	6.3x9	12	2000	500	SPR0EM821E09O00RAXXX
	1200	8x9	14	2100	600	SPR0EM122F09O00RAXXX
6.3	330	6.3x8	12	1900	500	SPR0JM331E08O00RAXXX
	470	6.3x8	12	1900	592	SPR0JM471E08O00RAXXX
	470	8x9	14	2100	592	SPR0JM471F09O00RAXXX
	560	6.3x8	12	1900	706	SPR0JM561E08O00RAXXX
	680	8x11	12	2200	857	SPR0JM681F11O00RAXXX
	820	8x11	12	2200	1033	SPR0JM821F11O00RAXXX
	1000	8x11	12	2300	1260	SPR0JM102F11O00RAXXX
	1200	8x11	12	2300	1512	SPR0JM122F11O00RAXXX
10	220	6.3x8	12	1700	500	SPR1AM221E08O00RAXXX
	270	6.3x8	12	1700	540	SPR1AM271E08O00RAXXX
	330	6.3x10	12	1800	660	SPR1AM331E10O00RAXXX
	470	8x11	12	2000	940	SPR1AM471F11O00RAXXX
	560	8x11	12	2000	1120	SPR1AM561F11O00RAXXX
	680	8x11	12	2100	1360	SPR1AM681F11O00RAXXX
	820	8x11	12	2100	1640	SPR1AM821F11O00RAXXX
	1000	10x12	12	2200	2000	SPR1AM102G12O00RAXXX
16	100	6.3x8	17	1500	500	SPR1CM101E08O00RAXXX
	180	6.3x8	17	1500	576	SPR1CM181E08O00RAXXX
	220	6.3x10	17	1600	704	SPR1CM221E10O00RAXXX
	270	8x11	14	1700	864	SPR1CM271F11O00RAXXX
	330	6.3x10	14	1600	1056	SPR1CM331E10O00RAXXX
	470	8x11	14	1700	1504	SPR1CM471F11O00RAXXX
	560	10x12	14	2000	1792	SPR1CM561G12O00RAXXX
	680	10x12	14	2000	2176	SPR1CM681G12O00RAXXX
25	820	10x12	14	2100	2624	SPR1CM821G12O00RAXXX
	1000	10x12	14	2100	3200	SPR1CM102G12O00RAXXX
	68	6.3x7	24	1300	500	SPR1EM680E07O00RAXXX
	82	6.3x7	24	1300	500	SPR1EM820E07O00RAXXX
	100	6.3x8	24	1300	500	SPR1EM101E08O00RAXXX
	100	8x11	22	1500	500	SPR1EM101F11O00RAXXX
	120	6.3x10	22	1400	600	SPR1EM121E10O00RAXXX
	180	8x9	24	1300	900	SPR1EM181F09O00RAXXX
	220	8x11	22	1500	1100	SPR1EM221F11O00RAXXX
	220	10x12	22	1700	1100	SPR1EM221G12O00RAXXX
35	270	8x11	22	1500	1350	SPR1EM271F11O00RAXXX
	330	10x12	22	1700	1650	SPR1EM331G12O00RAXXX
	470	8x16	22	1700	2350	SPR1EM471F16O00RAXXX
	470	10x12	22	1800	2350	SPR1EM471G12O00RAXXX
	560	10x12	22	1800	2800	SPR1EM561G12O00RAXXX
	47	6.3x7	52	1100	500	SPR1VM470E07O00RAXXX
	56	6.3x7	52	1100	500	SPR1VM560E07O00RAXXX
	68	6.3x7	52	1100	500	SPR1VM680E07O00RAXXX
	82	6.3x7	52	1100	574	SPR1VM820E07O00RAXXX
	100	6.3x10	42	1200	700	SPR1VM101E10O00RAXXX
35	150	10x12	32	1400	1050	SPR1VM151G12O00RAXXX
	220	8x11	32	1300	1540	SPR1VM221F11O00RAXXX
	220	10x12	32	1400	1540	SPR1VM221G12O00RAXXX
	270	10x12	32	1400	1890	SPR1VM271G12O00RAXXX
	330	10x12	32	1400	2310	SPR1VM331G12O00RAXXX

Specifications subject to change without notice.

PL series

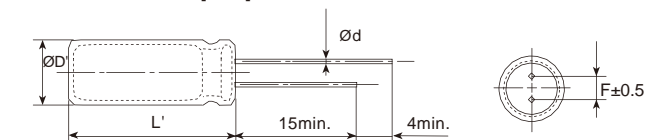
- Endurance: 10,000~23,000 hours at 105°C
- Super long life
- Recommended Applications: Industrial power, base station, Industrial control, server
- RoHS Compliant and lead-free



SPECIFICATIONS

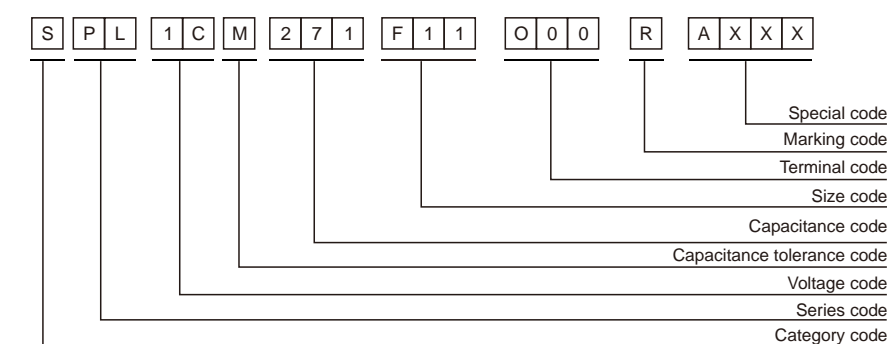
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	2.5~35 V <sub>dc</sub>	
Nominal Capacitance Range	100~1800μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I: 0.2CV or 500μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2.5 6.3 10 16 25 35
	Dissipation Factor (Max.)	0.08 0.12 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 10,000~23,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value
Humidity Test	After subjecting 90 ~ 95% RH for 2,000 hours at 60°C. no voltage, The capacitors shall meet the requirement as Endurance.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

DIMENSIONS[mm]



øD	6.3	8	10
ød	0.5	0.6	0.6
F	2.5	3.5	5.0
ØD'	ØD-0.1~+0.5		
L'	L+1max	L-0.5~+1	

PART NUMBERING SYSTEM



PL series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Load (hour)	Part Number
2.5	330	6.3×8	15	4000	500	10000	SPL0EM331E08000RS103
	470	6.3×8	15	4000	500	10000	SPL0EM471E08000RS103
	560	6.3×8	15	4000	500	10000	SPL0EM561E08000RS103
	820	6.3×9	15	4000	500	10000	SPL0EM821E09000RS103
	1000	6.3×10	11	4400	500	10000	SPL0EM102E10000RS103
6.3	220	6.3×8	15	4000	500	10000	SPL0JM221E08000RS103
	330	6.3×5	15	3000	500	10000	SPL0JM331E05000RS103
	330	6.3×5	25	2800	500	23000	SPL0JM331E05000RS233
	330	6.3×8	15	4000	500	10000	SPL0JM331E08000RS103
	470	6.3×10	11	4400	592	10000	SPL0JM471E10000RS103
	680	6.3×10	11	4400	857	10000	SPL0JM681E10000RS103
	820	8×11	11	4400	1033	10000	SPL0JM821F11000RS103
	1000	8×11	11	4400	1260	10000	SPL0JM102F11000RS103
	2200	10×12	11	4400	2772	10000	SPL0JM222G12000RS103
10	330	8×11	17	4500	660	10000	SPL1AM331F11000RS103
	560	8×11	11	4400	1120	10000	SPL1AM561F11000RS103
	1000	10×12	11	4400	2000	10000	SPL1AM102G12000RS103
16	100	6.3×5	24	4400	500	10000	SPL1CM101E05000RS103
	100	6.3×5	24	4400	500	16000	SPL1CM101E05000RS163
	100	6.3×5	48	2000	500	23000	SPL1CM101E05000RS233
	180	8×11	16	3500	576	10000	SPL1CM181F11000RS103
	270	8×11	13	5400	864	10000	SPL1CM271F11000RS103
	560	8×11	18	2500	1792	16000	SPL1CM561F11000RS163
	820	10×12	13	5400	2624	10000	SPL1VM821G12000RS103
25	100	8×9	45	1000	500	10000	SPL1EM101F09000RS103
	220	8×11	30	1600	1100	10000	SPL1EM221F11000RS103
	330	10×12	30	1600	1650	10000	SPL1EM331G12000RS103
35	150	10×12	30	1600	1050	10000	SPL1VM151G12000RS103
	470	10×13	30	1800	3290	10000	SPL1VM471G13000RS103

Specifications subject to change without notice.

PX series

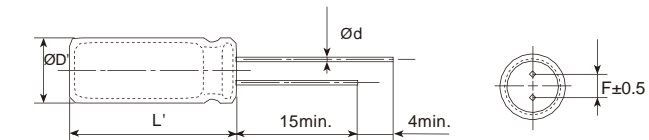
- Endurance: 2,000 hours at 145°C
- High Temperature Resistant
- Recommended Applications: base station, server, communication power supply
- RoHS Compliant and lead-free



SPECIFICATIONS

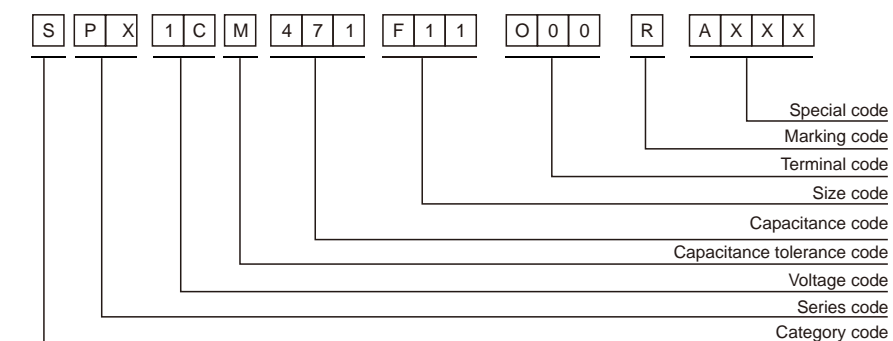
Items	Characteristics				
Category Temperature Range	-55~+145°C				
Rated Working Voltage Range	6.3~25 V <sub>dc</sub>				
Nominal Capacitance Range	100~1500μF				
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)				
DC Leakage Current	I: 0.2CV or 500μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)				
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25
	Dissipation Factor (Max.)	0.08	0.12 (at 20°C, 120Hz)		
ESR(100kHz, 20°C)	Value in characteristics table				
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25				
Endurance	After applying rated voltage for 2,000 hours at 145°C, the capacitors shall meet the following requirements.				
	Appearance	No significant damage			
	Capacitance Change	±20% of the initial value			
	Dissipation Factor	150% of the initial specified value			
	ESR	150% of the initial specified value			
Humidity Test	After subjecting 90 ~ 95% RH for 2,000 hours at 60 .no voltage, The capacitors shall meet the requirement as Endurance.				
	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.				
Surge Test	Appearance				
	No significant damage				
	Capacitance Change				
	±20% of the initial value				
	Dissipation Factor				
150% of the initial specified value					
ESR					
150% of the initial specified value					
Leakage Current					
The initial specified value					

DIMENSIONS[mm]



øD	6.3	8	10
ød	0.5	0.6	0.6
F	2.5	3.5	5.0
øD'	øD-0.1~+0.5		
L'	L+1max	L-0.5~+1	

PART NUMBERING SYSTEM





PX series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/145°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
6.3	330	6.3x8	22	200	500	SPX0JM331E08000RAXXX
	470	6.3x8	22	200	592	SPX0JM471E08000RAXXX
	560	6.3x8	30	200	706	SPX0JM561E08000RAXXX
	680	8x9	30	200	857	SPX0JM681F09000RAXXX
	820	8x11	15	250	1033	SPX0JM821F11000RAXXX
	1000	8x11	15	250	1260	SPX0JM102F11000RAXXX
	1200	8x11	15	250	1512	SPX0JM122F11000RAXXX
	1500	10x12	15	250	1890	SPX0JM152G12000RAXXX
10	180	6.3x7	30	100	500	SPX1AM181E07000RAXXX
	220	6.3x8	22	150	500	SPX1AM221E08000RAXXX
	270	6.3x8	30	150	540	SPX1AM271E08000RAXXX
	330	6.3x10	18	150	660	SPX1AM331E10000RAXXX
	470	8x11	18	250	940	SPX1AM471F11000RAXXX
	680	8x11	18	150	1360	SPX1AM681F11000RAXXX
	1000	10x12	15	250	2000	SPX1AM102G12000RAXXX
	1200	10x12	15	250	2400	SPX1AM122G12000RAXXX
16	100	6.3x8	30	100	500	SPX1CM101E08000RAXXX
	470	8x11	22	200	1504	SPX1CM471F11000RAXXX
	560	10x12	18	150	1792	SPX1CM561G12000RAXXX
	680	10x12	18	150	2176	SPX1CM681G12000RAXXX
25	270	10x12	30	150	1350	SPX1EM271G12000RAXXX
	330	10x12	30	150	1650	SPX1EM331G12000RAXXX

Specifications subject to change without notice.

RZ series

- Endurance : 2,000 hours at 105°C
- Low ESR, ripple current resistant
- Recommended Applications: Adaptor
- RoHS Compliant and lead-free

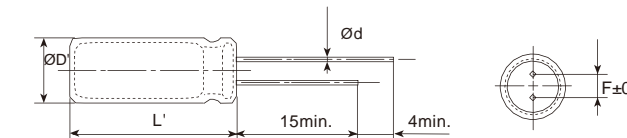
New



SPECIFICATIONS

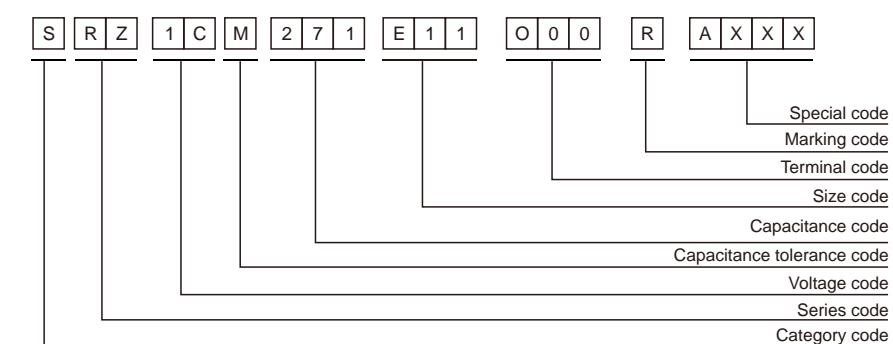
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	2.5~35 V <sub>dc</sub>	
Nominal Capacitance Range	47~1500μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I: 0.2CV or 500μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2.5 6.3 10 16 25 35
	Dissipation Factor (Max.)	0.08 0.12 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25	
	Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage with rated ripple current for 2,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value
Humidity Test	After subjecting 90 ~ 95% RH for 2,000 hours at 60% voltage, The capacitors shall meet the requirement as Endurance.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

DIMENSIONS[mm]



øD	6.3	8	10
ød	0.5	0.6	0.6
F	2.5	3.5	5.0
øD'	øD-0.1~+0.5		
L'	L+1.0max.	L-0.5~+1	

PART NUMBERING SYSTEM



**RZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
2.5	560	6.3x8	10	3000	500	SRZ0EM561E08O00RAXXX
	680	6.3x8	10	3000	500	SRZ0EM681E08O00RAXXX
	820	6.3x9	10	3000	500	SRZ0EM821E09O00RAXXX
	1200	8x9	12	3200	600	SRZ0EM122F09O00RAXXX
6.3	330	6.3x8	10	2800	500	SRZ0JM331E08O00RAXXX
	470	6.3x8	10	2800	592	SRZ0JM471E08O00RAXXX
	470	8x9	12	3200	592	SRZ0JM471F09O00RAXXX
	560	6.3x8	10	2800	706	SRZ0JM561E08O00RAXXX
	680	8x11	10	3400	857	SRZ0JM681F11O00RAXXX
	820	8x11	10	3400	1033	SRZ0JM821F11O00RAXXX
	1000	8x11	10	3600	1260	SRZ0JM102F11O00RAXXX
	1200	8x11	10	3600	1512	SRZ0JM122F11O00RAXXX
10	1500	10x12	10	4000	1890	SRZ0JM152G12O00RAXXX
	220	6.3x8	10	2400	500	SRZ1AM221E08O00RAXXX
	270	6.3x8	10	2400	540	SRZ1AM271E08O00RAXXX
	330	6.3x10	10	2600	660	SRZ1AM331E10O00RAXXX
	470	8x11	10	3000	940	SRZ1AM471F11O00RAXXX
	560	8x11	10	3000	1120	SRZ1AM561F11O00RAXXX
	680	8x11	10	3200	1360	SRZ1AM681F11O00RAXXX
	820	8x11	10	3200	1640	SRZ1AM821F11O00RAXXX
16	1000	10x12	10	3400	2000	SRZ1AM102G12O00RAXXX
	1200	10x12	10	3400	2400	SRZ1AM122G12O00RAXXX
	1500	10x12	10	3800	3000	SRZ1AM152G12O00RAXXX
	100	6.3x8	15	2000	500	SRZ1CM101E08O00RAXXX
	180	6.3x8	15	2000	576	SRZ1CM181E08O00RAXXX
	220	6.3x10	15	2200	704	SRZ1CM221E10O00RAXXX
	270	8x11	12	2400	864	SRZ1CM271F11O00RAXXX
	330	6.3x10	12	2200	1056	SRZ1CM331E10O00RAXXX
25	470	8x11	12	2400	1504	SRZ1CM471F11O00RAXXX
	560	10x12	12	3000	1792	SRZ1CM561G12O00RAXXX
	680	10x12	12	3000	2176	SRZ1CM681G12O00RAXXX
	820	10x12	12	3200	2624	SRZ1CM821G12O00RAXXX
	1000	10x12	12	3200	3200	SRZ1CM102G12O00RAXXX
	68	6.3x7	22	1600	500	SRZ1EM680E07O00RAXXX
	82	6.3x7	22	1600	500	SRZ1EM820E07O00RAXXX
	100	6.3x8	22	1600	500	SRZ1EM101E08O00RAXXX
35	100	8x11	20	2000	500	SRZ1EM101F11O00RAXXX
	120	6.3x10	20	1800	600	SRZ1EM121E10O00RAXXX
	180	8x9	22	1600	900	SRZ1EM181F09O00RAXXX
	220	8x11	20	2000	1100	SRZ1EM221F11O00RAXXX
	220	10x12	20	2400	1100	SRZ1EM221G12O00RAXXX
	270	8x11	20	2000	1350	SRZ1EM271F11O00RAXXX
	330	10x12	20	2400	1650	SRZ1EM331G12O00RAXXX
	470	8x16	20	2400	2350	SRZ1EM471F16O00RAXXX
	470	10x12	20	2600	2350	SRZ1EM471G12O00RAXXX
	560	10x12	20	2600	2800	SRZ1EM561G12O00RAXXX
	47	6.3x7	50	1200	500	SRZ1VM470E07O00RAXXX
	56	6.3x7	50	1200	500	SRZ1VM560E07O00RAXXX
68	6.3x7	50	1200	500	SRZ1VM680E07O00RAXXX	
82	6.3x7	50	1200	574	SRZ1VM820E07O00RAXXX	
100	6.3x10	40	1400	700	SRZ1VM101E10O00RAXXX	
150	10x12	30	1800	1050	SRZ1VM151G12O00RAXXX	
220	8x11	30	1600	1540	SRZ1VM221F11O00RAXXX	
220	10x12	30	1800	1540	SRZ1VM221G12O00RAXXX	
270	10x12	30	1800	1890	SRZ1VM271G12O00RAXXX	
330	10x12	30	1800	2310	SRZ1VM331G12O00RAXXX	

Specifications subject to change without notice.

**RT series**

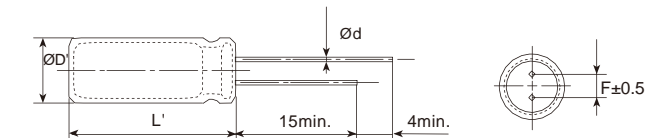
- Endurance : 2,000 hours at 125°C
- Low ESR, high temperature resistant
- Recommended Applications: Adaptor
- RoHS Compliant and lead-free



■ SPECIFICATIONS

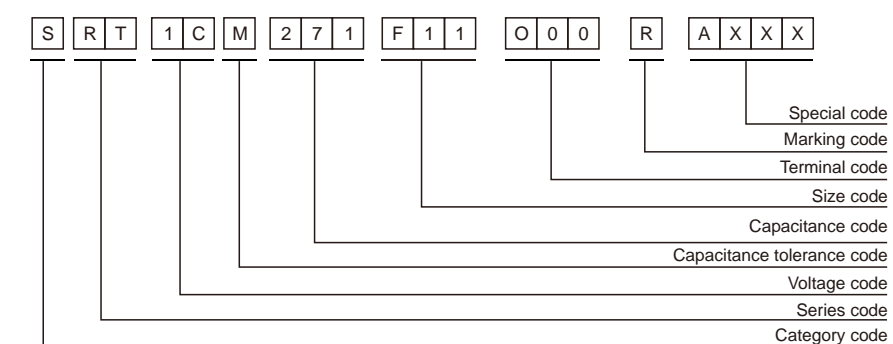
Items	Characteristics	
Category Temperature Range	-55~+125°C	
Rated Working Voltage Range	2.5~35 V <sub>dc</sub>	
Nominal Capacitance Range	47~1500μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I: 0.2CV or 500μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2.5 6.3 10 16 25 35
	Dissipation Factor (Max.)	0.08 0.12 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage with rated ripple current for 2,000 hours at 125°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value
Humidity Test	After subjecting 90-95% RH for 2000 hours at 60°C, no voltage. The capacitors shall meet the requirements as Endurance.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

■ DIMENSIONS[mm]



øD	6.3	8	10
ød	0.5	0.6	0.6
F	2.5	3.5	5.0
øD'	øD-0.1~+0.5		
L'	L+1.0max.	L-0.5~+1	

■ PART NUMBERING SYSTEM



RT series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
2.5	560	6.3x8	15	1200	500	SRT0EM561E08O00RAXXX
	680	6.3x8	15	1200	500	SRT0EM681E08O00RAXXX
	820	6.3x9	15	1200	500	SRT0EM821E09O00RAXXX
	1200	8x9	17	1300	600	SRT0EM122F09O00RAXXX
6.3	330	6.3x8	15	1100	500	SRT0JM331E08O00RAXXX
	470	6.3x8	15	1100	592	SRT0JM471E08O00RAXXX
	470	8x9	17	1300	592	SRT0JM471F09O00RAXXX
	560	6.3x8	15	1100	706	SRT0JM561E08O00RAXXX
	680	8x11	15	1400	857	SRT0JM681F11O00RAXXX
	820	8x11	15	1400	1033	SRT0JM821F11O00RAXXX
	1000	8x11	15	1500	1260	SRT0JM102F11O00RAXXX
	1200	8x11	15	1500	1512	SRT0JM122F11O00RAXXX
	1500	10x12	15	1700	1890	SRT0JM152G12O00RAXXX
	10	220	6.3x8	15	900	500
270		6.3x8	15	900	540	SRT1AM271E08O00RAXXX
330		6.3x10	15	1000	660	SRT1AM331E10O00RAXXX
470		8x11	15	1200	940	SRT1AM471F11O00RAXXX
560		8x11	15	1200	1120	SRT1AM561F11O00RAXXX
680		8x11	15	1300	1360	SRT1AM681F11O00RAXXX
820		8x11	15	1300	1640	SRT1AM821F11O00RAXXX
1000		10x12	15	1400	2000	SRT1AM102G12O00RAXXX
1200		10x12	15	1400	2400	SRT1AM122G12O00RAXXX
1500		10x12	15	1600	3000	SRT1AM152G12O00RAXXX
16	100	6.3x8	20	800	500	SRT1CM101E08O00RAXXX
	180	6.3x8	20	800	576	SRT1CM181E08O00RAXXX
	220	6.3x10	20	890	704	SRT1CM221E10O00RAXXX
	270	8x11	17	900	864	SRT1CM271F11O00RAXXX
	330	6.3x10	17	800	1056	SRT1CM331E10O00RAXXX
	470	8x11	17	900	1504	SRT1CM471F11O00RAXXX
	560	10x12	17	1200	1792	SRT1CM561G12O00RAXXX
	680	10x12	17	1200	2176	SRT1CM681G12O00RAXXX
	820	10x12	17	1300	2624	SRT1CM821G12O00RAXXX
	1000	10x12	17	1300	3200	SRT1CM102G12O00RAXXX
25	68	6.3x7	27	600	500	SRT1EM680E07O00RAXXX
	82	6.3x7	27	600	500	SRT1EM820E07O00RAXXX
	100	6.3x8	27	600	500	SRT1EM101E08O00RAXXX
	100	8x11	25	800	500	SRT1EM101F11O00RAXXX
	120	6.3x10	25	700	600	SRT1EM121E10O00RAXXX
	180	8x9	27	600	900	SRT1EM181F09O00RAXXX
	220	8x11	25	800	1100	SRT1EM221F11O00RAXXX
	220	10x12	25	900	1100	SRT1EM221G12O00RAXXX
	270	8x11	25	800	1350	SRT1EM271F11O00RAXXX
	330	10x12	25	900	1650	SRT1EM331G12O00RAXXX
	470	8x16	25	900	2350	SRT1EM471F16O00RAXXX
	470	10x12	25	1000	2350	SRT1EM471G12O00RAXXX
	560	10x12	25	1000	2800	SRT1EM561G12O00RAXXX
35	47	6.3x7	55	400	500	SRT1VM470E07O00RAXXX
	56	6.3x7	55	400	500	SRT1VM560E07O00RAXXX
	68	6.3x7	55	400	500	SRT1VM680E07O00RAXXX
	82	6.3x7	55	400	574	SRT1VM820E07O00RAXXX
	100	6.3x10	45	500	700	SRT1VM101E10O00RAXXX
	150	10x12	35	700	1050	SRT1VM151G12O00RAXXX
	220	8x11	35	600	1540	SRT1VM221F11O00RAXXX
	220	10x12	35	700	1540	SRT1VM221G12O00RAXXX
	270	10x12	35	700	1890	SRT1VM271G12O00RAXXX
	330	10x12	35	700	2310	SRT1VM331G12O00RAXXX

Specifications subject to change without notice.

VZ series

- Endurance: 2,000 hours at 105°C
- Standard substance
- Recommended Applications: Display Card & System Board
- RoHS Compliant and lead-free

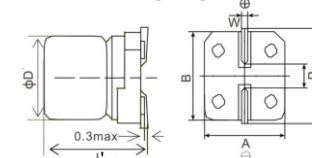


SPECIFICATIONS

Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	2.5~100 V <sub>dc</sub>	
Nominal Capacitance Range	22~2200μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2.5 6.3 10 16 25 35 50 63 80 100
	Dissipation Factor (Max.)	0.08 0.12 0.15 (at 20°C, 120Hz)
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Humidity Test	After subjecting 90 ~ 95% RH for 2,000 hours at 60 °no voltage, The capacitors shall meet the requirement as Endurance.	
	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
Surge Test	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
	Leakage Current	The initial specified value

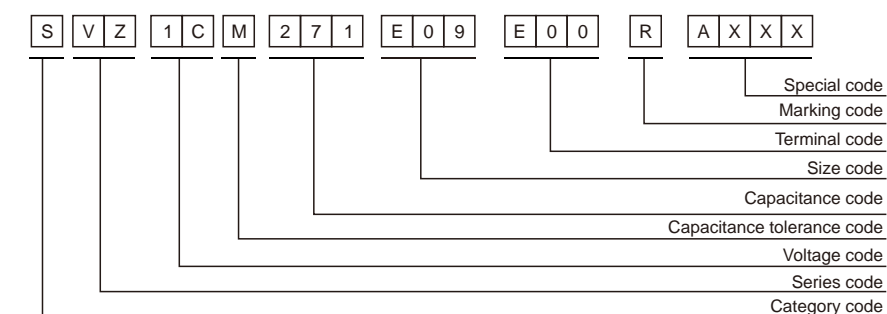
\*Note: If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment: DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

DIMENSIONS[mm]



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
ØD'	ØD-0.1~+0.5		
L'	L±0.5		

PART NUMBERING SYSTEM





**VZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
2.5	220	6.3x4.5	20	2700	500	SVZ0EM221E4RE00RAXXX
	330	6.3x4.5	20	2700	500	SVZ0EM331E4RE00RAXXX
	330	6.3x6	20	2700	500	SVZ0EM331E06E00RAXXX
	390	6.3x6	20	2800	500	SVZ0EM391E06E00RAXXX
	470	6.3x6	20	2900	500	SVZ0EM471E06E00RAXXX
	560	6.3x6	20	3000	500	SVZ0EM561E06E00RAXXX
	680	6.3x9	15	4300	500	SVZ0EM681E09E00RAXXX
6.3	220	6.3x4.5	20	2700	500	SVZ0JM221E4RE00RAXXX
	220	6.3x6	20	2800	500	SVZ0JM221E06E00RAXXX
	270	6.3x6	20	3000	500	SVZ0JM271E06E00RAXXX
	330	6.3x6	20	2100	500	SVZ0JM331E06E00RAXXX
	470	6.3x9	15	3500	592	SVZ0JM471E09E00RAXXX
	560	6.3x9	15	3700	706	SVZ0JM561E09E00RAXXX
	1000	8x11.5	15	4300	1260	SVZ0JM102FBRE00RAXXX
	1500	8x11.5	15	4400	1890	SVZ0JM152FBRE00RAXXX
	2200	10x12.5	15	5600	2772	SVZ0JM222GCRE00RAXXX
10	100	6.3x4.5	50	2500	500	SVZ1AM101E4RE00RAXXX
	120	6.3x6	30	2700	500	SVZ1AM121E06E00RAXXX
	220	6.3x6	30	2700	500	SVZ1AM221E06E00RAXXX
	220	6.3x9	20	3000	500	SVZ1AM221E09E00RAXXX
	330	6.3x9	20	3100	660	SVZ1AM331E09E00RAXXX
	470	6.3x9	30	3400	940	SVZ1AM471E09E00RAXXX
	470	8x9.5	22	3400	940	SVZ1AM471F9RE00RAXXX
	560	8x11.5	20	3600	1120	SVZ1AM561FBRE00RAXXX
	560	10x12.5	20	5000	1120	SVZ1AM561GCRE00RAXXX
	1000	8x11.5	15	4200	2000	SVZ1AM102FBRE00RAXXX
	1000	10x12.5	15	4400	2000	SVZ1AM102GCRE00RAXXX
1500	10x12.5	15	4400	3000	SVZ1AM152GCRE00RAXXX	
16	47	6.3x4.5	50	2000	500	SVZ1CM470E4RE00RAXXX
	47	6.3x6	40	1700	500	SVZ1CM470E06E00RAXXX
	68	6.3x6	40	2000	500	SVZ1CM680E06E00RAXXX
	100	6.3x4.5	50	2000	500	SVZ1CM101E4RE00RAXXX
	100	6.3x6	30	2400	500	SVZ1CM101E06E00RAXXX
	120	6.3x4.5	50	2000	500	SVZ1CM121E4RE00RAXXX
	150	6.3x6	30	2400	500	SVZ1CM151E06E00RAXXX
	150	6.3x9	25	2600	500	SVZ1CM151E09E00RAXXX
	180	6.3x6	60	2500	576	SVZ1CM181E06E00RAXXX
	180	6.3x9	25	2700	576	SVZ1CM181E09E00RAXXX
	220	6.3x9	25	2500	704	SVZ1CM221E09E00RAXXX
	270	6.3x9	25	2600	864	SVZ1CM271E09E00RAXXX
	270	8x9.5	25	2800	864	SVZ1CM271F9RE00RAXXX
	330	6.3x9	25	2600	1056	SVZ1CM331E09E00RAXXX
	330	8x11.5	20	4000	1056	SVZ1CM331FBRE00RAXXX
	330	10x12.5	20	5000	1056	SVZ1CM331GCRE00RAXXX
	560	8x11.5	20	3500	1792	SVZ1CM561FBRE00RAXXX
680	10x12.5	20	4000	2176	SVZ1CM681GCRE00RAXXX	
1000	10x12.5	20	4100	3200	SVZ1CM102GCRE00RAXXX	
25	22	6.3x4.5	100	400	500	SVZ1EM220E4RE00RAXXX
	22	6.3x6	80	1600	500	SVZ1EM220E06E00RAXXX
	27	6.3x6	50	1100	500	SVZ1EM270E06E00RAXXX
	33	6.3x4.5	100	400	500	SVZ1EM330E4RE00RAXXX
	47	6.3x4.5	100	400	500	SVZ1EM470E4RE00RAXXX
	47	6.3x6	50	1800	500	SVZ1EM470E06E00RAXXX
	47	6.3x9	35	2000	500	SVZ1EM470E09E00RAXXX
	56	6.3x4.5	60	1000	500	SVZ1EM560E4RE00RAXXX
	56	6.3x6	50	1800	500	SVZ1EM560E06E00RAXXX
	68	6.3x4.5	60	900	500	SVZ1EM680E4RE00RAXXX
	68	6.3x6	50	1800	500	SVZ1EM680E06E00RAXXX
	100	6.3x4.5	60	1000	500	SVZ1EM101E4RE00RAXXX
	100	6.3x6	50	2100	500	SVZ1EM101E06E00RAXXX
	100	6.3x9	30	2400	500	SVZ1EM101E09E00RAXXX
	150	6.3x9	30	2500	750	SVZ1EM151E09E00RAXXX
	220	6.3x9	30	2500	1100	SVZ1EM221E09E00RAXXX
	220	8x11.5	30	2600	1100	SVZ1EM221FBRE00RAXXX
	330	8x11.5	30	2700	1650	SVZ1EM331FBRE00RAXXX
	330	10x12.5	22	2800	1650	SVZ1EM331GCRE00RAXXX
	470	8x11.5	30	2800	2350	SVZ1EM471FBRE00RAXXX
	470	10x12.5	22	3100	2350	SVZ1EM471GCRE00RAXXX
	560	10x12.5	22	3300	2800	SVZ1EM561GCRE00RAXXX
680	10x12.5	22	3300	3400	SVZ1EM681GCRE00RAXXX	
35	22	6.3x6	60	1100	500	SVZ1VM220E06E00RAXXX
	27	6.3x6	60	1100	500	SVZ1VM270E06E00RAXXX
	33	6.3x6	60	1100	500	SVZ1VM330E06E00RAXXX
	47	6.3x6	45	1100	500	SVZ1VM470E06E00RAXXX
	47	6.3x9	50	1500	500	SVZ1VM470E09E00RAXXX
	68	6.3x6	45	1100	500	SVZ1VM680E06E00RAXXX
	68	6.3x9	40	1800	500	SVZ1VM680E09E00RAXXX
	100	6.3x9	40	2100	700	SVZ1VM101E09E00RAXXX
	100	8x9.5	40	2800	700	SVZ1VM101F9RE00RAXXX
	100	8x11.5	30	3000	700	SVZ1VM101FBRE00RAXXX
	150	8x11.5	30	3000	1050	SVZ1VM151FBRE00RAXXX
	220	8x11.5	30	2400	1540	SVZ1VM221FBRE00RAXXX
	270	8x11.5	30	2500	1890	SVZ1VM271FBRE00RAXXX

**VZ series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxD(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
35	270	10x12.5	30	2700	1890	SVZ1VM271GCRE00RAXXX
	330	10x12.5	30	2700	2310	SVZ1VM331GCRE00RAXXX
	470	10x12.5	30	3000	3290	SVZ1VM471GCRE00RAXXX
50	22	6.3x6	80	800	500	SVZ1HM220E06E00RAXXX
	33	6.3x6	80	850	500	SVZ1HM330E06E00RAXXX
	47	6.3x9	60	1400	500	SVZ1HM470E09E00RAXXX
	68	8x11.5	30	2000	680	SVZ1HM680FBRE00RAXXX
	82	8x11.5	30	2000	820	SVZ1HM820FBRE00RAXXX
	82	10x12.5	30	2000	820	SVZ1HM820GCRE00RAXXX
	100	8x11.5	30	2000	1000	SVZ1HM101FBRE00RAXXX
	100	10x12.5	30	2100	1000	SVZ1HM101GCRE00RAXXX
	120	8x11.5	30	2000	1200	SVZ1HM121FBRE00RAXXX
	150	10x12.5	30	2100	1500	SVZ1HM151GCRE00RAXXX
	220	10x12.5	30	2300	2200	SVZ1HM221GCRE00RAXXX
63	22	6.3x6	80	450	500	SVZ1JM220E06E00RAXXX
	33	6.3x9	60	500	500	SVZ1JM330E09E00RAXXX
	47	8x9.5	60	1000	592	SVZ1JM470F9RE00RAXXX
	56	8x11.5	40	1400	706	SVZ1JM560FBRE00RAXXX
80	100	10x12.5	40	1600	1260	SVZ1JM101GCRE00RAXXX
	27	8x11.5	50	600	500	SVZ1BM270FBRE00RAXXX
	47	10x12.5	50	900	752	SVZ1BM470GCRE00RAXXX
100	68	10x12.5	50	900	1088	SVZ1BM680GCRE00RAXXX
	22	8x11.5	50	600	500	SVZ1KM220FBRE00RAXXX
	47	10x12.5	50	900	940	SVZ1KM470GCRE00RAXXX

Specifications subject to change without notice.

**VS series**

- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: High order main board, server
- RoHS Compliant and lead-free

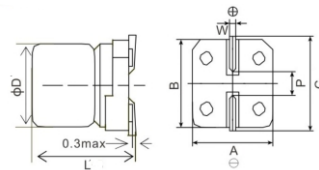


**SPECIFICATIONS**

Items	Characteristics					
Category Temperature Range	-55~+105°C					
Rated Working Voltage Range	2.5~25 V <sub>dc</sub>					
Nominal Capacitance Range	27~2200μF					
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)					
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)					
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	2.5	6.3	10	16	25
	Dissipation Factor (Max.)	0.08				0.12
ESR(100kHz,20°C)	Value in characteristics table					
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25					
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.					
	Appearance	No significant damage				
	Capacitance Change	±20% of the initial value				
	Dissipation Factor	150% of the initial specified value				
	ESR	150% of the initial specified value				
Humidity Test	After subjecting 90~95% RH for 2,000 hours at 60°C, no voltage, The capacitors shall meet the requirement as Endurance.					
	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.					
Surge Test	Appearance	No significant damage				
	Capacitance Change	±20% of the initial value				
	Dissipation Factor	150% of the initial specified value				
	ESR	150% of the initial specified value				
	Leakage Current	The initial specified value				

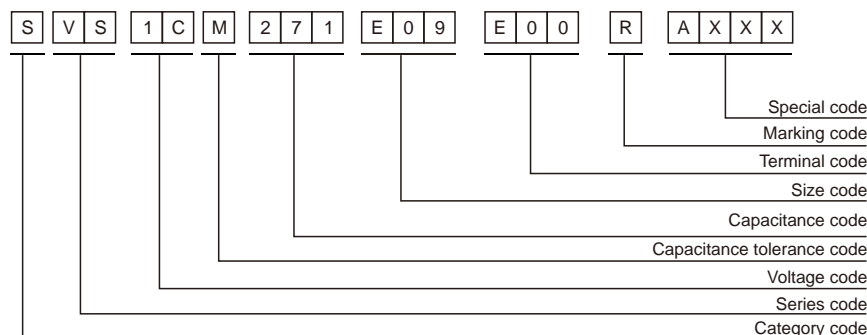
\*Note: If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment: DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

**DIMENSIONS[mm]**



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
ØD'	ØD-0.1~+0.5		
L'	L±0.5		

**PART NUMBERING SYSTEM**



**VS series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
2.5	330	6.3x6	18	2800	500	SVS0EM331E06E00RAXXX	
	390	6.3x6	18	2900	500	SVS0EM391E06E00RAXXX	
	470	6.3x6	18	4000	500	SVS0EM471E06E00RAXXX	
	560	6.3x6	18	4000	500	SVS0EM561E06E00RAXXX	
	680	6.3x9	13	4500	500	SVS0EM681E09E00RAXXX	
6.3	220	6.3x6	18	2900	500	SVS0JM221E06E00RAXXX	
	270	6.3x6	18	3100	500	SVS0JM271E06E00RAXXX	
	330	6.3x6	18	3200	500	SVS0JM331E06E00RAXXX	
	470	6.3x9	13	3600	592	SVS0JM471E09E00RAXXX	
	560	6.3x9	13	3800	706	SVS0JM561E09E00RAXXX	
	1000	8x11.5	13	4500	1260	SVS0JM102FBRE00RAXXX	
	1500	8x11.5	13	4600	1890	SVS0JM152FBRE00RAXXX	
10	2200	10x12.5	13	5800	2772	SVS0JM222GCRE00RAXXX	
	68	6.3x6	45	2800	500	SVS1AM680E06E00RAXXX	
	120	6.3x6	27	2800	500	SVS1AM121E06E00RAXXX	
	220	6.3x6	27	2800	500	SVS1AM221E06E00RAXXX	
	220	6.3x9	18	3100	500	SVS1AM221E09E00RAXXX	
	330	6.3x9	18	3200	660	SVS1AM331E09E00RAXXX	
	470	6.3x9	27	3500	940	SVS1AM471E09E00RAXXX	
	560	8x11.5	18	3700	1120	SVS1AM561FBRE00RAXXX	
	560	10x12.5	18	5200	1120	SVS1AM561GCRE00RAXXX	
	1000	8x11.5	13	4400	2000	SVS1AM102FBRE00RAXXX	
	1000	10x12.5	13	4600	2000	SVS1AM102GCRE00RAXXX	
16	1500	10x12.5	13	4600	3000	SVS1AM152GCRE00RAXXX	
	47	6.3x6	36	1700	500	SVS1CM470E06E00RAXXX	
	68	6.3x6	36	2100	500	SVS1CM680E06E00RAXXX	
	100	6.3x6	27	2500	500	SVS1CM101E06E00RAXXX	
	150	6.3x6	27	2500	500	SVS1CM151E06E00RAXXX	
	150	6.3x9	22	2700	500	SVS1CM151E09E00RAXXX	
	180	6.3x6	54	2600	576	SVS1CM181E06E00RAXXX	
	180	6.3x9	22	2800	576	SVS1CM181E09E00RAXXX	
	220	6.3x9	22	2600	704	SVS1CM221E09E00RAXXX	
	270	6.3x9	22	2700	864	SVS1CM271E09E00RAXXX	
	270	8x9.5	22	2900	864	SVS1CM271F9RE00RAXXX	
	330	6.3x9	22	2700	1056	SVS1CM331E09E00RAXXX	
	330	8x11.5	18	4200	1056	SVS1CM331FBRE00RAXXX	
	330	10x12.5	18	5200	1056	SVS1CM331GCRE00RAXXX	
	560	8x11.5	18	3600	1792	SVS1CM561FBRE00RAXXX	
	680	10x12.5	18	4200	2176	SVS1CM681GCRE00RAXXX	
	1000	10x12.5	18	4300	3200	SVS1CM102GCRE00RAXXX	
	25	27	6.3x6	45	1100	500	SVS1EM270E06E00RAXXX
		47	6.3x6	45	1800	500	SVS1EM470E06E00RAXXX
47		6.3x9	31	2100	500	SVS1EM470E09E00RAXXX	
56		6.3x6	45	1800	500	SVS1EM560E06E00RAXXX	
68		6.3x6	45	1800	500	SVS1EM680E06E00RAXXX	
100		6.3x6	45	2200	500	SVS1EM101E06E00RAXXX	
100		6.3x9	27	2500	500	SVS1EM101E09E00RAXXX	
150		6.3x9	27	2600	750	SVS1EM151E09E00RAXXX	
220		6.3x9	27	2600	1100	SVS1EM221E09E00RAXXX	
220		8x11.5	27	2700	1100	SVS1EM221FBRE00RAXXX	
330		8x11.5	27	2800	1650	SVS1EM331FBRE00RAXXX	
330		10x12.5	19	2900	1650	SVS1EM331GCRE00RAXXX	
470		8x11.5	27	2900	2350	SVS1EM471FBRE00RAXXX	
470		10x12.5	19	3200	2350	SVS1EM471GCRE00RAXXX	
560		10x12.5	19	3400	2800	SVS1EM561GCRE00RAXXX	
680		10x12.5	19	3400	3400	SVS1EM681GCRE00RAXXX	

Specifications subject to change without notice.

# VD series

- Endurance: 2,000 hours at 105°C
- High voltage
- Recommended Applications: Lamps and small LED power supply
- RoHS Compliant and lead-free

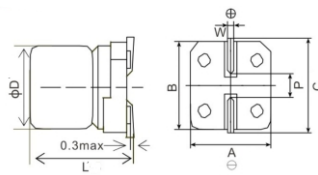


## SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	-55~+105°C		
Rated Working Voltage Range	35~63 V <sub>dc</sub>		
Nominal Capacitance Range	22~470μF		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)		
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	35	50 63
	Dissipation Factor (Max.)	0.12 (at 20°C, 120Hz)	
ESR(100kHz,20°C)	Value in characteristics table		
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25		
Endurance	After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements.		
	Appearance	No significant damage	
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	150% of the initial specified value	
	ESR	150% of the initial specified value	
Leakage Current	The initial specified value		
Humidity Test	After subjecting 90~95% RH for 2,000 hours at 60°C.no voltage, The capacitors shall meet the requirement as Endurance.		
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	Appearance	No significant damage	
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	150% of the initial specified value	
	ESR	150% of the initial specified value	
Leakage Current	The initial specified value		

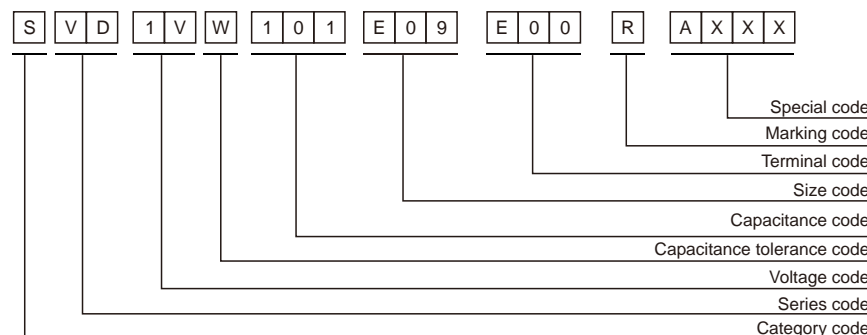
\*Note: If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment: DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

## DIMENSIONS[mm]



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
∅D'	∅D-0.1~+0.5		
L'	L±0.5		

## PART NUMBERING SYSTEM



# VD series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
35	22	6.3x6	54	1100	500	SVD1VM220E06E00RAXXX	
	27	6.3x6	54	1100	500	SVD1VM270E06E00RAXXX	
	33	6.3x6	54	1100	500	SVD1VM330E06E00RAXXX	
	47	6.3x6	40	1100	500	SVD1VM470E06E00RAXXX	
	47	6.3x9	45	1500	500	SVD1VM470E09E00RAXXX	
	68	6.3x6	40	1100	500	SVD1VM680E06E00RAXXX	
	68	6.3x9	36	1800	500	SVD1VM680E09E00RAXXX	
	100	6.3x9	36	2200	700	SVD1VM101E09E00RAXXX	
	100	8x9.5	36	2900	700	SVD1VM101F9RE00RAXXX	
	100	8x11.5	27	3100	700	SVD1VM101FBRE00RAXXX	
	150	8x11.5	27	3100	1050	SVD1VM151FBRE00RAXXX	
	220	8x11.5	27	2500	1540	SVD1VM221FBRE00RAXXX	
	270	8x11.5	27	2600	1890	SVD1VM271FBRE00RAXXX	
	270	10x12.5	27	2800	1890	SVD1VM271GCRE00RAXXX	
330	10x12.5	27	2800	2310	SVD1VM331GCRE00RAXXX		
470	10x12.5	27	3100	3290	SVD1VM471GCRE00RAXXX		
50	22	6.3x6	72	840	500	SVD1HM220E06E00RAXXX	
	33	6.3x6	72	890	500	SVD1HM330E06E00RAXXX	
	47	6.3x9	54	1400	500	SVD1HM470E09E00RAXXX	
	68	8x11.5	27	2100	680	SVD1HM680FBRE00RAXXX	
	82	8x11.5	27	2100	820	SVD1HM820FBRE00RAXXX	
	82	10x12.5	27	2100	820	SVD1HM820GCRE00RAXXX	
	100	8x9.5	54	1500	1000	SVD1HM101F9RE00RAXXX	
	100	8x11.5	27	2100	1000	SVD1HM101FBRE00RAXXX	
	100	10x12.5	27	2200	1000	SVD1HM101GCRE00RAXXX	
	120	8x11.5	27	2100	1200	SVD1HM121FBRE00RAXXX	
	150	10x12.5	27	2200	1500	SVD1HM151GCRE00RAXXX	
	220	10x12.5	27	2400	2200	SVD1HM221GCRE00RAXXX	
	63	22	6.3x6	72	520	500	SVD1JM220E06E00RAXXX
		33	6.3x9	54	520	500	SVD1JM330E09E00RAXXX
47		8x9.5	54	1000	592	SVD1JM470F9RE00RAXXX	
56		8x11.5	36	1000	706	SVD1JM560FBRE00RAXXX	
100		10x12.5	36	1600	1260	SVD1JM101GCRE00RAXXX	



**VT series**

- Endurance: 2,000 hours at 125°C
- High Temperature Resistance
- Recommended Applications Lamps Power, LED Power, Service Equipment
- RoHS Compliant and lead-free

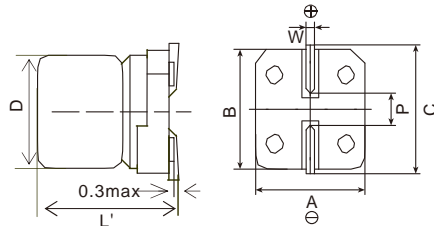


**SPECIFICATIONS**

Items	Characteristics
Category Temperature Range	-55~+125°C
Rated Working Voltage Range	2.5~63 V <sub>dc</sub>
Nominal Capacitance Range	22~2200μF
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
DC Leakage Current	I 0.2CV or 500μA, whichever is greater. Where, I: Max. leakage current(μA), C: Nominal capacitance(μF), V: Rated voltage(V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 2.5 6.3 10 16 25 35 50 63 Dissipation Factor (Max.) 0.12 0.12 (at 20°C, 120Hz)
ESR(100kHz,20°C)	Value in characteristics table
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25
Endurance	After applying rated voltage for 2,000 hours at 125°C, the capacitors shall meet the following requirements. Appearance No significant damage Capacitance Change ±20% of the initial value Dissipation Factor 150% of the initial specified value ESR 150% of the initial specified value Leakage Current The initial specified value
Humidity Test	After subjecting 90~95% RH for 2,000 hours at 60°C, no voltage, The capacitors shall meet the requirement as Endurance.
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements. Appearance No significant damage Capacitance Change ±20% of the initial value Dissipation Factor 150% of the initial specified value ESR 150% of the initial specified value Leakage Current The initial specified value

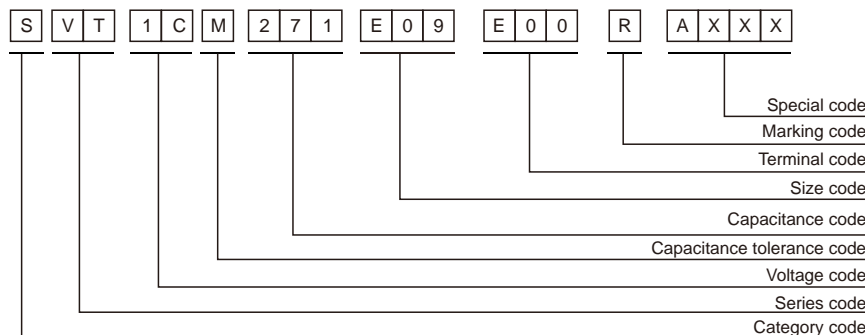
\*Note: If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment: DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

**DIMENSIONS[mm]**



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
ØD'	ØD-0.1~+0.5		
L'	L±0.5		

**PART NUMBERING SYSTEM**



**VT series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
2.5	220	6.3x4.5	30	800	500	SVT0EM221E4RE00RAXXX
	330	6.3x4.5	27	100	500	SVT0EM331E4RE00RAXXX
	330	6.3x6	30	800	500	SVT0EM331E06E00RAXXX
	390	6.3x6	30	800	500	SVT0EM391E06E00RAXXX
	470	6.3x6	30	800	500	SVT0EM471E06E00RAXXX
	560	6.3x6	30	900	500	SVT0EM561E06E00RAXXX
	680	6.3x9	22	1200	500	SVT0EM681E09E00RAXXX
6.3	220	6.3x4.5	30	800	500	SVT0JM221E4RE00RAXXX
	220	6.3x6	30	800	500	SVT0JM221E06E00RAXXX
	270	6.3x6	30	900	500	SVT0JM271E06E00RAXXX
	330	6.3x6	30	900	500	SVT0JM331E06E00RAXXX
	470	6.3x9	22	1000	592	SVT0JM471E09E00RAXXX
	560	6.3x9	22	1100	706	SVT0JM561E09E00RAXXX
	1000	8x11.5	22	1200	1260	SVT0JM102FBRE00RAXXX
10	1500	8x11.5	22	1300	1890	SVT0JM152FBRE00RAXXX
	2200	10x12.5	22	1600	2772	SVT0JM222GCRE00RAXXX
	120	6.3x6	45	800	500	SVT1AM121E06E00RAXXX
	220	6.3x6	45	800	500	SVT1AM221E06E00RAXXX
	220	6.3x9	30	900	500	SVT1AM221E09E00RAXXX
	330	6.3x9	30	900	660	SVT1AM331E09E00RAXXX
	560	8x11.5	30	1000	1120	SVT1AM561FBRE00RAXXX
16	560	10x12.5	30	1500	1120	SVT1AM561GCRE00RAXXX
	1000	8x11.5	22	1200	2000	SVT1AM102FBRE00RAXXX
	1000	10x12.5	22	1300	2000	SVT1AM102GCRE00RAXXX
	1500	10x12.5	22	1300	3000	SVT1AM152GCRE00RAXXX
	47	6.3x6	60	500	500	SVT1CM470E06E00RAXXX
	68	6.3x6	60	600	500	SVT1CM680E06E00RAXXX
	100	6.3x6	45	700	500	SVT1CM101E06E00RAXXX
25	150	6.3x6	45	700	500	SVT1CM151E06E00RAXXX
	150	6.3x9	37	700	500	SVT1CM151E09E00RAXXX
	180	6.3x6	90	700	576	SVT1CM181E06E00RAXXX
	180	6.3x9	37	800	576	SVT1CM181E09E00RAXXX
	220	6.3x9	37	700	704	SVT1CM221E09E00RAXXX
	270	6.3x9	37	700	864	SVT1CM271E09E00RAXXX
	560	8x11.5	30	1000	1792	SVT1CM561FBRE00RAXXX
35	680	10x12.5	30	1200	2176	SVT1CM681GCRE00RAXXX
	1000	10x12.5	30	1200	3200	SVT1CM102GCRE00RAXXX
	27	6.3x6	75	300	500	SVT1EM270E06E00RAXXX
	47	6.3x6	75	500	500	SVT1EM470E06E00RAXXX
	47	6.3x9	52	600	500	SVT1EM470E09E00RAXXX
	56	6.3x6	75	500	500	SVT1EM560E06E00RAXXX
	68	6.3x4.5	90	300	500	SVT1EM680E4RE00RAXXX
50	100	6.3x6	75	600	500	SVT1EM101E06E00RAXXX
	100	6.3x9	45	700	500	SVT1EM101E09E00RAXXX
	150	6.3x9	45	700	750	SVT1EM151E09E00RAXXX
	220	8x11.5	45	700	1100	SVT1EM221FBRE00RAXXX
	330	8x11.5	45	800	1650	SVT1EM331FBRE00RAXXX
	330	10x12.5	33	800	1650	SVT1EM331GCRE00RAXXX
	470	10x12.5	33	900	2350	SVT1EM471GCRE00RAXXX
63	22	6.3x6	90	300	500	SVT1VM220E06E00RAXXX
	27	6.3x6	90	300	500	SVT1VM270E06E00RAXXX
	33	6.3x6	90	300	500	SVT1VM330E06E00RAXXX
	47	6.3x6	67	300	500	SVT1VM470E06E00RAXXX
	47	6.3x9	75	400	500	SVT1VM470E09E00RAXXX
	68	6.3x9	60	500	500	SVT1VM680E09E00RAXXX
	100	6.3x9	60	600	700	SVT1VM101E09E00RAXXX
80	100	8x11.5	45	900	700	SVT1VM101FBRE00RAXXX
	150	8x11.5	45	900	1050	SVT1VM151FBRE00RAXXX
	220	8x11.5	45	700	1540	SVT1VM221FBRE00RAXXX
	270	8x11.5	45	700	1890	SVT1VM271FBRE00RAXXX
	270	10x12.5	45	800	1890	SVT1VM271GCRE00RAXXX
	330	10x12.5	45	800	2310	SVT1VM331GCRE00RAXXX
	470	10x12.5	45	900	3290	SVT1VM471GCRE00RAXXX
100	22	6.3x6	120	240	500	SVT1HM220E06E00RAXXX
	33	6.3x6	120	250	500	SVT1HM330E06E00RAXXX
	47	6.3x9	90	400	500	SVT1HM470E09E00RAXXX
	82	10x12.5	45	600	820	SVT1HM820GCRE00RAXXX
	100	8x11.5	45	600	1000	SVT1HM101FBRE00RAXXX
	120	8x11.5	45	600	1200	SVT1HM121FBRE00RAXXX
	220	10x12.5	45	600	2200	SVT1HM221GCRE00RAXXX
125	22	6.3x6	120	130	500	SVT1JM220E06E00RAXXX
	33	6.3x9	90	150	500	SVT1JM330E09E00RAXXX
	56	8x11.5	60	400	706	SVT1JM560FBRE00RAXXX
	100	10x12.5	60	400	1260	SVT1JM101GCRE00RAXXX

Specifications subject to change without notice.

# VF series

- Endurance: 3,000~5,000 hours at 105°C
- Long life
- Recommended Applications: System Board, Display Card, Small Changer and intelligent TV
- RoHS Compliant and lead-free

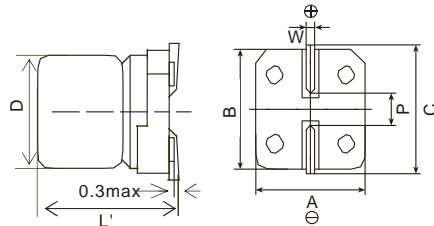


## SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-55~+105°C
Rated Working Voltage Range	2.5~63 V <sub>dc</sub>
Nominal Capacitance Range	22~2200μF
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where, I: Max. leakage current(μA), C: Nominal capacitance(μF), V: Rated voltage(V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 2.5 6.3 10 16 25 35 50 63 Dissipation Factor (Max.) 0.08 0.12 (at 20°C, 120Hz)
ESR(100kHz,20°C)	Value in characteristics table
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25
Endurance	After applying rated voltage for 3,000~5,000 hours at 105°C, the capacitors shall meet the following requirements. Appearance No significant damage Capacitance Change ±20% of the initial value Dissipation Factor 150% of the initial specified value ESR 150% of the initial specified value Leakage Current The initial specified value
Humidity Test	After subjecting 90~95% RH for 2,000 hours at 60°C. no voltage, The capacitors shall meet the requirement as Endurance.
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements. Appearance No significant damage Capacitance Change ±20% of the initial value Dissipation Factor 150% of the initial specified value ESR 150% of the initial specified value Leakage Current The initial specified value

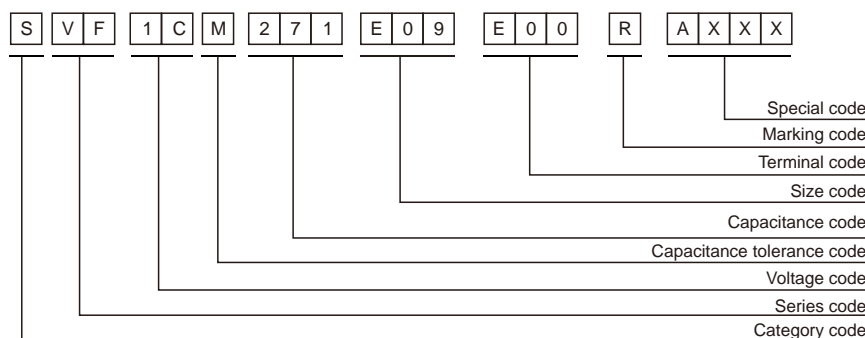
\*Note: If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment: DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

## DIMENSIONS[mm]



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
ØD'	ØD-0.1~+0.5		
L'	L±0.5		

## PART NUMBERING SYSTEM



# VF series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number	
2.5	330	6.3×6	22	2400	500	SVF0EM331E06E00RAXXX	
	390	6.3×6	22	2500	500	SVF0EM391E06E00RAXXX	
	470	6.3×6	22	2600	500	SVF0EM471E06E00RAXXX	
	560	6.3×6	22	2700	500	SVF0EM561E06E00RAXXX	
	680	6.3×9	16	3800	500	SVF0EM681E09E00RAXXX	
6.3	220	6.3×6	22	2500	500	SVF0JM221E06E00RAXXX	
	270	6.3×6	22	2700	500	SVF0JM271E06E00RAXXX	
	330	6.3×6	22	2700	500	SVF0JM331E06E00RAXXX	
	470	6.3×9	16	3100	592	SVF0JM471E09E00RAXXX	
	560	6.3×9	16	3300	706	SVF0JM561E09E00RAXXX	
	1000	8×11.5	16	3800	1260	SVF0JM102FBRE00RAXXX	
	1500	8×11.5	16	3900	1890	SVF0JM152FBRE00RAXXX	
10	220	10×12.5	16	5000	2772	SVF0JM222GCRE00RAXXX	
	120	6.3×6	33	2400	500	SVF1AM121E06E00RAXXX	
	220	6.3×6	33	2400	500	SVF1AM221E06E00RAXXX	
	220	6.3×9	22	2700	500	SVF1AM221E09E00RAXXX	
	330	6.3×9	22	2700	660	SVF1AM331E09E00RAXXX	
	560	8×11.5	22	3200	1120	SVF1AM561FBRE00RAXXX	
	560	10×12.5	22	4500	1120	SVF1AM561GCRE00RAXXX	
	1000	8×11.5	16	3700	2000	SVF1AM102FBRE00RAXXX	
	1000	10×12.5	16	3900	2000	SVF1AM102GCRE00RAXXX	
	1500	10×12.5	16	3900	3000	SVF1AM152GCRE00RAXXX	
16	47	6.3×6	44	1500	500	SVF1CM470E06E00RAXXX	
	68	6.3×6	44	1800	500	SVF1CM680E06E00RAXXX	
	100	6.3×6	33	2100	500	SVF1CM101E06E00RAXXX	
	150	6.3×6	33	2100	500	SVF1CM151E06E00RAXXX	
	150	6.3×9	27	2300	500	SVF1CM151E09E00RAXXX	
	180	6.3×6	66	2200	576	SVF1CM181E06E00RAXXX	
	180	6.3×9	27	2400	576	SVF1CM181E09E00RAXXX	
	220	6.3×9	27	2200	704	SVF1CM221E09E00RAXXX	
	270	6.3×9	27	2300	864	SVF1CM271E09E00RAXXX	
	270	8×9.5	27	2500	864	SVF1CM271F9RE00RAXXX	
	560	8×11.5	22	3100	1792	SVF1CM561FBRE00RAXXX	
	680	10×12.5	22	3600	2176	SVF1CM681GCRE00RAXXX	
	1000	10×12.5	22	3600	3200	SVF1CM102GCRE00RAXXX	
	25	27	6.3×6	55	900	500	SVF1EM270E06E00RAXXX
47		6.3×6	55	1600	500	SVF1EM470E06E00RAXXX	
47		6.3×9	38	1800	500	SVF1EM470E09E00RAXXX	
56		6.3×6	55	1600	500	SVF1EM560E06E00RAXXX	
100		6.3×6	55	1800	500	SVF1EM101E06E00RAXXX	
100		6.3×9	33	2100	500	SVF1EM101E09E00RAXXX	
150		6.3×9	33	2200	750	SVF1EM151E09E00RAXXX	
220		8×11.5	33	2300	1100	SVF1EM221FBRE00RAXXX	
330		8×11.5	33	2400	1650	SVF1EM331FBRE00RAXXX	
330		10×12.5	24	2500	1650	SVF1EM331GCRE00RAXXX	
470		10×12.5	24	2700	2350	SVF1EM471GCRE00RAXXX	
35		22	6.3×6	66	900	500	SVF1VM220E06E00RAXXX
	27	6.3×6	66	900	500	SVF1VM270E06E00RAXXX	
	33	6.3×6	66	900	500	SVF1VM330E06E00RAXXX	
	47	6.3×6	49	900	500	SVF1VM470E06E00RAXXX	
	47	6.3×9	55	1300	500	SVF1VM470E09E00RAXXX	
	68	6.3×9	44	1600	500	SVF1VM680E09E00RAXXX	
	100	6.3×9	44	1800	700	SVF1VM101E09E00RAXXX	
	100	8×11.5	33	2700	700	SVF1VM101FBRE00RAXXX	
	150	8×11.5	33	2700	1050	SVF1VM151FBRE00RAXXX	
	220	8×11.5	33	2100	1540	SVF1VM221FBRE00RAXXX	
	270	8×11.5	33	2200	1890	SVF1VM271FBRE00RAXXX	
	270	10×12.5	33	2400	1890	SVF1VM271GCRE00RAXXX	
	330	10×12.5	33	2400	2310	SVF1VM331GCRE00RAXXX	
	470	10×12.5	33	2700	3290	SVF1VM471GCRE00RAXXX	
	50	22	6.3×6	88	720	500	SVF1HM220E06E00RAXXX
		33	6.3×6	88	760	500	SVF1HM330E06E00RAXXX
47		6.3×9	66	1200	500	SVF1HM470E09E00RAXXX	
82		10×12.5	33	1800	820	SVF1HM820GCRE00RAXXX	
100		8×11.5	33	1800	1000	SVF1HM101FBRE00RAXXX	
120		8×11.5	33	1800	1200	SVF1HM121FBRE00RAXXX	
220		10×12.5	33	2000	2200	SVF1HM221GCRE00RAXXX	
63		22	6.3×6	88	400	500	SVF1JM220E06E00RAXXX
		33	6.3×9	66	450	500	SVF1JM330E09E00RAXXX
		47	8×9.5	66	900	592	SVF1JM470F9RE00RAXXX
	56	8×11.5	44	1200	706	SVF1JM560FBRE00RAXXX	
	100	10×12.5	44	1400	1260	SVF1JM101GCRE00RAXXX	

Specifications subject to change without notice.

VL series

- Endurance: 10,000~23,000 hours at 105°C
- Super long life
- Recommended Applications: Industrial power,base station,Industrial control,server
- RoHS Compliant and lead-free

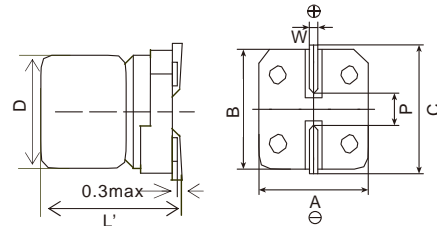


SPECIFICATIONS

Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	2.5~16 V <sub>dc</sub>	
Nominal Capacitance Range	100~560μF	
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)	
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where,I:Max.leakage current(μA),C:Nominal capacitance(μF),V:Rated voltage(V) (at 20°C after 2 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )    2.5    4    6.3    10    16	
	Dissipation Factor (Max.)    0.08    0.12 (at 20°C,120Hz)	
ESR(100kHz,20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) 1.25 Z(-55°C)/Z(+20°C) 1.25	
Endurance	After applying rated voltage for 10,000~23,000 hours at 105°C,the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Leakage Current	The initial specified value	
Humidity Test	After subjecting 90~95% RH for 2,000 hours at 60°C.no voltage, The capacitors shall meet the requirement as Endurance.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	ESR	150% of the initial specified value
Leakage Current	The initial specified value	

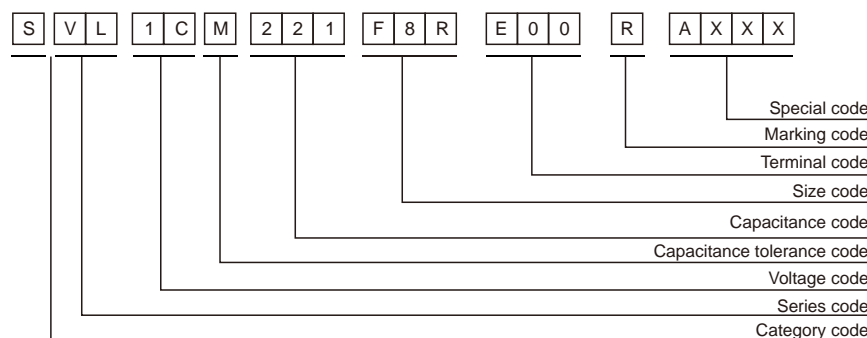
\*Note: If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment: DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

DIMENSIONS[mm]



Size Code	6.3	8
P±0.2	1.9	3.1
W±0.2	6.6	8.3
H±0.2	6.6	8.3
C±0.2	7.2	9.0
W	0.5~0.8	0.7~1.1
ØD'	ØD-0.1~+0.5	
L'	L±0.5	

PART NUMBERING SYSTEM



VL series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ,20°C,100kHz) (max.)	Rated ripple current (mA <sub>rms</sub> /105°C,100kHz)	Leakage Current (μA)(max.)	Load (hour)	Part Number
2.5	560	6.3x6	25	2000	500	23000	SVL0EM561E06E00RS233
4	560	8x6.5	20	4000	500	10000	SVL0GM561F6RE00RS103
6.3	330	6.3x6	15	3000	500	10000	SVL0JM331E06E00RS103
	330	6.3x6	25	2800	500	23000	SVL0JM331E06E00RS233
10	330	8x11.5	17	4500	660	10000	SVL1AM331FBRE00RS103
16	100	6.3x6	24	4400	500	10000	SVL1CM101E06E00RS103
	100	6.3x6	24	4400	500	16000	SVL1CM101E06E00RS163
	100	6.3x6	48	2000	500	23000	SVL1CM101E06E00RS233
	220	8x8.5	28	3890	704	18000	SVL1CM221F8RE00RS183
	220	8x9.5	20	3890	704	10000	SVL1CM221F9RE00RS103
	560	8x11.5	18	2500	1792	16000	SVL1CM561FBRE00RS163

Specifications subject to change without notice.



# DA series

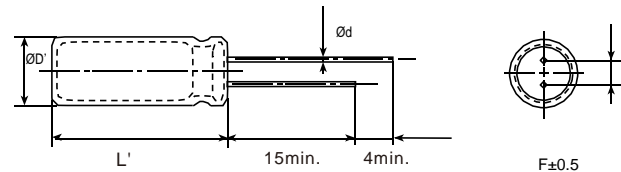
- Endurance: 4,000 hours at 125°C
- Low ESR, High Ripple Current Resistant
- Recommended Applications: Automotive electronics, The base station
- Compliant to AEC-Q200
- **RoHS Compliant and lead-free**



**SPECIFICATIONS**

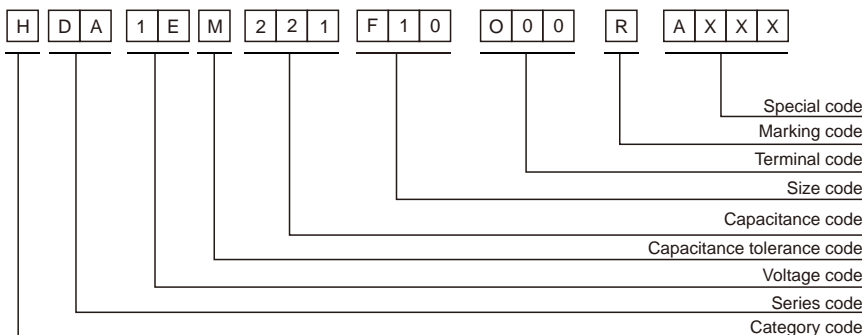
Items	Characteristics						
Category Temperature Range	-55~+125°C						
Rated Working Voltage Range	25~80 V <sub>dc</sub>						
Nominal Capacitance Range	15~470μF						
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)						
DC Leakage Current	LC=0.01CV or 3(μA), whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)						
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	25	35	50	63	80	(at 20°C,120Hz)
	Dissipation Factor (Max.)	0.12					
ESR(100kHz,20°C)	Value in characteristics table						
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125°C)/Z(+20°C) 1.5 Z(-55°C)/Z(+20°C) 2.0						
Endurance	After applying rated voltage with rated ripple current for 4,000 hours at 125 ±2 °C, the capacitors shall meet the following requirements at normal temperature.						
	Appearance	No significant damage					
	Capacitance Change	±30% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	ESR	200% of the initial specified value					
Leakage Current	The initial specified value						
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are restored to normal temperature after storing them for 2,000 hours under no-load at 125°C±2°C.						
Humidity Resistance (On-Load)	After applying rated voltage for 2,000 hours at 85°C±2°C and 85~90%RH, the capacitors shall meet the following requirements.						
	Appearance	No significant damage					
	Capacitance Change	±30% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	ESR	200% of the initial specified value					
Leakage Current	The initial specified value						

**DIMENSIONS[mm]**



ØD	6.3	8	10
Ød	0.5	0.6	0.6
F	2.5	3.5	5.0
ØD'	ØD-0.1~+0.5		
L'	L +1.0max.		L -0.5~+1

**PART NUMBERING SYSTEM**



# DA series

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA <sub>rms</sub> /125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
25	100	6.3x7	35	1200	25	HDA1EM101E07O00RAXXX
	220	8x10	27	1400	55	HDA1EM221F10O00RAXXX
	330	10x10	25	1800	82.5	HDA1EM331G10O00RAXXX
	470	10x10	20	2000	117.5	HDA1EM471G10O00RAXXX
35	47	6.3x7	40	1100	16.5	HDA1VM470E07O00RAXXX
	68	6.3x8	40	1200	23.8	HDA1VM680E08O00RAXXX
	120	8x10	35	1400	42	HDA1VM121F10O00RAXXX
	220	10x10	30	1800	77	HDA1VM221G10O00RAXXX
50	22	6.3x8	90	900	11	HDA1HM220E08O00RAXXX
	47	8x10	35	1100	23.5	HDA1HM470F10O00RAXXX
	100	10x10	35	1400	50	HDA1HM101G10O00RAXXX
63	15	6.3x8	100	800	9.5	HDA1JM150E08O00RAXXX
	33	8x10	50	1000	20.8	HDA1JM330F10O00RAXXX
	56	10x10	40	1200	35.3	HDA1JM560G10O00RAXXX
80	47	8x12	40	1000	37.6	HDA1BM470F12O00RAXXX

Specifications subject to change without notice.

## DC series

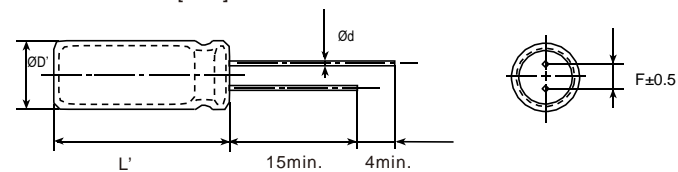
- Endurance: 10,000 hours at 105°C
- Low ESR, High Ripple Current Resistant
- Recommended Applications: Automotive electronics, The base station
- Compliant to AEC-Q200
- **RoHS Compliant and lead-free**



### SPECIFICATIONS

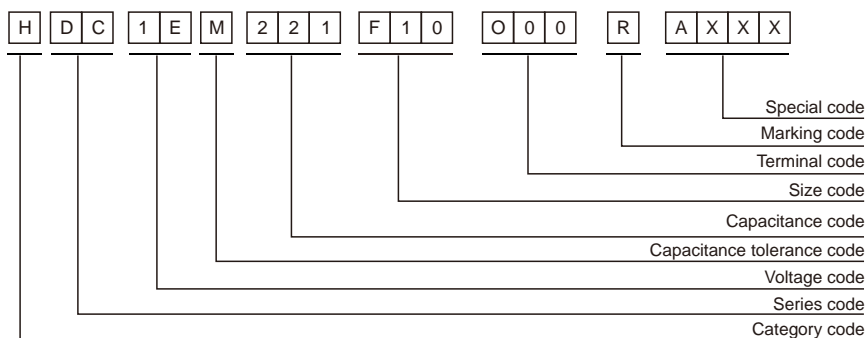
Items	Characteristics						
Category Temperature Range	-55~+105°C						
Rated Working Voltage Range	25~80 V <sub>dc</sub>						
Nominal Capacitance Range	15~470μF						
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)						
DC Leakage Current	LC=0.01CV or 3(μA), whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)						
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	25	35	50	63	80	(at 20°C, 120Hz)
	Dissipation Factor (Max.)	0.12					
ESR(100kHz, 20°C)	Value in characteristics table						
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125°C)/Z(+20°C) 1.5 Z(-55°C)/Z(+20°C) 2.0						
Endurance	After applying rated voltage with rated ripple current for 10,000 hours at 105°C±2°C, the capacitors shall meet the following requirements at normal temperature.						
	Appearance	No significant damage					
	Capacitance Change	±30% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	ESR	200% of the initial specified value					
Leakage Current	The initial specified value						
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are restored to normal temperature after storing them for 2,000 hours under no-load at 105°C±2°C.						
Humidity Resistance (On-Load)	After applying rated voltage for 2,000 hours at 85°C±2°C and 85~90%RH, the capacitors shall meet the following requirements.						
	Appearance	No significant damage					
	Capacitance Change	±30% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	ESR	200% of the initial specified value					
Leakage Current	The initial specified value						

### DIMENSIONS[mm]



ØD	6.3	8	10
Ød	0.5	0.6	0.6
F	2.5	3.5	5.0
ØD'	ØD-0.1~+0.5		
L'	L +1.0max.		L -0.5~+1

### PART NUMBERING SYSTEM



## DC series

### STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
25	100	6.3x7	35	1800	25	HDC1EM101E07000RAXXX
	220	8x10	27	2100	55	HDC1EM221F10000RAXXX
	330	10x10	25	2300	82.5	HDC1EM331G10000RAXXX
	470	10x10	20	2500	117.5	HDC1EM471G10000RAXXX
35	47	6.3x7	40	1300	16.5	HDC1CM470E07000RAXXX
	68	6.3x8	40	1500	23.8	HDC1VM680E08000RAXXX
	120	8x10	35	1800	42	HDC1VM121F10000RAXXX
	220	10x10	30	2000	77	HDC1VM221G10000RAXXX
50	22	6.3x8	90	1100	11	HDC1HM220E08000RAXXX
	47	8x10	35	1500	23.5	HDC1HM470F10000RAXXX
	100	10x10	35	1800	50	HDC1HM101G10000RAXXX
63	15	6.3x8	100	1000	9.5	HDC1JM150E08000RAXXX
	33	8x10	50	1200	20.8	HDC1JM330F10000RAXXX
	56	10x10	40	1400	35.3	HDC1JM560G10000RAXXX
80	47	8x12	40	1200	37.6	HDC1BM470F12000RAXXX

Specifications subject to change without notice.

# SA series

- Endurance: 4,000 hours at 125°C
- Low ESR, High Ripple Current Resistant
- Recommended Applications: Automotive electronics, The base station
- Compliant to AEC-Q200
- **RoHS Compliant and lead-free**

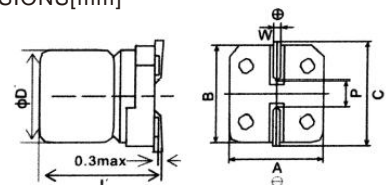
New



## SPECIFICATIONS

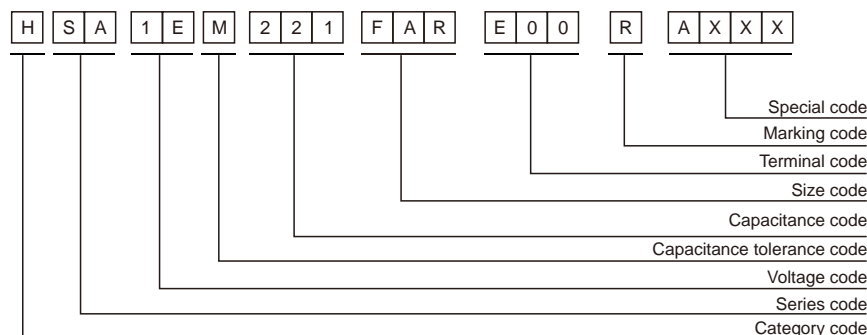
Items	Characteristics
Category Temperature Range	-55~+125°C
Rated Working Voltage Range	25~80 V <sub>dc</sub>
Nominal Capacitance Range	15~470μF
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
DC Leakage Current	LC=0.01CV or 3(μA), whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )      25      35      50      63      80 (at 20°C,120Hz)
	Dissipation Factor (Max.)      0.12
ESR(100kHz,20°C)	Value in characteristics table
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125°C)/Z(+20°C) 1.5 Z(-55°C)/Z(+20°C) 2.0
Endurance	After applying rated voltage with rated ripple current for 4,000 hours at 125 ±2 , the capacitors shall meet the following requirements at normal temperature.
	Appearance      No significant damage
	Capacitance Change      ±30% of the initial value
	Dissipation Factor      200% of the initial specified value
	ESR      200% of the initial specified value
Leakage Current      The initial specified value	
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are restored to normal temperature after storing them for 2,000 hours under no-load at 125°C±2°C.
Humidity Resistance (On-Load)	After applying rated voltage for 2,000 hours at 85°C±2°C and 85~90%RH, the capacitors shall meet the following requirements.
	Appearance      No significant damage
	Capacitance Change      ±30% of the initial value
	Dissipation Factor      200% of the initial specified value
	ESR      200% of the initial specified value
Leakage Current      The initial specified value	

## DIMENSIONS[mm]



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
∅D'	∅D-0.1~+0.5		
L'	L±0.5		

## PART NUMBERING SYSTEM



# SA series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA <sub>rms</sub> /125°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
25	100	6.3×9	35	1200	25	HSA1EM101E09E00RAXXX
	220	8×10.5	27	1400	55	HSA1EM221FARE00RAXXX
	330	10×10.5	25	1800	82.5	HSA1EM331GARE00RAXXX
	470	10×10.5	20	2000	117.5	HSA1EM471GARE00RAXXX
35	47	6.3×9	40	1100	16.5	HSA1VM470E09E00RAXXX
	68	6.3×9	40	1200	23.8	HSA1VM680E09E00RAXXX
	120	8×10.5	35	1400	42	HSA1VM121FARE00RAXXX
	220	10×10.5	30	1800	77	HSA1VM221GARE00RAXXX
50	22	6.3×9	90	900	11	HSA1HM220E09E00RAXXX
	47	8×10.5	35	1100	23.5	HSA1HM470FARE00RAXXX
	100	10×10.5	35	1400	50	HSA1HM101GARE00RAXXX
63	15	6.3×9	100	800	9.5	HSA1JM150E09E00RAXXX
	33	8×10.5	50	1000	20.8	HSA1JM330FARE00RAXXX
	56	10×10.5	40	1200	35.3	HSA1JM560GARE00RAXXX
80	47	8×12.5	40	1000	37.6	HSA1BM470FCRE00RAXXX

Specifications subject to change without notice.



# SC series

- Endurance: 10,000 hours at 105°C
- Low ESR, High Ripple Current Resistant
- Recommended Applications: Automotive electronics, The base station
- Compliant to AEC-Q200
- RoHS Compliant and lead-free

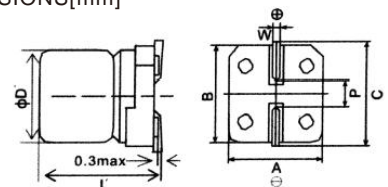
New



## SPECIFICATIONS

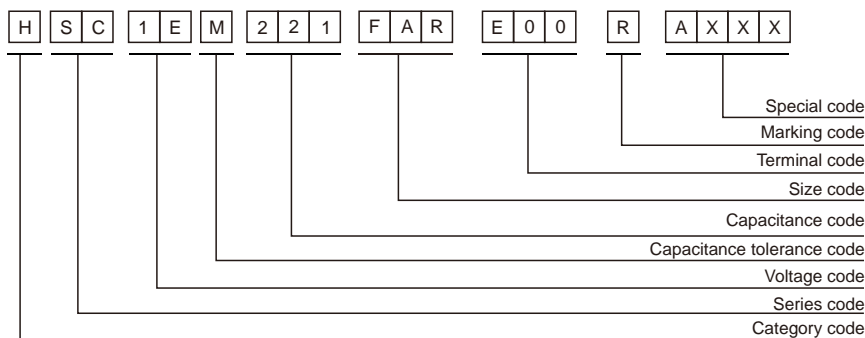
Items	Characteristics
Category Temperature Range	-55~+105°C
Rated Working Voltage Range	25~80 V <sub>dc</sub>
Nominal Capacitance Range	15~470μF
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
DC Leakage Current	LC=0.01CV or 3(μA), whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 25 35 50 63 80 (at 20°C,120Hz) Dissipation Factor (Max.) 0.12
ESR(100kHz,20°C)	Value in characteristics table
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125°C)/Z(+20°C) 1.5 Z(-55°C)/Z(+20°C) 2.0
Endurance	After applying rated voltage with rated ripple current for 10,000 hours at 105°C±2°C, the capacitors shall meet the following requirements at normal temperature. Appearance No significant damage Capacitance Change ±30% of the initial value Dissipation Factor 200% of the initial specified value ESR 200% of the initial specified value Leakage Current The initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are restored to normal temperature after storing them for 2,000 hours under no-load at 105°C±2°C.
Humidity Resistance (On-Load)	After applying rated voltage for 2,000 hours at 85°C±2°C and 85~90%RH, the capacitors shall meet the following requirements. Appearance No significant damage Capacitance Change ±30% of the initial value Dissipation Factor 200% of the initial specified value ESR 200% of the initial specified value Leakage Current The initial specified value

## DIMENSIONS[mm]



Size Code	6.3	8	10
P±0.2	1.9	3.1	4.5
W±0.2	6.6	8.3	10.3
H±0.2	6.6	8.3	10.3
C±0.2	7.2	9.0	11.0
W	0.5~0.8	0.7~1.1	0.7~1.1
∅D'	∅D-0.1~+0.5		
L'	L±0.5		

## PART NUMBERING SYSTEM



# SC series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
25	100	6.3×9	35	1800	25	HSC1EM101E09E00RAXXX
	220	8×10.5	27	2100	55	HSC1EM221FARE00RAXXX
	330	10×10.5	25	2300	82.5	HSC1EM331GARE00RAXXX
	470	10×10.5	20	2500	117.5	HSC1EM471GARE00RAXXX
35	47	6.3×9	40	1300	16.5	HSC1VM470E09E00RAXXX
	68	6.3×9	40	1500	23.8	HSC1VM680E09E00RAXXX
	120	8×10.5	35	1800	42	HSC1VM121FARE00RAXXX
	220	10×10.5	30	2000	77	HSC1VM221GARE00RAXXX
50	22	6.3×9	90	1100	11	HSC1HM220E09E00RAXXX
	47	8×10.5	35	1500	23.5	HSC1HM470FARE00RAXXX
	100	10×10.5	35	1800	50	HSC1HM101GARE00RAXXX
63	15	6.3×9	100	1000	9.5	HSC1JM150E09E00RAXXX
	33	8×10.5	50	1200	20.8	HSC1JM330FARE00RAXXX
	56	10×10.5	40	1400	35.3	HSC1JM560GARE00RAXXX
80	47	8×12.5	40	1200	37.6	HSC1BM470FCRE00RAXXX

Specifications subject to change without notice.

**MK series**

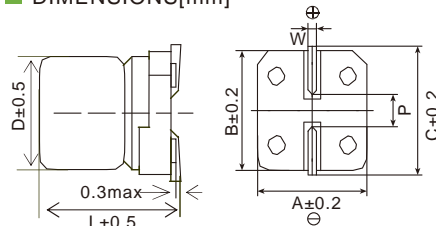
- Endurance: 2,000 ~ 3,000 hours at 105°C
- Designed for surface mounting on high density PC board
- Compliant to AEC-Q200
- RoHS Compliant



**SPECIFICATIONS**

Items	Characteristics	
Category Temperature Range	-55~+105°C(6.3~100 V dc)	-40~+105°C(160~450 V dc)
Rated Voltage Range	6.3~450 V <sub>dc</sub>	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
Leakage Current	6.3~100 V <sub>dc</sub>	160~450 V <sub>dc</sub>
	I 0.01CV or 3μA, whichever is greater. (2 minutes) I 0.04CV+100μA (1 minute)	
Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50~100 160~250 400~450
	Dissipation Factor(Max.)	D80~E83 0.30 0.24 0.20 0.16 0.14 0.12 0.15 0.20 E80~WM5 0.40 0.30 0.26 0.16 0.14 0.12 0.15 0.20 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50~100 160~250 400~450
	Z(-25°C)/Z(+20°C)	4 3 2 2 2 2 6 6
	Z(-40°C)/Z(+20°C)	6 4 3 3 3 3 10 18
	Z(-55°C)/Z(+20°C)	8 6 4 3 3 3 - - (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after rated voltage is applied for a specified period of time at 105°C.	
	Load Life	2,000 hours (160~450V <sub>dc</sub> 3,000 hours)
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours (6.3~100V <sub>dc</sub> : 500 hours).	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	200% of the initial specified value

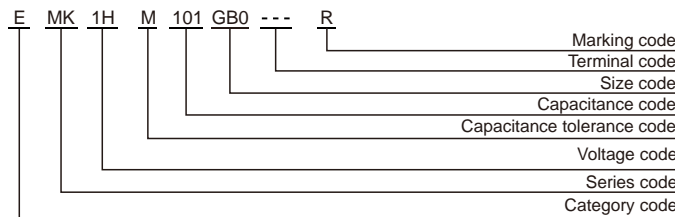
**DIMENSIONS[mm]**



Size code	D	L	A	B	C	W	P
D80	5	7.7	5.3	5.3	5.9	0.5~0.8	1.4
E80	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
E83	6.3	8.0	6.6	6.6	7.2	0.5~0.8	1.9
E80	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
FB0	8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
FD0	8	12.5	8.3	8.3	9.0	0.7~1.1	3.1
FE0	8	13.5	8.3	8.3	9.0	0.7~1.1	3.1
FG0	8	15.5	8.3	8.3	9.0	0.7~1.1	3.1
G80	10	7.7	10.3	10.3	11.0	0.7~1.1	4.5
GB0	10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
GD0	10	12.5	10.3	10.3	11.0	0.7~1.1	4.5
GE0	10	13.5	10.3	10.3	11.0	0.7~1.1	4.5
GH0	10	16.5	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5
WM5	12.5	21.0	13.0	13.0	13.7	1.0~1.3	4.5

Note: 1)Tolerance shall be L+1.3(max.) for G80.  
2)M type forming is available for Size E83 ~ GH0.

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)			
	120	1k	10k	100k
6.3~450	0.50	0.80	0.90	1.00

**MK series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
6.3	100	D80	105	EMK0JM101D80---R
	220	E83	160	EMK0JM221E83---R
	330	FB0	340	EMK0JM331FB0---R
	1000	GB0	860	EMK0JM102GB0---R
10	33	D80	105	EMK1AM330D80---R
	100	E83	175	EMK1AM101E83---R
	220	E83	180	EMK1AM221E83---R
	330	FB0	340	EMK1AM331FB0---R
	470	FB0	360	EMK1AM471FB0---R
16	820	GB0	860	EMK1AM821GB0---R
	47	D80	105	EMK1CM470D80---R
	100	E83	175	EMK1CM101E83---R
	150	E83	190	EMK1CM151E83---R
25	220	FB0	500	EMK1CM221FB0---R
	330	FB0	545	EMK1CM331FB0---R
	470	GB0	800	EMK1CM471GB0---R
	47	E83	180	EMK1EM470E83---R
35	100	E83	205	EMK1EM101E83---R
	220	FB0	550	EMK1EM221FB0---R
	330	GB0	780	EMK1EM331GB0---R
	470	GD0	875	EMK1EM471GD0---R
	10	D80	105	EMK1VM100D80---R
50	22	D80	110	EMK1VM220D80---R
	47	E83	210	EMK1VM470E83---R
	100	FB0	575	EMK1VM101FB0---R
	220	GB0	835	EMK1VM221GB0---R
	330	GD0	900	EMK1VM331GD0---R
63	10	E83	120	EMK1HM100E83---R
	22	E83	175	EMK1HM220E83---R
	33	E83	180	EMK1HM330E83---R
	47	E83	190	EMK1HM470E83---R
	47	FB0	540	EMK1HM470FB0---R
	100	FB0	600	EMK1HM101FB0---R
	100	GB0	700	EMK1HM101GB0---R
	220	GD0	800	EMK1HM221GD0---R
	220	WE0	900	EMK1HM221WE0---R
	330	WG5	1180	EMK1HM331WG5---R
80	10	D80	85	EMK1JM100D80---R
	22	E83	150	EMK1JM220E83---R
	33	FB0	375	EMK1JM330FB0---R
	47	FB0	450	EMK1JM470FB0---R
	100	GB0	575	EMK1JM101GB0---R
100	220	WE0	890	EMK1JM221WE0---R
	10	E83	140	EMK1BM100E83---R
	22	FB0	375	EMK1BM220FB0---R
	33	FB0	450	EMK1BM330FB0---R
	47	GB0	575	EMK1BM470GB0---R
	100	GD0	600	EMK1BM101GD0---R
	150	WE0	800	EMK1BM151WE0---R
	220	WG5	960	EMK1BM221WG5---R
	4.7	D80	70	EMK1KM47D80---R
	10	E83	135	EMK1KM100E83---R
22	FB0	345	EMK1KM220FB0---R	
160	33	GB0	560	EMK1KM330GB0---R
	47	GB0	575	EMK1KM470GB0---R
	100	WE0	680	EMK1KM101WE0---R
	10	FB0	83	EMK2CM100FB0---R
	10	G80	81	EMK2CM100G80---R
	15	FD0	136	EMK2CM150FD0---R
	22	GD0	170	EMK2CM220GD0---R
	33	GE0	215	EMK2CM330GE0---R
	47	GH0	380	EMK2CM470GH0---R
	68	WM5	630	EMK2CM680WM5---R
100	WM5	700	EMK2CM101WM5---R	

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
200	10	FB0	118	EMK2DM100FB0---R
	10	GB0	130	EMK2DM100GB0---R
	15	FE0	170	EMK2DM150FE0---R
	22	GE0	200	EMK2DM220GE0---R
250	33	GH0	260	EMK2DM330GH0---R
	47	WM5	440	EMK2DM470WM5---R
	68	WM5	640	EMK2DM680WM5---R
	2.2	EB0	56	EMK2EM2R2EB0---R
	3.3	EB0	68	EMK2EM3R3EB0---R
400	4.7	FB0	96	EMK2EM4R7FB0---R
	10	FD0	166	EMK2EM100FD0---R
	22	GH0	300	EMK2EM220GH0---R
	33	WM5	420	EMK2EM330WM5---R
	47	WM5	460	EMK2EM470WM5---R
450	2.2	EB0	44	EMK2GM2R2EB0---R
	3.3	FB0	64	EMK2GM3R3FB0---R
	4.7	FB0	78	EMK2GM4R7FB0---R
	5.6	FD0	96	EMK2GM5R6FD0---R
	6.8	FE0	108	EMK2GM6R8FE0---R
	8.2	FG0	130	EMK2GM8R2FG0---R
	8.2	GE0	130	EMK2GM8R2GE0---R
	10	GE0	140	EMK2GM100GE0---R
	15	GH0	174	EMK2GM150GH0---R
	22	WM5	235	EMK2GM220WM5---R
450	2.2	FB0	45	EMK2WM2R2FB0---R
	2.2	GB0	50	EMK2WM2R2GB0---R
	3.3	GB0	72	EMK2WM3R3GB0---R
	4.7	GB0	80	EMK2WM4R7GB0---R
	6.8	GE0	100	EMK2WM6R8GE0---R
	10	GH0	136	EMK2WM100GH0---R
	15	WM5	180	EMK2WM150WM5---R
22	WM5	218	EMK2WM220WM5---R	

**MF series**

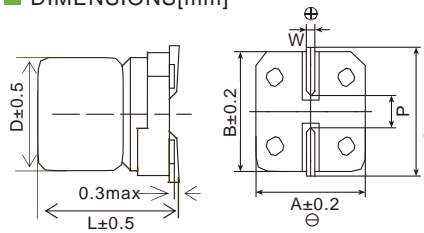
- Endurance: 6,000 hours at 105°C
- Designed for surface mounting on high density PC board
- Compliant to AEC-Q200
- RoHS Compliant



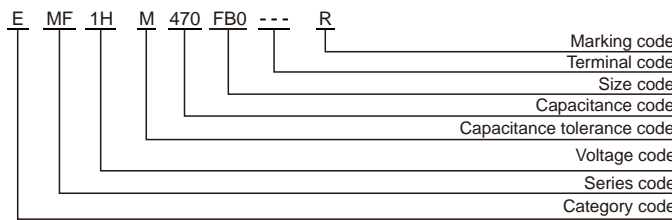
**SPECIFICATIONS**

Items	Characteristics	
Category Temperature Range	-55~+105°C(6.3~100 V dc)    -40~+105°C(160~450 V dc)	
Rated Voltage Range	6.3~450 V <sub>dc</sub>	
Capacitance Tolerance	±20%(M)	
Leakage Current	6.3~100 V <sub>dc</sub>	160~450 V <sub>dc</sub>
	I 0.03CV or 4μA, whichever is greater. (2 minutes)    I 0.04CV+100μA (1 minute)	
Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3   10   16   25   35~50   63~80   100   160~250   400~450
	Dissipation Factor(Max.)	0.32   0.28   0.26   0.16   0.14   0.12   0.10   0.20   0.24 (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3   10   16   25   35~50   63~80   100   160~250   400~450
	Z(-25°C)/Z(+20°C)	4   3   2   2   2   2   2   6   6
	Z(-40°C)/Z(+20°C)	6   4   3   3   3   3   3   10   18
	Z(-55°C)/Z(+20°C)	8   6   4   3   3   3   3   -   - (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after rated voltage is applied for 6,000 hours at 105°C.	
	Rated Voltage(V <sub>dc</sub> )	6.3~100    160~450
	Capacitance Change	±30% of the initial value    ±20% of the initial value
	Dissipation Factor	300% of the initial specified value    200% of the initial specified value
	Leakage Current	The initial specified value    The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.	
	Rated Voltage(V <sub>dc</sub> )	6.3~100    160~450
	Capacitance Change	±30% of the initial value    ±20% of the initial value
	Dissipation Factor	300% of the initial specified value    200% of the initial specified value
	Leakage Current	200% of the initial specified value    200% of the initial specified value

**DIMENSIONS[mm]**



**PART NUMBERING SYSTEM**



Size code	D	L	A	B	C	W	P
D80	5	7.7	5.3	5.3	5.9	0.5~0.8	1.4
E80	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
E83	6.3	8.0	6.6	6.6	7.2	0.5~0.8	1.9
EB0	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
FB0	8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
FD0	8	12.5	8.3	8.3	9.0	0.7~1.1	3.1
FE0	8	13.5	8.3	8.3	9.0	0.7~1.1	3.1
G80	10	7.7	10.3	10.3	11.0	0.7~1.1	4.5
GB0	10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
GD0	10	12.5	10.3	10.3	11.0	0.7~1.1	4.5
GE0	10	13.5	10.3	10.3	11.0	0.7~1.1	4.5
GH0	10	16.5	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5
WM5	12.5	21.0	13.0	13.0	13.7	1.0~1.3	4.5

Note: 1) Tolerance shall be L+1.3(max.) for G80.  
2) M type forming is available for Size E83 ~ GH0.

**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)			
	120	1k	10k	100k
6.3~450	0.50	0.80	0.90	1.00

**MF series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
6.3	47	E80	90	EMF0JM470D80---R
	100	E83	145	EMF0JM101E83---R
	220	E83	180	EMF0JM221E83---R
	330	FB0	280	EMF0JM331FB0---R
	470	FB0	360	EMF0JM471FB0---R
	1000	GB0	600	EMF0JM102GB0---R
10	33	D80	71	EMF1AM330D80---R
	150	E83	105	EMF1AM151E83---R
	220	FB0	280	EMF1AM221FB0---R
	330	GB0	400	EMF1AM331GB0---R
	470	GB0	545	EMF1AM471GB0---R
	680	GD0	600	EMF1AM681GD0---R
1000	GH0	800	EMF1AM102GH0---R	
16	47	D80	90	EMF1CM470D80---R
	100	E83	145	EMF1CM101E83---R
	220	FB0	475	EMF1CM221FB0---R
	330	FD0	510	EMF1CM331FD0---R
	470	GB0	720	EMF1CM471GB0---R
	1000	GH0	1050	EMF1CM102GH0---R
25	33	D80	90	EMF1EM330D80---R
	47	E83	165	EMF1EM470E83---R
	100	E83	175	EMF1EM101E83---R
	220	FB0	535	EMF1EM221FB0---R
	330	GB0	750	EMF1EM331GB0---R
	470	GD0	840	EMF1EM471GD0---R
35	10	D80	90	EMF1VM100D80---R
	22	E83	160	EMF1VM220E83---R
	33	E83	175	EMF1VM330E83---R
	47	E83	190	EMF1VM470E83---R
	100	FB0	560	EMF1VM101FB0---R
	220	GB0	800	EMF1VM221GB0---R
50	10	E83	95	EMF1HM100E83---R
	22	E83	145	EMF1HM220E83---R
	47	FB0	520	EMF1HM470FB0---R
	100	FB0	350	EMF1HM101FB0---R
	100	GB0	680	EMF1HM101GB0---R
	220	GD0	760	EMF1HM221GD0---R
63	220	WE0	875	EMF1HM221WE0---R
	330	WG5	1020	EMF1HM331WG5---R
	22	E83	140	EMF1JM220E83---R
	33	EB0	260	EMF1JM330EB0---R
	33	FB0	320	EMF1JM330FB0---R
	47	FB0	380	EMF1JM470FB0---R
80	100	GB0	530	EMF1JM101GB0---R
	220	WE0	840	EMF1JM221WE0---R
	10	E83	130	EMF1BM100E83---R
	22	FB0	360	EMF1BM220FB0---R
	33	FB0	410	EMF1BM330FB0---R
	47	GB0	490	EMF1BM470GB0---R
100	100	GD0	530	EMF1BM101GD0---R
	220	WG5	1020	EMF1BM221WG5---R
	10	E83	140	EMF1KM100E83---R
	22	FB0	320	EMF1KM220FB0---R
	33	GB0	360	EMF1KM330GB0---R
	47	GB0	540	EMF1KM470GB0---R
160	100	WE0	550	EMF1KM101WE0---R
	10	G80	156	EMF2CM100G80---R
	10	FB0	156	EMF2CM100FB0---R
	15	FD0	204	EMF2CM150FD0---R
	22	GD0	260	EMF2CM220GD0---R
	33	GE0	340	EMF2CM330GE0---R
160	47	GH0	420	EMF2CM470GH0---R
	68	WM5	560	EMF2CM680WM5---R
	100	WM5	610	EMF2CM101WM5---R

Specifications subject to change without notice.

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
200	2.2	E80	45	EMF2DM2R2E80---R
	3.3	E80	58	EMF2DM3R3E80---R
	4.7	E80	80	EMF2DM4R7E80---R
	6.8	FB0	110	EMF2DM6R8FB0---R
	8.2	FD0	130	EMF2DM8R2FD0---R
	10	GB0	185	EMF2DM100GB0---R
	15	FE0	210	EMF2DM150FE0---R
	22	GE0	272	EMF2DM220GE0---R
	33	GH0	340	EMF2DM330GH0---R
	33	WE0	340	EMF2DM330WE0---R
250	47	WM5	480	EMF2DM470WM5---R
	68	WM5	540	EMF2DM680WM5---R
	2.2	EB0	50	EMF2EM2R2EB0---R
	3.3	EB0	68	EMF2EM3R3EB0---R
	4.7	FB0	90	EMF2EM4R7FB0---R
	5.6	FB0	104	EMF2EM5R6FB0---R
	8.2	FD0	130	EMF2EM8R2FD0---R
	10	FD0	150	EMF2EM100FD0---R
	15	GD0	220	EMF2EM150GD0---R
	22	GH0	312	EMF2EM220GH0---R
400	33	WM5	440	EMF2EM330WM5---R
	47	WM5	510	EMF2EM470WM5---R
	2.2	EB0	48	EMF2GM2R2EB0---R
	3.3	FB0	72	EMF2GM3R3FB0---R
	4.7	FD0	100	EMF2GM4R7FD0---R
	4.7	GB0	100	EMF2GM4R7GB0---R
	5.6	FD0	108	EMF2GM5R6FD0---R
	5.6	GB0	114	EMF2GM5R6GB0---R
	6.8	FE0	126	EMF2GM6R8FE0---R
	6.8	GE0	140	EMF2GM6R8GE0---R
450	8.2	GE0	168	EMF2GM8R2GE0---R
	10	GE0	194	EMF2GM100GE0---R
	12	GH0	225	EMF2GM120GH0---R
	15	GH0	235	EMF2GM150GH0---R
	22	WM5	350	EMF2GM220WM5---R
	2.2	GB0	60	EMF2WM2R2GB0---R
	3.3	GB0	75	EMF2WM3R3GB0---R
	4.7	GE0	98	EMF2WM4R7GE0---R
	10	GH0	192	EMF2WM100GH0---R
	15	WM5	240	EMF2WM150WM5---R
22	WM5	320	EMF2WM220WM5---R	

Surface Mount Type



**MA series**

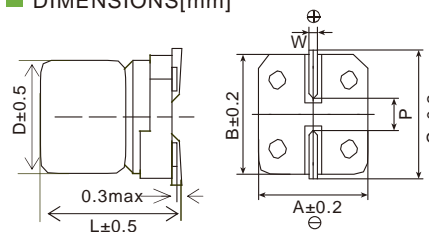
- Endurance: 10,000 hours at 105°C
- Designed for surface mounting on high density PC board
- Compliant to AEC-Q200
- RoHS Compliant



**SPECIFICATIONS**

Items	Characteristics										
Category Temperature Range	-55~+105°C(16~100 V <sub>dc</sub> )					-40~+105°C(160~450 V <sub>dc</sub> )					
Rated Voltage Range	16~450 V <sub>dc</sub>										
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)										
Leakage Current	16~100 V <sub>dc</sub>					160~450 V <sub>dc</sub>					
	I 0.03CV or 4μA, whichever is greater. (2 minutes)					I 0.04CV+100μA (1 minute)					
Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C)											
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	16	25	35	50	63	80	100	160~250	400~450	
	Dissipation Factor(Max.)	0.26	0.16	0.14	0.14	0.20	0.20	0.20	0.20	0.24	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	16	25	35	50	63	80	100	160~250	400~450	
	Z(-25°C)/Z(+20°C)	2	2	2	2	2	2	2	6	6	
	Z(-40°C)/Z(+20°C)	3	3	3	3	3	3	3	10	18	
	Z(-55°C)/Z(+20°C)	4	3	3	3	3	3	3	-	-	
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after rated voltage is applied for 10,000 hours at 105°C.										
	Rated Voltage(V <sub>dc</sub> )	16~100					160~450				
	Capacitance Change	±30% of the initial value					±20% of the initial value				
	Dissipation Factor (tan δ)	300% of the initial specified value					200% of the initial specified value				
	Leakage Current	The initial specified value					The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.										
	Rated Voltage(V <sub>dc</sub> )	16~100					160~450				
	Capacitance Change	±30% of the initial value					±20% of the initial value				
	Dissipation Factor (tan δ)	300% of the initial specified value					200% of the initial specified value				
	Leakage Current	300% of the initial specified value					200% of the initial specified value				

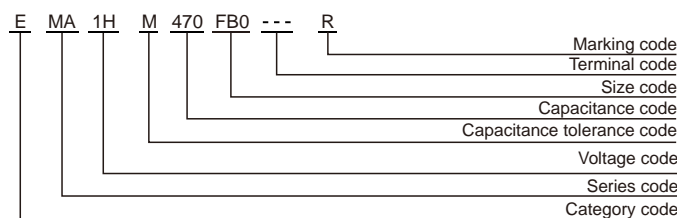
**DIMENSIONS[mm]**



Size code	D	L	A	B	C	W	P
E83	6.3	8.0	6.6	6.6	7.2	0.5~0.8	1.9
EB0	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
FB0	8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
FD0	8	12.5	8.3	8.3	9.0	0.7~1.1	3.1
FE0	8	13.5	8.3	8.3	9.0	0.7~1.1	3.1
GB0	10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
GD0	10	12.5	10.3	10.3	11.0	0.7~1.1	4.5
GE0	10	13.5	10.3	10.3	11.0	0.7~1.1	4.5
GH0	10	16.5	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5
WM5	12.5	21.0	13.0	13.0	13.7	1.0~1.3	4.5

Note: M type forming is available for Size E83 ~ GH0.

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)			
16~450	120	1k	10k	100k
	0.50	0.80	0.90	1.00

**MA series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
16	47	E83	125	EMA1CM470E83---R
	100	E83	245	EMA1CM101E83---R
	220	FB0	260	EMA1CM221FB0---R
	330	GB0	450	EMA1CM331GB0---R
	470	GD0	480	EMA1CM471GD0---R
	680	WE0	820	EMA1CM681WE0---R
	1000	WG5	860	EMA1CM102WG5---R
25	47	E83	125	EMA1EM470E83---R
	100	FB0	245	EMA1EM101FB0---R
	220	GB0	440	EMA1EM221GB0---R
	330	GB0	460	EMA1EM331GB0---R
	470	WE0	820	EMA1EM471WE0---R
35	680	WG5	860	EMA1EM681WG5---R
	47	E83	140	EMA1VM470E83---R
	100	FB0	245	EMA1VM101FB0---R
	220	GB0	440	EMA1VM221GB0---R
	330	WE0	820	EMA1VM331WE0---R
50	470	WG5	860	EMA1VM471WG5---R
	10	E83	100	EMA1HM100E83---R
	22	E83	105	EMA1HM220E83---R
	33	E83	110	EMA1HM330E83---R
	47	FB0	260	EMA1HM470FB0---R
63	47	GB0	400	EMA1HM470GB0---R
	100	GB0	420	EMA1HM101GB0---R
	220	WE0	800	EMA1HM221WE0---R
	330	WG5	845	EMA1HM331WG5---R
	80	22	E83	95
33		FB0	180	EMA1JM330FB0---R
47		FB0	210	EMA1JM470FB0---R
100		GD0	420	EMA1JM101GD0---R
220		WG5	820	EMA1JM221WG5---R
100	10	FB0	165	EMA1BM100FB0---R
	22	FB0	180	EMA1BM220FB0---R
	22	GB0	305	EMA1BM220GB0---R
	33	FB0	190	EMA1BM330FB0---R
	47	GB0	350	EMA1BM470GB0---R
160	100	WE0	760	EMA1BM101WE0---R
	10	E83	150	EMA1KM100E83---R
	22	FB0	165	EMA1KM220FB0---R
	33	GB0	280	EMA1KM330GB0---R
	47	GB0	320	EMA1KM470GB0---R
200	68	GD0	350	EMA1KM680GD0---R
	82	WE0	530	EMA1KM820WE0---R
	100	WE0	555	EMA1KM101WE0---R
	10	GB0	190	EMA2CM100GB0---R
	15	FD0	220	EMA2CM150FD0---R
250	22	GB0	315	EMA2CM220GB0---R
	33	GE0	420	EMA2CM330GE0---R
	47	GH0	530	EMA2CM470GH0---R
	68	WM5	640	EMA2CM680WM5---R
	100	WM5	840	EMA2CM101WM5---R
400	4.7	FB0	110	EMA2GM4R7FB0---R
	6.8	FB0	150	EMA2GM6R8FB0---R
	10	FD0	180	EMA2GM100FD0---R
	10	GB0	198	EMA2GM100GB0---R
	15	FE0	230	EMA2GM150FE0---R
450	22	GE0	350	EMA2GM220GE0---R
	33	GH0	440	EMA2GM330GH0---R
	68	WM5	670	EMA2GM680WM5---R
	2.2	EB0	52	EMA2WM2R2EB0---R
	4.7	FB0	120	EMA2WM4R7FB0---R
450	10	FE0	180	EMA2WM100FE0---R
	10	GB0	200	EMA2WM100GB0---R
	22	GH0	360	EMA2WM220GH0---R
	33	WM5	435	EMA2WM330WM5---R
	47	WM5	600	EMA2WM470WM5---R

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
400	2.2	FB0	60	EMA2GM2R2FB0---R
	3.3	FB0	76	EMA2GM3R3FB0---R
	4.7	FE0	124	EMA2GM4R7FE0---R
	4.7	GB0	124	EMA2GM4R7GB0---R
	6.8	GE0	176	EMA2GM6R8GE0---R
	10	GH0	250	EMA2GM100GH0---R
	15	WG5	300	EMA2GM150WG5---R
450	22	WM5	380	EMA2GM220WM5---R
	2.2	GB0	70	EMA2WM2R2GB0---R
	3.3	GB0	80	EMA2WM3R3GB0---R
	4.7	GE0	130	EMA2WM4R7GE0---R
	10	GH0	265	EMA2WM100GH0---R
450	15	WM5	310	EMA2WM150WM5---R
	22	WM5	390	EMA2WM220WM5---R

Specifications subject to change without notice.

# MH series

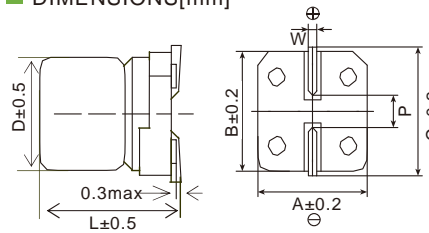
- Endurance: 1,000~5,000 hours at 130°C
- Designed for surface mounting on high density PC board
- Compliant to AEC-Q200
- RoHS Compliant



## SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	-55~130 10~100Vdc)		-40~130		160~450Vdc)				
Rated Voltage Range	10~450 V <sub>dc</sub>								
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)								
Leakage Current	10~100 V <sub>dc</sub>				160~450 V <sub>dc</sub>				
	E83-GH0 I 0.01CV or 3μA, whichever is greater. (2 minutes)				WE0-WM5 I 0.03CV or 4μA, whichever is greater. (2 minutes)				
	I 0.04CV+100μA (1 minute)								
Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C)									
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	10	16	25	35~50	63~80	100	160~250	400~450
	tan (max.)	0.24	0.20	0.16	0.14	0.12	0.10	0.24	0.30
When nominal capacitance exceeds 1,000μF,add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	10	16	25	35~50	60~100	160~250	400~450	
	E83-GH0	Z(-25°C)/Z(+20°C)	3	2	2	2	2	6	6
		Z(-40°C)/Z(+20°C)	6	4	4	3	3	10	18
		Z(-55 °C)/Z(+20 °C)	6	4	4	3	-	-	-
	WE0-WM5	Z(-25°C)/Z(+20°C)	4	3	2	2	2	6	6
		Z(-40°C)/Z(+20°C)	6	6	4	3	3	10	18
Z(-55°C)/Z(+20°C)		6	6	4	3	-	-	-	
(at 120Hz)									
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after rated voltage is applied for a specified period of time at 130°C.								
	Load Life	E83(10~100V <sub>dc</sub> ): 1000 hours FB0-GH0(10~100V <sub>dc</sub> ): 2000 hours WE0-WG5(10~100V <sub>dc</sub> ): 5000 hours FB0-WM5(160~450V <sub>dc</sub> ): 3000 hours							
	Capacitance Change	±30% of the initial value							
	Dissipation Factor (tan δ)	300% of the initial specified value							
	Leakage Current	The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 130°C for 1,000 hours (400~450V <sub>dc</sub> : 500 hours).								
	Capacitance Change	±30% of the initial value							
	Dissipation Factor (tan δ)	300% of the initial specified value							
	Leakage Current	500% of the initial specified value							

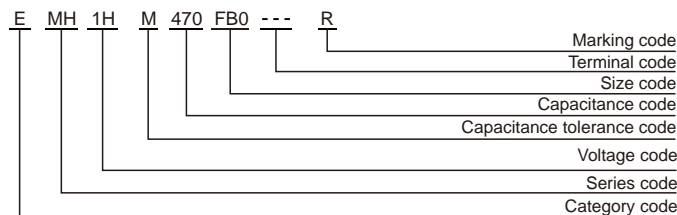
## DIMENSIONS[mm]



Size code	D	L	A	B	C	W	P
E83	6.3	8.0	6.6	6.6	7.2	0.5~0.8	1.9
FB0	8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
FD0	8	12.5	8.3	8.3	9.0	0.7~1.1	3.1
FE0	8	13.5	8.3	8.3	9.0	0.7~1.1	3.1
GB0	10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
GD0	10	12.5	10.3	10.3	11.0	0.7~1.1	4.5
GE0	10	13.5	10.3	10.3	11.0	0.7~1.1	4.5
GH0	10	16.5	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5
WM5	12.5	21.0	13.0	13.0	13.7	1.0~1.3	4.5

Note: M type forming is available for Size E83 ~ GH0.

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage (V <sub>dc</sub> )	Cap.(μF)	Freq.(Hz)			
		120	1k	10k	100k
10~100	Cap.<220	0.40	0.75	0.90	1.00
	220 Cap.<680	0.50	0.85	0.94	1.00
	680 Cap.<1000	0.60	0.87	0.95	1.00
160~450	Cap. 33	0.55	0.83	0.97	1.00
	Cap.>33	0.66	0.86	0.93	1.00

# MH series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mA rms/130°C, 100kHz)	Part Number
10	100	E83	110	EMH1AM101E83---R
	220	E83	110	EMH1AM221E83---R
	220	FB0	220	EMH1AM221FB0---R
	330	FB0	220	EMH1AM331FB0---R
	330	GB0	296	EMH1AM331GB0---R
	470	GB0	296	EMH1AM471GB0---R
1000	WE0	750	EMH1AM102WE0---R	
16	100	E83	110	EMH1CM101E83---R
	100	FB0	220	EMH1CM101FB0---R
	220	FB0	220	EMH1CM221FB0---R
	330	GB0	296	EMH1CM331GB0---R
	470	GD0	340	EMH1CM471GD0---R
	680	WE0	750	EMH1CM681WE0---R
1000	WG5	800	EMH1CM102WG5---R	
25	47	E83	110	EMH1EM470E83---R
	100	E83	110	EMH1EM101E83---R
	100	FB0	220	EMH1EM101FB0---R
	220	FB0	220	EMH1EM221FB0---R
	220	GB0	296	EMH1EM221GB0---R
	330	GB0	296	EMH1EM331GB0---R
470	WE0	750	EMH1EM471WE0---R	
680	WG5	800	EMH1EM681WG5---R	
35	33	E83	110	EMH1VM330E83---R
	47	E83	110	EMH1VM470E83---R
	100	FB0	220	EMH1VM101FB0---R
	220	GB0	296	EMH1VM221GB0---R
	330	WE0	750	EMH1VM331WE0---R
	470	WG5	900	EMH1VM471WG5---R
50	10	E83	83	EMH1HM100E83---R
	22	E83	83	EMH1HM220E83---R
	33	E83	83	EMH1HM330E83---R
	47	FB0	160	EMH1HM470FB0---R
	47	GB0	247	EMH1HM470GB0---R
	100	GB0	247	EMH1HM101GB0---R
100	WE0	550	EMH1HM101WE0---R	
220	WE0	550	EMH1HM221WE0---R	
330	WG5	700	EMH1HM331WG5---R	
63	22	E83	65	EMH1JM220E83---R
	33	FB0	100	EMH1JM330FB0---R
	47	FB0	125	EMH1JM470FB0---R
	100	GD0	270	EMH1JM101GD0---R
	220	WG5	600	EMH1JM221WG5---R
	10	E83	95	EMH1BM100E83---R
80	22	FB0	110	EMH1BM220FB0---R
	22	GB0	215	EMH1BM220GB0---R
	33	FB0	130	EMH1BM330FB0---R
	47	GB0	245	EMH1BM470GB0---R
	100	WE0	475	EMH1BM101WE0---R
	100	10	E83	90
22		FB0	105	EMH1KM220FB0---R
33		GB0	200	EMH1KM330GB0---R
47		GB0	230	EMH1KM470GB0---R
68		GD0	275	EMH1KM680GD0---R
100		WE0	405	EMH1KM101WE0---R
160	10	GB0	72	EMH2CM100GB0---R
	15	FD0	90	EMH2CM150FD0---R
	22	GD0	150	EMH2CM220GD0---R
	33	GE0	165	EMH2CM330GE0---R
	47	GH0	195	EMH2CM470GH0---R
	68	WM5	234	EMH2CM680WM5---R
100	WM5	300	EMH2CM101WM5---R	
200	10	GB0	90	EMH2DM100GB0---R
	15	GD0	115	EMH2DM150GD0---R
	22	GH0	180	EMH2DM220GH0---R
	33	WG5	200	EMH2DM330WG5---R
47	WM5	240	EMH2DM470WM5---R	

Specifications subject to change without notice.

# MT series

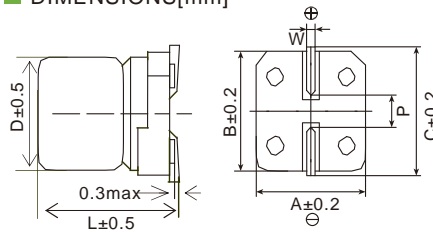
- Endurance: 2,000 hours at 125°C
- Low ESR
- Lead free reflow solering is available
- Available for high density mounting
- Compliant to AEC-Q200
- RoHS Compliant and lead-free



## SPECIFICATIONS

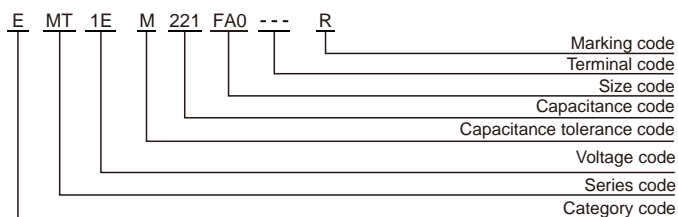
Items	Characteristics
Category Temperature Range	-55~+125°C
Rated Voltage Range	10~100 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
Leakage Current	FA0-GA0   0.01CV or 3μA, whichever is greater.
	WE0-WG5   0.03CV or 4μA, whichever is greater.
	Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 10 16 25 35 50 63 80 100
	Dissipation Factor (max.) 0.24 0.20 0.16 0.14 0.12 0.12 0.12 0.10 When nominal capacitance exceeds 1,000μF,add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 10 16 25 35 50 63 80 100
	FA0-GA0 Z(-25°C)/Z(+20°C) 3 2 2 2 - - - -
	Z(-40°C)/Z(+20°C) 6 4 4 3 - - - -
	Z(-55°C)/Z(+20°C) 6 4 4 3 - - - -
	WE0-WG5 Z(-25°C)/Z(+20°C) - - 2 2 2 2 2 2
Z(-40°C)/Z(+20°C) - - 4 4 4 4 4 4	
Z(-55°C)/Z(+20°C) - - 4 4 4 - - -	
	(at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage is applied for 2000 hours at 125°C.
	Capacitance Change ±30% of the initial value
	Dissipation Factor 300% of the initial specified value
	Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 125°C for 1,000 hours
	Capacitance Change ±30% of the initial value
	Dissipation Factor 300% of the initial specified value
	Leakage Current 500% of the initial specified value

## DIMENSIONS[mm]



Size code	D	L	A	B	C	W	P
FA0	8	10	8.3	8.3	9.0	0.7~1.1	3.1
GA0	10	10	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16	13.0	13.0	13.7	1.0~1.3	4.5

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage (V <sub>dc</sub> )	Cap.(μF)	Freq.(Hz)			
		120	1k	10k	100k
10~100	Cap.<220	0.40	0.75	0.90	1.00
	220 Cap.<560	0.50	0.85	0.94	1.00
	Cap. 560	0.60	0.87	0.95	1.00

# MT series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Q <sub>max</sub> /20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /125°C, 100kHz)	Part Number
10	330	FA0	0.30	240	EMT1AM331FA0---R
	470	GA0	0.20	330	EMT1AM471GA0---R
16	100	FA0	0.30	240	EMT1CM101FA0---R
	220	FA0	0.30	240	EMT1CM221FA0---R
25	100	FA0	0.30	240	EMT1EM101FA0---R
	220	FA0	0.30	240	EMT1EM221FA0---R
	330	GA0	0.20	330	EMT1EM331GA0---R
	820	WE0	0.060	1320	EMT1EM821WE0---R
35	1100	WG5	0.056	1470	EMT1EM112WG5---R
	47	FA0	0.30	240	EMT1VM470FA0---R
	100	FA0	0.30	240	EMT1VM101FA0---R
	100	GA0	0.20	330	EMT1VM101GA0---R
	220	GA0	0.20	330	EMT1VM221GA0---R
50	560	WE0	0.060	1320	EMT1VM561WE0---R
	680	WG5	0.056	1470	EMT1VM681WG5---R
	270	WE0	0.11	980	EMT1HM271WE0---R
63	360	WG5	0.10	1090	EMT1HM361WG5---R
	200	WE0	0.22	540	EMT1JM201WE0---R
80	270	WG5	0.17	650	EMT1JM271WG5---R
	130	WE0	0.66	320	EMT1BM131WE0---R
100	160	WG5	0.51	400	EMT1BM161WG5---R
	75	WE0	0.84	280	EMT1KM750WE0---R
	100	WG5	0.63	360	EMT1KM101WG5---R

Specifications subject to change without notice.



# MZ series

- Endurance: 2,000~5,000 hours at 105°C
- Low ESR
- Lead free reflow soldering is available
- Available for high density mounting
- Compliant to AEC-Q200
- RoHS Compliant and lead-free

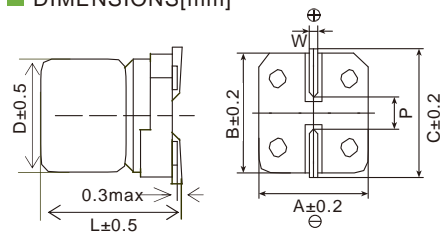
New



■ SPECIFICATIONS

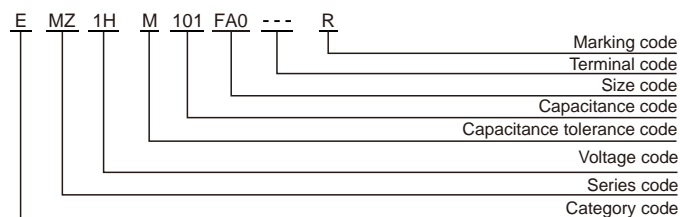
Items	Characteristics									
Category Temperature Range	-55~+105°C									
Rated Working Voltage Range	6.3~100 V <sub>dc</sub>									
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)									
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)									
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )									
	Dissipation Factor (max.)									
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )									
	Z(-25°C)/Z(+20°C)									
	Z(-40°C)/Z(+20°C)									
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20 after DC voltage is applied for a specified period of time at 105									
	Load Life	E61~GA0 :2000 hours WE0~WG5:5000 hours								
	Capacitance Change	±30% of the initial value								
	Dissipation Factor	300% of the initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours									
	Capacitance Change	±30% of the initial value								
	Dissipation Factor	300% of the initial specified value								
	Leakage Current	500% of the initial specified value								

■ DIMENSIONS[mm]



Size code	D	L	A	B	C	W	P
E61	6.3	5.8	6.6	6.3	7.2	0.5~0.8	1.9
E83	6.3	8	6.6	6.3	7.2	0.5~0.8	1.9
FA0	8	10	8.3	8.3	9.0	0.7~1.1	3.1
GA0	10	10	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16	13.0	13.0	13.7	1.0~1.3	4.5

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz)	120	1k	10k	100k
Rated voltage(V <sub>dc</sub> )	0.50	0.80	0.90	1.00

# MZ series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (max/20°C, 100kHz)	Rated ripple current (mA rms/105°C, 100Hz)	Part Number
6.3	100	E61	0.72	180	EMZ0JM101E61---R
	220	E61	0.72	180	EMZ0JM221E61---R
	330	E83	0.68	210	EMZ0JM331E83---R
	470	FA0	0.24	460	EMZ0JM471FA0---R
	1000	FA0	0.24	460	EMZ0JM102FA0---R
10	1500	GA0	0.12	730	EMZ0JM152GA0---R
	220	E83	0.68	210	EMZ1AM221E83---R
	330	FA0	0.24	460	EMZ1AM331FA0---R
	470	FA0	0.24	460	EMZ1AM471FA0---R
	680	FA0	0.24	460	EMZ1AM681FA0---R
16	1000	GA0	0.12	730	EMZ1AM102GA0---R
	47	E61	0.72	180	EMZ1CM470E61---R
	100	E61	0.72	180	EMZ1CM101E61---R
	220	E83	0.68	210	EMZ1CM221E83---R
	330	FA0	0.24	460	EMZ1CM331FA0---R
25	470	FA0	0.24	460	EMZ1CM471FA0---R
	680	GA0	0.12	730	EMZ1CM681GA0---R
	33	E61	0.72	180	EMZ1EM330E61---R
	47	E61	0.72	180	EMZ1EM470E61---R
	100	E83	0.68	210	EMZ1EM101E83---R
35	220	FA0	0.24	460	EMZ1EM221FA0---R
	330	FA0	0.24	460	EMZ1EM331FA0---R
	470	GA0	0.12	730	EMZ1EM471GA0---R
	1000	WE0	0.09	1060	EMZ1EM102WE0---R
	1300	WG5	0.084	1180	EMZ1EM132WG5---R
50	33	E61	0.72	180	EMZ1VM330E61---R
	47	E61	0.72	180	EMZ1VM470E61---R
	100	E83	0.68	210	EMZ1VM101E83---R
	100	FA0	0.24	460	EMZ1VM101FA0---R
	220	FA0	0.24	460	EMZ1VM221FA0---R
63	330	GA0	0.12	730	EMZ1VM331GA0---R
	620	WE0	0.09	1060	EMZ1VM621WE0---R
	820	WG5	0.084	1180	EMZ1VM821WG5---R
	10	E61	1.76	110	EMZ1HM100E61---R
	22	E61	1.76	110	EMZ1HM220E61---R
80	33	E83	1.36	150	EMZ1HM330E83---R
	47	E83	1.36	150	EMZ1HM470E83---R
	100	FA0	0.51	320	EMZ1HM101FA0---R
	220	GA0	0.27	480	EMZ1HM221GA0---R
	330	WE0	0.165	780	EMZ1HM331WE0---R
100	430	WG5	0.150	880	EMZ1HM431WG5---R
	10	E61	4.40	55	EMZ1JM100E61---R
	22	E83	4.20	80	EMZ1JM220E83---R
	33	FA0	1.05	220	EMZ1JM330FA0---R
	47	FA0	1.05	220	EMZ1JM470FA0---R
100	68	FA0	1.05	220	EMZ1JM680FA0---R
	100	GA0	0.675	300	EMZ1JM101GA0---R
	240	WE0	0.285	580	EMZ1JM241WE0---R
	300	WG5	0.255	680	EMZ1JM301WG5---R
	4.7	E61	6.00	25	EMZ1BM4R7E61---R
100	10	E83	4.80	40	EMZ1BM100E83---R
	22	FA0	1.95	85	EMZ1BM220FA0---R
	33	FA0	1.95	85	EMZ1BM330FA0---R
	47	GA0	1.05	130	EMZ1BM470GA0---R
	150	WE0	0.396	510	EMZ1BM151WE0---R
100	220	WG5	0.306	620	EMZ1BM221WG5---R
	100	WE0	0.504	450	EMZ1KM101WE0---R
100	130	WG5	0.378	550	EMZ1KM131WG5---R

Specifications subject to change without notice.

# M5 series

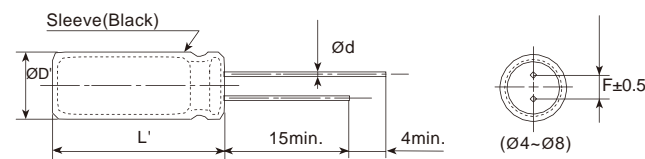
- Low profile with 5mm height
- Endurance: 1,000 hours at 85°C
- RoHS Compliant



■ SPECIFICATIONS

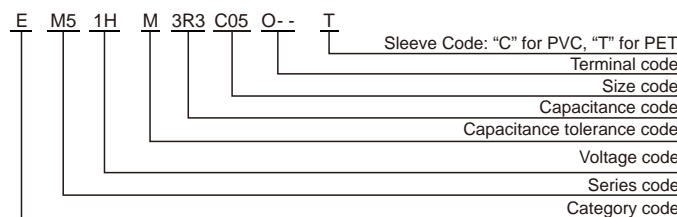
Items	Characteristics
Category Temperature Range	-40~+85°C
Rated Working Voltage Range	6.3~50 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
Leakage Current	I 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50
	Dissipation Factor (max.) 4- 6.3: 0.26 0.22 0.18 0.16 0.14 0.12 8 0.28 0.24 0.18 0.16 0.14 0.12 (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50
	Z(-25°C)/Z(+20°C) 4 3 2
	Z(-40°C)/Z(+20°C) 10 8 6 4 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1,000 hours at 85°C.
	Capacitance Change ±25% of the initial value
	Dissipation Factor 200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 85°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
	Leakage Current 200% of the initial specified value

■ DIMENSIONS[mm]



ØD	4	5	6.3	8
Ød	0.45	0.45	0.45	0.5
F	1.5	2.0	2.5	3.5
ØD'	ØD+0.5max.			
L'	L+1.5max.			

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV(V <sub>dc</sub> ) \ Freq.(Hz)	50/60	120	1k	10k-100k
6.3 to 16	0.80	1.00	1.10	1.20
25 to 35	0.80	1.00	1.50	1.70
50	0.80	1.00	1.60	1.90

# M5 series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /85°C,120Hz)	Part Number
6.3	33	5x5	40	EM50JM330D05---T
	47	5x5	50	EM50JM470D05---T
	100	6.3x5	85	EM50JM101E05---T
	220	8x5	145	EM50JM221F05---T
	330	8x5	175	EM50JM331F05---T
10	22	5x5	35	EM51AM220D05---T
	33	5x5	45	EM51AM330D05---T
	47	6.3x5	65	EM51AM470E05---T
	100	6.3x5	95	EM51AM101E05---T
	220	8x5	155	EM51AM221F05---T
16	10	4x5	25	EM51CM100C05---T
	22	5x5	40	EM51CM220D05---T
	33	6.3x5	60	EM51CM330E05---T
	47	6.3x5	70	EM51CM470E05---T
	100	8x5	125	EM51CM101F05---T
25	10	5x5	30	EM51EM100D05---T
	22	6.3x5	50	EM51EM220E05---T
	33	6.3x5	65	EM51EM330E05---T
	47	8x5	95	EM51EM470F05---T
	100	8x5	135	EM51EM101F05---T
35	10	5x5	30	EM51VM100D05---T
	22	6.3x5	50	EM51VM220E05---T
	33	8x5	80	EM51VM330F05---T
	47	8x5	100	EM51VM470F05---T
50	0.1	4x5	1	EM51HMR10C05---T
	0.22	4x5	2	EM51HMR22C05---T
	0.33	4x5	2.8	EM51HMR33C05---T
	0.47	4x5	4	EM51HMR47C05---T
	1	4x5	8.4	EM51HM010C05---T
	2.2	4x5	13	EM51HM2R2C05---T
	3.3	4x5	18	EM51HM3R3C05---T
	4.7	5x5	25	EM51HM4R7D05---T
	10	6.3x5	40	EM51HM100E05---T
	22	8x5	75	EM51HM220F05---T
	33	8x5	90	EM51HM330F05---T

Specifications subject to change without notice.

# H5 series

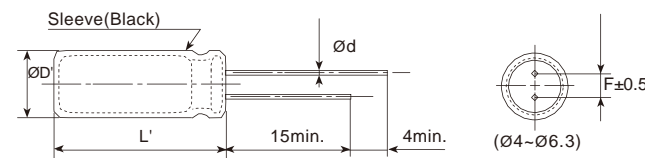
- Low profile with 5mm height
- Wide temperature range of -40 °C to +105°C
- Endurance: 1,000 hours at 105°C
- RoHS Compliant



■ SPECIFICATIONS

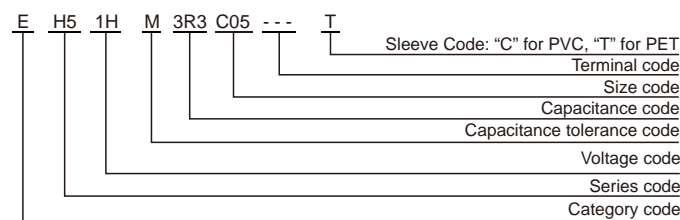
Items	Characteristics						
Category Temperature Range	-40~+105°C						
Rated Voltage Range	6.3~50 V <sub>dc</sub>						
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)						
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)						
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50
	Dissipation Factor(max)	0.28	0.24	0.20	0.14	0.12	0.10
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50
	Z(-25°C)/Z(+20°C)	3		2			
	Z(-40°C)/Z(+20°C)	8	5	4	3		
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1,000 hours at 105°C.						
	Capacitance Change	±20% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	Leakage Current	The initial specified value					
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied.						
	Capacitance Change	±20% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	Leakage Current	200% of the initial specified value					

■ DIMENSIONS[mm]



∅D	4	5	6.3
∅d	0.45	0.45	0.45
F	1.5	2.0	2.5
∅D'	∅D+0.5max.		
L'	L+1.5max.		

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV(V <sub>dc</sub> )	Freq.(Hz)			
	50/60	120	1k	10k-100k
6.3 to 16	0.80	1.00	1.30	1.50
25 to 35	0.80	1.00	1.20	1.20
50	0.80	1.00	1.15	1.20

# H5 series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C,120Hz)	Part Number	
6.3	22	4x5	23	EH50JM220C05---T	
	33	5x5	30	EH50JM330D05---T	
	47	5x5	37	EH50JM470D05---T	
	100	6.3x5	57	EH50JM101E05---T	
10	10	4x5	20	EH51AM100C05---T	
	22	5x5	28	EH51AM220D05---T	
	33	5x5	34	EH51AM330D05---T	
	47	6.3x5	52	EH51AM470E05---T	
16	10	4x5	23	EH51CM100C05---T	
	22	5x5	31	EH51CM220D05---T	
	33	6.3x5	48	EH51CM330E05---T	
	47	6.3x5	56	EH51CM470E05---T	
25	10	5x5	22	EH51EM100D05---T	
	22	6.3x5	44	EH51EM220E05---T	
	33	6.3x5	48	EH51EM330E05---T	
35	10	5x5	24	EH51VM100D05---T	
	22	6.3x5	48	EH51VM220E05---T	
50	0.1	4x5	1	EH51HMR10C05---T	
	0.22	4x5	2	EH51HMR22C05---T	
	0.33	4x5	3	EH51HMR33C05---T	
	0.47	4x5	4	EH51HMR47C05---T	
	1	4x5	8	EH51HM010C05---T	
	2.2	4x5	13	EH51HM2R2C05---T	
	3.3	4x5	14	EH51HM3R3C05---T	
	4.7	5x5	18	EH51HM4R7D05---T	
	10	6.3x5	28	EH51HM100E05---T	

Specifications subject to change without notice.



# M7 series

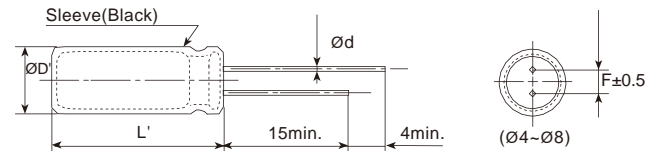
- Standard miniature series with 7mm height
- Endurance: 1,000 hours at 85°C
- RoHS Compliant



## SPECIFICATIONS

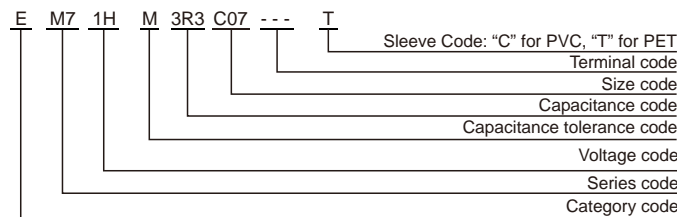
Items	Characteristics																											
Category Temperature Range	-40~+85°C																											
Rated Working Voltage Range	6.3~100 V <sub>dc</sub>																											
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																											
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)																											
Dissipation Factor (tan δ)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Dissipation Factor(max.)</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> </tr> </table> (at 20°C, 120Hz)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100	Dissipation Factor(max.)	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.08									
Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100																				
Dissipation Factor(max.)	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.08																				
Low Temperature Characteristics (Max. Impedance Ratio)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>4</td> <td>3</td> <td></td> <td></td> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>10</td> <td>8</td> <td>6</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </table> (at 120Hz)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100	Z(-25°C)/Z(+20°C)	4	3			2				Z(-40°C)/Z(+20°C)	10	8	6			4		
Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100																				
Z(-25°C)/Z(+20°C)	4	3			2																							
Z(-40°C)/Z(+20°C)	10	8	6			4																						
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1,000 hours at 85°C. Capacitance Change: ±20% of the initial value Dissipation Factor: 200% of the initial specified value Leakage Current: The initial specified value																											
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 85°C without voltage applied. Capacitance Change: ±20% of the initial value Dissipation Factor: 200% of the initial specified value Leakage Current: 200% of the initial specified value																											

## DIMENSIONS[mm]



øD	4	5	6.3	8
ød	0.45	0.45	0.5	0.5
F	1.5	2.0	2.5	3.5
øD'	øD+0.5max.			
L'	L+1.5max.			

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV(V <sub>dc</sub> )	Freq.(Hz)			
	50/60	120	1k	10k-100k
6.3 to 16	0.80	1.00	1.10	1.20
25 to 35	0.80	1.00	1.50	1.70
50	0.80	1.00	1.60	1.90

# M7 series

## STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part Number
6.3	22	4x7	35	EM70JM220C07---T
	33	4x7	40	EM70JM330C07---T
	47	4x7	50	EM70JM470C07---T
	100	5x7	80	EM70JM101D07---T
	220	6.3x7	140	EM70JM221E07---T
	330	8x7	205	EM70JM331F07---T
10	22	4x7	35	EM71AM220C07---T
	33	4x7	45	EM71AM330C07---T
	47	5x7	60	EM71AM470D07---T
	100	6.3x7	108	EM71AM101E07---T
	220	8x7	185	EM71AM221F07---T
16	10	4x7	35	EM71CM100C07---T
	22	4x7	40	EM71CM220C07---T
	33	5x7	55	EM71CM330D07---T
	47	5x7	70	EM71CM470D07---T
	100	6.3x7	120	EM71CM101E07---T
25	220	8x7	205	EM71CM221F07---T
	10	4x7	30	EM71EM100C07---T
	22	5x7	50	EM71EM220D07---T
	33	6.3x7	70	EM71EM330E07---T
	47	6.3x7	85	EM71EM470E07---T
35	100	8x7	145	EM71EM101F07---T
	10	4x7	30	EM71VM100C07---T
	22	5x7	55	EM71VM220D07---T
	33	6.3x7	75	EM71VM330E07---T
50	47	8x7	110	EM71VM470F07---T
	0.1	4x7	4	EM71HMR10C07---T
	0.22	4x7	5	EM71HMR22C07---T
	0.33	4x7	7	EM71HMR33C07---T
	0.47	4x7	8	EM71HMR47C07---T
	1	4x7	10	EM71HM010C07---T
	2.2	4x7	15	EM71HM2R2C07---T
	3.3	4x7	20	EM71HM3R3C07---T
	4.7	4x7	24	EM71HM4R7C07---T
	10	5x7	40	EM71HM100D07---T
22	6.3x7	70	EM71HM220E07---T	
33	8x7	100	EM71HM330F07---T	
63	0.1	4x7	4	EM71JMR10C07---T
	0.22	4x7	6	EM71JMR22C07---T
	0.33	4x7	7	EM71JMR33C07---T
	0.47	4x7	8	EM71JMR47C07---T
	1	4x7	10	EM71JM010C07---T
	2.2	4x7	15	EM71JM2R2C07---T
	3.3	4x7	23	EM71JM3R3C07---T
	4.7	5x7	30	EM71JM4R7D07---T
10	6.3x7	50	EM71JM100E07---T	
100	1	4x7	12	EM71KM010C07---T
	2.2	5x7	20	EM71KM2R2D07---T
	3.3	6.3x7	30	EM71KM3R3E07---T
	4.7	6.3x7	35	EM71KM4R7E07---T

Specifications subject to change without notice.

# H7 series

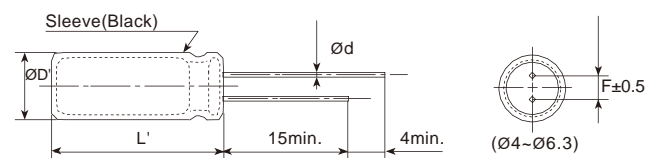
- Miniature series with 7mm height
- Endurance: 1,000 hours at 105°C
- Wide temperature range of -40 °C to +105°C
- RoHS Compliant



## SPECIFICATIONS

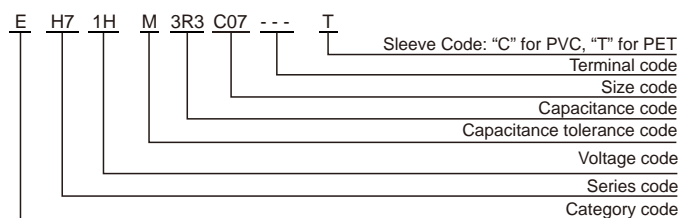
Items	Characteristics							
Category Temperature Range	-40~+105°C							
Rated Working Voltage Range	6.3~50 V <sub>dc</sub>							
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)							
Leakage Current	1 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)							
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	(at 20°C, 120Hz)
	Dissipation Factor (max.)	0.22	0.19	0.16	0.14	0.12	0.10	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	(at 120Hz)
	Z(-25°C)/Z(+20°C)	3			2			
	Z(-40°C)/Z(+20°C)	8	5	4	3			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1,000 hours at 105°C.							
	Capacitance Change	±20% of the initial value						
	Dissipation Factor	200% of the initial specified value						
	Leakage Current	The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied.							
	Capacitance Change	±20% of the initial value						
	Dissipation Factor	200% of the initial specified value						
	Leakage Current	200% of the initial specified value						

## DIMENSIONS[mm]



øD	4	5	6.3
ød	0.45	0.45	0.5
F	1.5	2.0	2.5
øD'	øD+0.5max.		
L'	L+1.5max.		

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV(V <sub>dc</sub> )	Freq.(Hz)	50/60	120	1k	10k-100k
6.3 to 16		0.94	1.00	1.28	1.39
25 to 35		0.76	1.00	1.27	1.59
50		0.90	1.00	1.40	2.00

# H7 series

## STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
6.3	22	4x7	34	EH70JM220C07---T
	33	5x7	42	EH70JM330D07---T
	47	5x7	50	EH70JM470D07---T
	100	6.3x7	77	EH70JM101E07---T
10	22	5x7	38	EH71AM220D07---T
	33	5x7	47	EH71AM330D07---T
	47	6.3x7	65	EH71AM470E07---T
	100	6.3x7	87	EH71AM101E07---T
16	10	4x7	29	EH71CM100C07---T
	22	5x7	44	EH71CM220D07---T
	33	6.3x7	60	EH71CM330E07---T
	47	6.3x7	70	EH71CM470E07---T
25	10	5x7	33	EH71EM100D07---T
	22	6.3x7	51	EH71EM220E07---T
	33	6.3x7	65	EH71EM330E07---T
35	10	5x7	36	EH71VM100D07---T
	22	6.3x7	60	EH71VM220E07---T
50	0.1	4x7	1.0	EH71HMR10C07---T
	0.22	4x7	2.3	EH71HMR22C07---T
	0.33	4x7	3.5	EH71HMR33C07---T
	0.47	4x7	5	EH71HMR47C07---T
	1	4x7	10	EH71HM010C07---T
	2.2	4x7	19	EH71HM2R2C07---T
	3.3	4x7	24	EH71HM3R3C07---T
	4.7	5x7	29	EH71HM4R7D07---T
	10	6.3x7	44	EH71HM100E07---T
	22	6.3x7	60	EH71HM220E07---T

Specifications subject to change without notice.

## L7 series

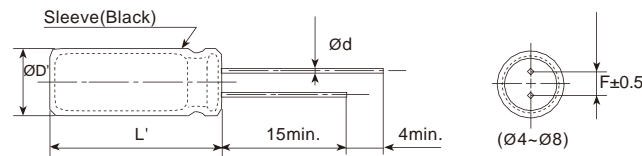
- Miniature series with 7mm height
- Endurance : 2,000 hours at 105 °C
- Wide temperature range of -40°C to +105°C
- RoHS Compliant



### SPECIFICATIONS

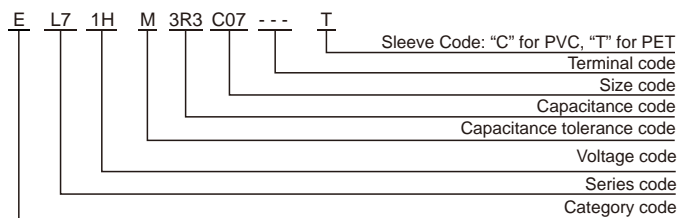
Items	Characteristics								
Category Temperature Range	-40~+105°C								
Rated Voltage Range	6.3~63 V <sub>dc</sub>								
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)								
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)								
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	(at 20°C, 120Hz)
	Dissipation Factor (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	(at 120Hz)
	Z(-25°C)/Z(+20°C)	4	3	2					
	Z(-40°C)/Z(+20°C)	8	6	4	3				
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C.								
	Capacitance Change	±20% of the initial value							
	Dissipation Factor	200% of the initial specified value							
	Leakage Current	The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.								
	Capacitance Change	±20% of the initial value							
	Dissipation Factor	200% of the initial specified value							
	Leakage Current	200% of the initial specified value							

### DIMENSIONS[mm]



øD	4	5	6.3	8
ød	0.45	0.45	0.5	0.5
F	1.5	2.0	2.5	3.5
øD'	øD+0.5max.			
L'	L+2max.			

### PART NUMBERING SYSTEM



### RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV(V <sub>dc</sub> )	Freq.(Hz)	50/60	120	1k	10k-100k
6.3 to 16		0.80	1.00	1.30	1.50
25 to 35		0.80	1.00	1.20	1.20
50		0.80	1.00	1.15	1.20

## L7 series

### STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 120Hz)	Part Number
6.3	22	4x7	28	EL70JM220C07---T
	33	4x7	32	EL70JM330C07---T
	33	5x7	35	EL70JM330D07---T
	47	5x7	47	EL70JM470D07---T
	68	5x7	50	EL70JM680D07---T
	100	6.3x7	75	EL70JM101E07---T
	220	8x7	92	EL70JM221F07---T
10	22	4x7	32	EL71AM220C07---T
	33	5x7	48	EL71AM330D07---T
	47	5x7	51	EL71AM470D07---T
	68	6.3x7	68	EL71AM680E07---T
	100	6.3x7	80	EL71AM101E07---T
	100	8x7	95	EL71AM101F07---T
	220	8x7	130	EL71AM221F07---T
16	10	4x7	28	EL71CM100C07---T
	22	4x7	35	EL71CM220C07---T
	22	5x7	42	EL71CM220D07---T
	33	5x7	50	EL71CM330D07---T
	47	6.3x7	67	EL71CM470E07---T
	68	6.3x7	70	EL71CM680E07---T
	100	8x7	110	EL71CM101F07---T
25	10	4x7	28	EL71EM100C07---T
	10	5x7	33	EL71EM100D07---T
	22	5x7	43	EL71EM220D07---T
	22	6.3x7	45	EL71EM220E07---T
	33	6.3x7	62	EL71EM330E07---T
	47	8x7	75	EL71EM470F07---T
	100	8x7	115	EL71EM101F07---T
35	10	5x7	35	EL71VM100D07---T
	22	6.3x7	60	EL71VM220E07---T
	33	6.3x7	50	EL71VM330E07---T
	33	8x7	68	EL71VM330F07---T
	47	8x7	80	EL71VM470F07---T
	68	8x7	85	EL71VM680F07---T
	50	0.1	4x7	1.5
0.22		4x7	2.5	EL71HMR22C07---T
0.33		4x7	3.5	EL71HMR33C07---T
0.47		4x7	5	EL71HMR47C07---T
0.68		4x7	7	EL71HMR68C07---T
1		4x7	10	EL71HM010C07---T
2.2		4x7	20	EL71HM2R2C07---T
3.3		4x7	26	EL71HM3R3C07---T
4.7		4x7	27	EL71HM4R7C07---T
4.7		5x7	29	EL71HM4R7D07---T
10		6.3x7	38	EL71HM100E07---T
22		8x7	63	EL71HM220F07---T
33		8x7	78	EL71HM330F07---T
63		0.1	4x7	1.5
	0.22	4x7	2.5	EL71JMR22C07---T
	0.33	4x7	3.5	EL71JMR33C07---T
	0.47	4x7	6	EL71JMR47C07---T

Specifications subject to change without notice.

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 120Hz)	Part Number
63	1	4x7	12	EL71JM010C07---T
	2.2	4x7	20	EL71JM2R2C07---T
	3.3	5x7	28	EL71JM3R3D07---T
	4.7	6.3x7	33	EL71JM4R7E07---T
	10	6.3x7	40	EL71JM100E07---T
	22	8x7	65	EL71JM220F07---T



WK series

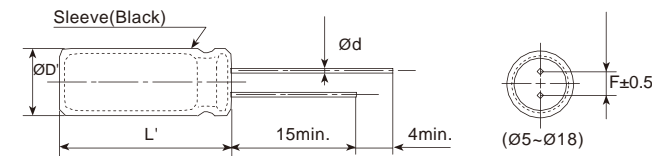
- Standard series for general purpose
- Endurance : 2,000 hours at 85 °C
- RoHS Compliant



SPECIFICATIONS

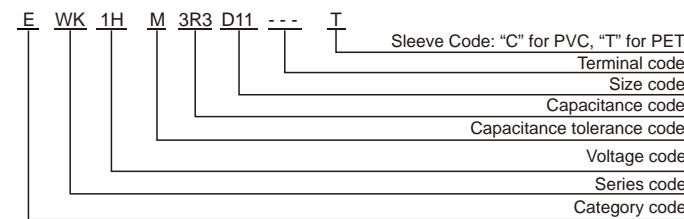
Items	Characteristics																																														
Category Temperature Range	-40~+85°C(6.3 to 100 V <sub>dc</sub> )      -25~+85°C(160 to 450 V <sub>dc</sub> )																																														
Rated Working Voltage Range	6.3~450 V <sub>dc</sub>																																														
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)																																														
Leakage Current	6.3~100 V <sub>dc</sub> 160~450 V <sub>dc</sub> I 0.01CV or 3μA, whichever is greater.      I 0.03CV+10μA Where, I: Max.leakage current (μA),C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)																																														
Dissipation Factor (tan δ)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td> </tr> <tr> <td>Dissipation Factor (max.)</td> <td>0.28</td><td>0.24</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.24</td><td>0.24</td><td>0.24</td> </tr> </table> When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)		Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Dissipation Factor (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.20	0.20	0.24	0.24	0.24															
Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450																																	
Dissipation Factor (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.20	0.20	0.24	0.24	0.24																																	
Low Temperature Characteristics (Max. Impedance Ratio)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>5</td><td>4</td><td>3</td><td></td><td>2</td><td></td><td></td><td>3</td><td></td><td>6</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>12</td><td>10</td><td>8</td><td>5</td><td>4</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> (at 120Hz)		Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Z(-25°C)/Z(+20°C)	5	4	3		2			3		6					Z(-40°C)/Z(+20°C)	12	10	8	5	4	3								
Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450																																	
Z(-25°C)/Z(+20°C)	5	4	3		2			3		6																																					
Z(-40°C)/Z(+20°C)	12	10	8	5	4	3																																									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 85°C. Capacitance Change      ±20% of the initial value Dissipation Factor      200% of the initial specified value Leakage Current      The initial specified value																																														
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied. Capacitance Change      ±20% of the initial value Dissipation Factor      200% of the initial specified value Leakage Current      200% of the initial specified value																																														

DIMENSIONS[mm]



øD	5	6.3	8	10	12.5	16	18
ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
øD'	øD+0.5max.						
L'	L+2max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	Freq.(Hz)						
	50	120	300	1k	10k	100k	
Cap.<10	0.65	1.00	1.35	1.75	2.30	2.50	
10 Cap.<100	0.75	1.00	1.25	1.50	1.75	1.80	
100 Cap. 1000	0.80	1.00	1.15	1.30	1.40	1.50	
Cap.>1000	0.85	1.00	1.03	1.05	1.08	1.08	

WK series

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part Number	
6.3	33	5x11	65	EWK0JM330D11---T	
	47	5x11	80	EWK0JM470D11---T	
	100	5x11	135	EWK0JM101D11---T	
	220	5x12	220	EWK0JM221D12---T	
	330	6.3x11	280	EWK0JM331E11---T	
	470	6.3x12	360	EWK0JM471E12---T	
	1000	8x12	590	EWK0JM102F12---T	
	2200	10x20	1000	EWK0JM222G20---T	
	3300	10x25	1200	EWK0JM332G25---T	
	4700	12.5x20	1550	EWK0JM472W20---T	
	6800	12.5x25	1920	EWK0JM682W25---T	
	10000	16x25	2370	EWK0JM103L25---T	
	15000	16x35	2880	EWK0JM153L35---T	
	22000	18x40	3350	EWK0JM223M40---T	
	10	22	5x11	60	EWK1AM220D11---T
33		5x11	75	EWK1AM330D11---T	
47		5x11	95	EWK1AM470D11---T	
100		5x11	140	EWK1AM101D11---T	
220		5x12	240	EWK1AM221D12---T	
330		6.3x11	310	EWK1AM331E11---T	
470		6.3x12	400	EWK1AM471E12---T	
1000		10x13	660	EWK1AM102G13---T	
2200		10x20	1090	EWK1AM222G20---T	
3300		12.5x20	1450	EWK1AM332W20---T	
4700		12.5x25	1800	EWK1AM472W25---T	
6800		16x25	2250	EWK1AM682L25---T	
10000		16x35	2710	EWK1AM103L35---T	
15000		18x35	3120	EWK1AM153M35---T	
16		10	5x11	50	EWK1CM100D11---T
	22	5x11	65	EWK1CM220D11---T	
	33	5x11	80	EWK1CM330D11---T	
	47	5x11	115	EWK1CM470D11---T	
	100	5x11	175	EWK1CM101D11---T	
	220	6.3x11	280	EWK1CM221E11---T	
	330	8x11	380	EWK1CM331F11---T	
	470	8x11	460	EWK1CM471F11---T	
	1000	10x16	800	EWK1CM102G16---T	
	2200	12.5x20	1320	EWK1CM222W20---T	
	3300	12.5x25	1670	EWK1CM332W25---T	
	4700	16x25	2120	EWK1CM472L25---T	
	6800	16x30	2550	EWK1CM682L30---T	
	25	10	5x11	45	EWK1EM100D11---T
		22	5x11	70	EWK1EM220D11---T
33		5x11	98	EWK1EM330D11---T	
47		5x11	120	EWK1EM470D11---T	
100		6.3x11	190	EWK1EM101E11---T	
220		8x11	330	EWK1EM221F11---T	
330		8x12	440	EWK1EM331F12---T	
470		10x13	550	EWK1EM471G13---T	
1000		10x20	970	EWK1EM102G20---T	
2200		12.5x25	1570	EWK1EM222W25---T	
3300		16x25	2000	EWK1EM332L25---T	
4700		16x30	2450	EWK1EM472L30---T	
35		10	5x11	55	EWK1VM100D11---T
		22	5x11	90	EWK1VM220D11---T
		33	5x11	110	EWK1VM330D11---T
	47	5x11	135	EWK1VM470D11---T	
	100	6.3x11	215	EWK1VM101E11---T	
	220	8x12	385	EWK1VM221F12---T	
	330	10x13	500	EWK1VM331G13---T	
	470	10x16	680	EWK1VM471G16---T	
	1000	12.5x20	1180	EWK1VM102W20---T	

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part Number	
35	2200	16x25	1810	EWK1VM222L25---T	
	3300	16x35	2300	EWK1VM332L35---T	
	4700	18x35	2750	EWK1VM472M35---T	
	0.1	5x11	1.3	EWK1HMR10D11---T	
50	0.22	5x11	2.9	EWK1HMR22D11---T	
	0.33	5x11	4.3	EWK1HMR33D11---T	
	0.47	5x11	7	EWK1HMR47D11---T	
	1	5x11	17	EWK1HMR10D11---T	
	2.2	5x11	28	EWK1HMR22D11---T	
	3.3	5x11	35	EWK1HMR33D11---T	
	4.7	5x11	41	EWK1HMR47D11---T	
	10	5x11	60	EWK1HM100D11---T	
	22	5x11	95	EWK1HM220D11---T	
	33	6.3x11	130	EWK1HM330E11---T	
	47	6.3x11	160	EWK1HM470E11---T	
	100	8x11	270	EWK1HM101F11---T	
	220	10x16	435	EWK1HM221G16---T	
	330	10x20	590	EWK1HM331G20---T	
	470	10x20	760	EWK1HM471G20---T	
1000	12.5x25	1350	EWK1HM102W25---T		
2200	16x35	2110	EWK1HM222L35---T		
3300	18x35	2550	EWK1HM332M35---T		
63	4.7	5x11	45	EWK1JM47D11---T	
	10	5x11	70	EWK1JM100D11---T	
	22	6.3x11	110	EWK1JM220E11---T	
	33	6.3x11	140	EWK1JM330E11---T	
	47	6.3x12	190	EWK1JM470E12---T	
	100	10x13	300	EWK1JM101G13---T	
	220	10x16	490	EWK1JM221G16---T	
	330	10x20	710	EWK1JM331G20---T	
	470	12.5x20	900	EWK1JM471W20---T	
	1000	16x25	1350	EWK1JM102L25---T	
	2200	18x35	2330	EWK1JM222M35---T	
	100	0.1	5x11	2.1	EWK1KMR10D11---T
		0.22	5x11	4.7	EWK1KMR22D11---T
		0.33	5x11	7	EWK1KMR33D11---T
		0.47	5x11	10	EWK1KMR47D11---T
1		5x11	21	EWK1KMR10D11---T	
2.2		5x11	35	EWK1KMR22D11---T	
3.3		5x11	45	EWK1KMR33D11---T	
4.7		5x11	50	EWK1KMR47D11---T	
10		6.3x11	75	EWK1KM100E11---T	
22		8x11	135	EWK1KM220F11---T	
33		8x12	185	EWK1KM330F12---T	
47		10x13	235	EWK1KM470G13---T	
100		10x20	380	EWK1KM101G20---T	
220		12.5x 25	630	EWK1KM221W25---T	
330		12.5x 30	760	EWK1KM331W30---T	
470	16x30	1000	EWK1KM471L30---T		
1000	18x40	1350	EWK1KM102M40---T		
160	0.47	6.3x11	10	EWK2CMR47E11---T	
	1	6.3x11	15	EWK2CM010E11---T	
	2.2	6.3x11	30	EWK2CM2R2E11---T	
	3.3	6.3x11	40	EWK2CM3R3E11---T	
	4.7	6.3x11	48	EWK2CM4R7E11---T	
	10	8x12	80	EWK2CM100F12---T	
	10	10x12	94	EWK2CM100G12---T	
	22	10x12	130	EWK2CM220G12---T	
	22	10x16	150	EWK2CM220G16---T	
	22	10x20	170	EWK2CM220G20---T	
	33	10x16	180	EWK2CM330G16---T	
	33	10x20	210	EWK2CM330G20---T	
	47	10x20	240	EWK2CM470G20---T	

Radial Type

WK series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxD(mm)	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part Number
160	47	12.5x20	280	EWK2CM470W20---T
	68	12.5x20	360	EWK2CM680W20---T
	100	12.5x25	470	EWK2CM101W25---T
	150	16x20	520	EWK2CM151L20---T
	180	16x25	600	EWK2CM181L25---T
	220	16x30	780	EWK2CM221L30---T
	270	18x30	860	EWK2CM271M30---T
	330	18x35	1000	EWK2CM331M35---T
	390	18x35	1020	EWK2CM391M35---T
	470	18x40	1220	EWK2CM471M40---T
200	0.47	6.3x11	10	EWK2DMR47E11---T
	1	6.3x11	15	EWK2DM010E11---T
	2.2	6.3x11	34	EWK2DM2R2E11---T
	3.3	6.3x11	45	EWK2DM3R3E11---T
	4.7	6.3x11	55	EWK2DM4R7E11---T
	4.7	8x12	60	EWK2DM4R7F12---T
	10	10x12	100	EWK2DM100G12---T
	22	10x20	170	EWK2DM220G20---T
	33	10x20	205	EWK2DM330G20---T
	47	12.5x20	270	EWK2DM470W20---T
250	68	12.5x25	370	EWK2DM680W25---T
	100	16x25	475	EWK2DM101L25---T
	150	16x25	550	EWK2DM151L25---T
	180	18x25	620	EWK2DM181M25---T
	220	18x35	810	EWK2DM221M35---T
	270	18x35	870	EWK2DM271M35---T
	330	18x35	1000	EWK2DM331M35---T
	330	18x40	1020	EWK2DM331M40---T
	0.47	6.3x11	10	EWK2EMR47E11---T
	1	6.3x11	16	EWK2EM010E11---T
2.2	6.3x11	34	EWK2EM2R2E11---T	
3.3	6.3x11	42	EWK2EM3R3E11---T	
3.3	8x12	46	EWK2EM3R3F12---T	
4.7	6.3x11	50	EWK2EM4R7E11---T	
4.7	8x12	55	EWK2EM4R7F12---T	
10	10x12	100	EWK2EM100G12---T	
10	10x16	105	EWK2EM100G16---T	
22	10x20	170	EWK2EM220G20---T	
33	10x20	200	EWK2EM330G20---T	
33	12.5x20	230	EWK2EM330W20---T	
47	12.5x20	270	EWK2EM470W20---T	
47	12.5x25	295	EWK2EM470W25---T	
68	16x25	382	EWK2EM680L25---T	
100	16x25	450	EWK2EM101L25---T	
100	16x30	515	EWK2EM101L30---T	
120	16x30	530	EWK2EM121L30---T	
150	16x30	570	EWK2EM151L30---T	
180	18x30	620	EWK2EM181M30---T	
350	0.47	6.3x11	15	EWK2VMR47E11---T
	1	6.3x11	22	EWK2VM010E11---T
	2.2	8x12	38	EWK2VM2R2F12---T
	3.3	8x12	46	EWK2VM3R3F12---T
	4.7	10x12	65	EWK2VM4R7G12---T
	10	10x12	90	EWK2VM100G12---T
	10	10x16	100	EWK2VM100G16---T
	10	10x20	120	EWK2VM100G20---T
	22	12.5x20	185	EWK2VM220W20---T
	33	16x25	275	EWK2VM330L25---T
47	16x25	325	EWK2VM470L25---T	
68	16x25	405	EWK2VM680L25---T	
100	18x30	530	EWK2VM101M30---T	
400	1	6.3x11	22	EWK2GM010E11---T
	2.2	8x12	38	EWK2GM2R2F12---T
	3.3	10x12	54	EWK2GM3R3G12---T
	4.7	10x12	60	EWK2GM4R7G12---T
	4.7	10x16	75	EWK2GM4R7G16---T

WV (Vdc)	Cap (μF)	Size DxD(mm)	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part Number
400	10	10x16	100	EWK2GM100G16---T
	10	10x20	120	EWK2GM100G20---T
	22	12.5x25	205	EWK2GM220W25---T
	33	16x25	275	EWK2GM330L25---T
	47	16x25	325	EWK2GM470L25---T
	47	16x30	350	EWK2GM470L30---T
	56	16x30	385	EWK2GM560L30---T
	68	18x25	420	EWK2GM680M25---T
	82	18x30	475	EWK2GM820M30---T
	100	18x35	545	EWK2GM101M35---T
450	1	8x12	16	EWK2WM010F12---T
	2.2	8x12	32	EWK2WM2R2F12---T
	2.2	10x12	35	EWK2WM2R2G12---T
	3.3	10x12	40	EWK2WM3R3G12---T
	3.3	10x16	44	EWK2WM3R3G16---T
	4.7	10x12	50	EWK2WM4R7G12---T
	4.7	10x16	58	EWK2WM4R7G16---T
	4.7	10x20	65	EWK2WM4R7G20---T
	10	10x20	80	EWK2WM100G20---T
	10	12.5x20	92	EWK2WM100W20---T
22	12.5x25	150	EWK2WM220W25---T	
22	16x25	165	EWK2WM220L25---T	
33	16x30	215	EWK2WM330L30---T	
47	16x30	260	EWK2WM470L30---T	
47	16x35	280	EWK2WM470L35---T	
68	18x30	370	EWK2WM680M30---T	
82	18x35	390	EWK2WM820M35---T	
100	18x40	420	EWK2WM101M40---T	

Specifications subject to change without notice.

WH series

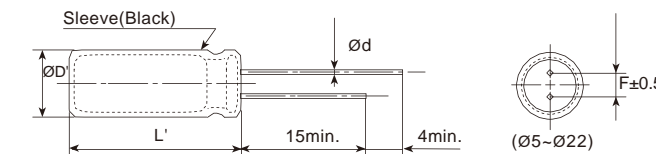
- Standard series for general purpose
- Wide temperature range from -40 °C to +105 °C
- Endurance: 2,000 hours at 105 °C
- RoHS Compliant



SPECIFICATIONS

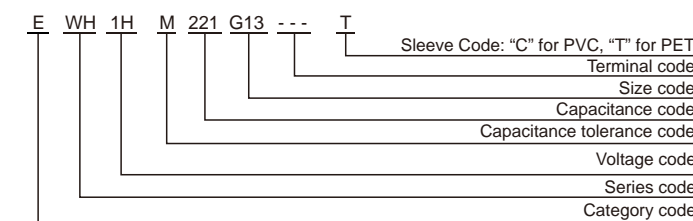
Items	Characteristics	
Category Temperature Range	-40~+105 °C (6.3~100 V <sub>dc</sub> )	-25~+105°C(160~500 V <sub>dc</sub> )
Rated Voltage Range	6.3~500 V <sub>dc</sub>	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
Leakage Current	6.3~100 V <sub>dc</sub>	160~500 V <sub>dc</sub>
	I 0.03CV or 4μA (at 1 minute) I 0.01CV or 3μA (at 2 minutes) Whichever is greater	CV 1,000 I 0.1CV+40μA CV>1,000 I 0.04CV+100μA
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 100 160~250 350~500
	Dissipation Factor (Max.)	0.28 0.24 0.20 0.16 0.14 0.12 0.10 0.08 0.20 0.24
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 100 160~250 350~450 500
	Z(-25°C)/Z(+20°C)	5 4 3 2 3 6 8 (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 2,000 hours at 105°C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	200% of the initial specified value

DIMENSIONS[mm]



øD	5	6.3	8	10	12.5/13	16/18	22
ød	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	10.0
øD'	øD+0.5max.						
L'	L+2max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	Freq.(Hz)					
	50	120	300	1k	10k	100k
Cap.<10	0.65	1.00	1.35	1.75	2.30	2.50
10 Cap.<100	0.75	1.00	1.25	1.50	1.75	1.80
100 Cap.<1000	0.80	1.00	1.15	1.30	1.40	1.50
Cap. 1000	0.85	1.00	1.03	1.05	1.08	1.08



**WH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxDL(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 120Hz)	Part Number
6.3	33	5x11	54	EWHOJM330D11---T
	47	5x11	64	EWHOJM470D11---T
	100	5x11	94	EWHOJM101D11---T
	220	5x11	140	EWHOJM221D11---T
	330	6.3x11	190	EWHOJM331E11---T
	470	6.3x11	230	EWHOJM471E11---T
	1000	8x12	380	EWHOJM102F12---T
	2200	10x20	710	EWHOJM222G20---T
	3300	10x20	840	EWHOJM332G20---T
	4700	12.5x20	1090	EWHOJM472W20---T
	6800	12.5x25	1350	EWHOJM682W25---T
	10000	16x25	1650	EWHOJM103L25---T
	15000	16x35	2010	EWHOJM153L35---T
	22000	18x40	2350	EWHOJM223M40---T
10	22	5x11	46	EWH1AM220D11---T
	33	5x11	57	EWH1AM330D11---T
	47	5x11	68	EWH1AM470D11---T
	100	5x11	100	EWH1AM101D11---T
	220	6.3x11	170	EWH1AM221E11---T
	330	6.3x11	200	EWH1AM331E11---T
	470	8x11	250	EWH1AM471F11---T
	1000	10x13	460	EWH1AM102G13---T
	2200	10x20	760	EWH1AM222G20---T
	3300	12.5x20	1000	EWH1AM332W20---T
	4700	12.5x25	1260	EWH1AM472W25---T
	6800	16x25	1570	EWH1AM682L25---T
	10000	16x35	1890	EWH1AM103L35---T
	15000	18x35	2180	EWH1AM153M35---T
16	10	5x11	34	EWH1CM100D11---T
	22	5x11	51	EWH1CM220D11---T
	33	5x11	63	EWH1CM330D11---T
	47	5x11	75	EWH1CM470D11---T
	100	5x11	110	EWH1CM101D11---T
	220	6.3x11	180	EWH1CM221E11---T
	330	8x11	260	EWH1CM331F11---T
	470	8x12	310	EWH1CM471F12---T
	1000	10x16	560	EWH1CM102G16---T
	2200	12.5x20	920	EWH1CM222W20---T
	3300	12.5x25	1170	EWH1CM332W25---T
	4700	16x25	1480	EWH1CM472L25---T
	6800	16x30	1780	EWH1CM682L30---T
	10000	18x35	2060	EWH1CM103M35---T
25	4.7	5x11	25	EWH1EM4R7D11---T
	10	5x11	36	EWH1EM100D11---T
	22	5x11	54	EWH1EM220D11---T
	33	5x11	67	EWH1EM330D11---T
	47	5x11	80	EWH1EM470D11---T
	100	6.3x11	130	EWH1EM101E11---T
	220	8x11	230	EWH1EM221F11---T
	330	8x12	310	EWH1EM331F12---T
	470	10x13	380	EWH1EM471G13---T
	1000	10x20	680	EWH1EM102G20---T
	2200	12.5x25	1090	EWH1EM222W25---T
	3300	16x25	1400	EWH1EM332L25---T
	4700	16x30	1710	EWH1EM472L30---T
	6800	18x35	2040	EWH1EM682M35---T
35	4.7	5x11	28	EWH1VM4R7D11---T
	10	5x11	41	EWH1VM100D11---T
	22	5x11	61	EWH1VM220D11---T
	33	5x11	75	EWH1VM330D11---T
	47	5x11	90	EWH1VM470D11---T
	100	6.3x11	150	EWH1VM101E11---T
	220	8x12	270	EWH1VM221F12---T
	330	10x13	350	EWH1VM331G13---T
	470	10x16	460	EWH1VM471G16---T
	1000	12.5x20	810	EWH1VM102W20---T
	2200	16x25	1260	EWH1VM222L25---T
	3300	16x35	1610	EWH1VM332L35---T
	4700	18x35	1910	EWH1VM472M35---T

WV (Vdc)	Cap (µF)	Size DxDL(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 120Hz)	Part Number	
50	0.1	5x11	1.3	EWH1HMR10D11---T	
	0.22	5x11	2.9	EWH1HMR22D11---T	
	0.33	5x11	4.3	EWH1HMR33D11---T	
	0.47	5x11	6.2	EWH1HMR47D11---T	
	1	5x11	13	EWH1HM010D11---T	
	2.2	5x11	20	EWH1HM2R2D11---T	
	3.3	5x11	25	EWH1HM3R3D11---T	
	4.7	5x11	30	EWH1HM4R7D11---T	
	10	5x11	40	EWH1HM100D11---T	
	22	5x11	65	EWH1HM220D11---T	
	33	6.3x11	90	EWH1HM330E11---T	
	47	6.3x11	110	EWH1HM470E11---T	
	100	8x11	180	EWH1HM101F11---T	
	220	10x13	300	EWH1HM221G13---T	
63	10	5x11	46	EWH1JM100D11---T	
	22	5x11	71	EWH1JM220D11---T	
	33	6.3x11	100	EWH1JM330E11---T	
	47	6.3x11	120	EWH1JM470E11---T	
	100	10x13	215	EWH1JM101G13---T	
	220	10x16	335	EWH1JM221G16---T	
	330	10x20	510	EWH1JM331G20---T	
	470	12.5x20	640	EWH1JM471W20---T	
	1000	16x25	930	EWH1JM102L25---T	
	100	0.1	5x11	1.5	EWH1KMR10D11---T
		0.22	5x11	3.4	EWH1KMR22D11---T
		0.33	5x11	5	EWH1KMR33D11---T
		0.47	5x11	7.1	EWH1KMR47D11---T
		1	5x11	15	EWH1KM010D11---T
2.2		5x11	21	EWH1KM2R2D11---T	
3.3		5x11	29	EWH1KM3R3D11---T	
4.7		5x11	32	EWH1KM4R7D11---T	
10		6.3x11	54	EWH1KM100E11---T	
22		8x11	93	EWH1KM220F11---T	
33		8x12	130	EWH1KM330F12---T	
47		10x13	165	EWH1KM470G13---T	
100		10x20	265	EWH1KM101G20---T	
220		12.5x25	440	EWH1KM221W25---T	
160	330	16x25	540	EWH1KM331L25---T	
	470	16x30	715	EWH1KM471L30---T	
	1000	18x40	985	EWH1KM102M40---T	
	3.3	6.3x9	28	EWH2CM3R3E09---T	
	4.7	6.3x9	34	EWH2CM4R7E09---T	
	10	6.3x12	60	EWH2CM100E12---T	
	10	8x9	60	EWH2CM100F09---T	
	22	8x12	88	EWH2CM220F12---T	
	22	10x12	98	EWH2CM220G12---T	
	33	10x12	140	EWH2CM330G12---T	
	33	10x16	158	EWH2CM330G16---T	
	47	10x14	142	EWH2CM470G14---T	
	47	10x20	182	EWH2CM470G20---T	
	68	10x20	240	EWH2CM680G20---T	
100	12.5x20	300	EWH2CM101W20---T		
100	16x20	316	EWH2CM101L20---T		
220	16x25	530	EWH2CM221L25---T		
330	18x25	600	EWH2CM331M25---T		
470	18x35	820	EWH2CM471M35---T		
200	1	6.3x7	12	EWH2DM010E07---T	
	2.2	6.3x7	18	EWH2DM2R2E07---T	
	3.3	6.3x9	28	EWH2DM3R3E09---T	
	4.7	6.3x9	40	EWH2DM4R7E09---T	
	10	8x12	78	EWH2DM100F12---T	
	22	8x16	110	EWH2DM220F16---T	
	22	10x12	110	EWH2DM220G12---T	
	33	10x16	166	EWH2DM330G16---T	

**WH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxDL(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 120Hz)	Part Number
200	33	10x20	185	EWH2DM330G20---T
	47	10x20	200	EWH2DM470G20---T
	68	12.5x20	290	EWH2DM680W20---T
	82	12.5x20	300	EWH2DM820W20---T
	100	13x20	305	EWH2DM101K20---T
	100	16x20	325	EWH2DM101L20---T
	150	16x25	446	EWH2DM151L25---T
	180	16x25	530	EWH2DM181L25---T
	220	18x25	620	EWH2DM221M25---T
	330	18x30	720	EWH2DM331M30---T
	470	18x40	840	EWH2DM471M40---T
	2.2	6.3x9	21	EWH2EM2R2E09---T
	3.3	6.3x9	30	EWH2EM3R3E09---T
	4.7	6.3x12	38	EWH2EM4R7E12---T
4.7	8x9	45	EWH2EM4R7F09---T	
10	8x12	70	EWH2EM100F12---T	
10	10x12	75	EWH2EM100G12---T	
22	8x16	100	EWH2EM220F16---T	
22	10x16	116	EWH2EM220G16---T	
33	10x20	150	EWH2EM330G20---T	
33	12.5x16	165	EWH2EM330W16---T	
47	12.5x20	232	EWH2EM470W20---T	
100	16x25	370	EWH2EM101L25---T	
150	18x25	455	EWH2EM151M25---T	
220	18x30	600	EWH2EM221M30---T	
330	18x35	705	EWH2EM331M35---T	
350	1	6.3x9	13	EWH2VM010E09---T
	2.2	6.3x9	23	EWH2VM2R2E09---T
	3.3	8x9	31	EWH2VM3R3F09---T
	4.7	8x9	45	EWH2VM4R7F09---T
	10	10x12	68	EWH2VM100G12---T
	22	10x20	135	EWH2VM220G20---T
	33	12.5x20	184	EWH2VM330W20---T
	47	16x20	225	EWH2VM470L20---T
	68	16x25	336	EWH2VM680L25---T
	100	18x30	398	EWH2VM101M30---T
	1	6.3x9	14	EWH2GM010E09---T
	2.2	6.3x9	25	EWH2GM2R2E09---T
	2.2	8x9	30	EWH2GM2R2F09---T
	3.3	6.3x12	33	EWH2GM3R3E12---T
3.3	8x9	34	EWH2GM3R3F09---T	
4.7	8x9	45	EWH2GM4R7F09---T	
4.7	8x12	48	EWH2GM4R7F12---T	
10	8x16	92	EWH2GM100F16---T	
10	10x12	92	EWH2GM100G12---T	
22	10x20	160	EWH2GM220G20---T	
33	16x20	258	EWH2GM330L20---T	
47	16x20	290	EWH2GM470L20---T	
68	16x25	420	EWH2GM680L25---T	
68	18x20	420	EWH2GM680M20---T	
82	18x25	474	EWH2GM820M25---T	
100	18x30	532	EWH2GM101M30---T	
120	18x35	588	EWH2GM121M35---T	
150	18x35	610	EWH2GM151M35---T	
400	1	6.3x9	14	EWH2WM010E09---T
	1	6.3x12	16	EWH2WM010E12---T
	2.2	8x9	22	EWH2WM2R2F09---T
	2.2	8x12	25	EWH2WM2R2F12---T
	3.3	8x12	32	EWH2WM3R3F12---T
	4.7	10x12	48	EWH2WM4R7G12---T
	10	10x16	85	EWH2WM100G16---T
	10	10x20	90	EWH2WM100G20---T
	22	12.5x20	150	EWH2WM220W20---T
	22	16x20	185	EWH2WM220L20---T
	33	16x20	200	EWH2WM330L20---T
	47	16x25	335	EWH2WM470L25---T
	68	18x25	400	EWH2WM680M25---T
	82	18x30	472	EWH2WM820M30---T

Specifications subject to change without notice.

WV (Vdc)	Cap (µF)	Size DxDL(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 120Hz)	Part Number
450	100	18x35	530	EWH2WM101M35---T
	120	18x40	582	EWH2WM121M40---T
	150	18x45	610	EWH2WM151M45---T
	4.7	10x16	50	EWH2HM4R7G16---T
500	10	12.5x20	115	EWH2HM100W20---T
	15	12.5x25	140	EWH2HM150W25---T
	22	16x25	185	EWH2HM220L25---T
	33	18x25	215	EWH2HM330M25---T
	47	18x35	345	EWH2HM470M35---T
	68	18x35	390	EWH2HM680M35---T
	82	18x40	490	EWH2HM820M40---T
	100	22x35	535	EWH2HM101O35---T
	120	22x40	550	EWH2HM121O40---T

Radial Type



# HP series

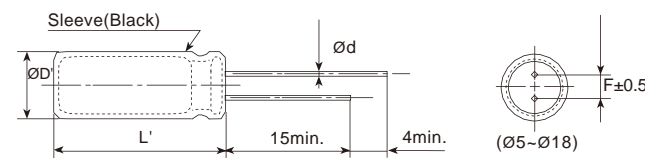
- Standard bi-polarized series
- Endurance: 1,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant



## SPECIFICATIONS

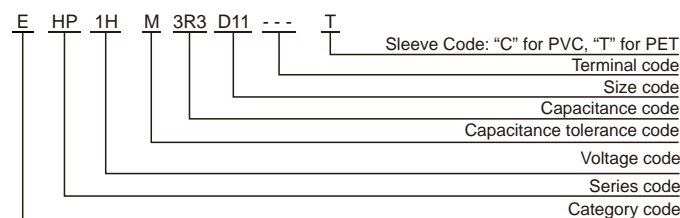
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Voltage Range	6.3~100 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	I 0.06CV or 10μA, whichever is greater. (at 20°C after 2 minutes) I 0.03CV or 3μA, whichever is greater. (at 20°C after 5 minutes) Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 80 100 Dissipation Factor (max.) 0.24 0.24 0.20 0.20 0.16 0.14 0.12 0.12 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 80 100 Z(-25°C)/Z(+20°C) 4 3 2 Z(-40°C)/Z(+20°C) 10 8 6 4 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1,000 hours at 105°C with the polarity inverted every 250 hours. Capacitance Change ±20% of the initial value Dissipation Factor 150% of the initial specified value Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied. Capacitance Change ±20% of the initial value Dissipation Factor 150% of the initial specified value Leakage Current 200% of the initial specified value

## DIMENSIONS[mm]



∅D	5	6.3	8	10	12.5	16	18
∅d	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
∅D'	∅D+0.5max.						
L'	L+2max.						

## PART NUMBERING SYSTEM



# HP series

## STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxD(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
6.3	33	5x11	45	EHP0JM330D11---T
	47	5x11	54	EHP0JM470D11---T
	100	6.3x11	90	EHP0JM101E11---T
	220	8x11	150	EHP0JM221F11---T
	330	8x11	185	EHP0JM331F11---T
	470	10x13	260	EHP0JM471G13---T
	1000	10x20	460	EHP0JM102G20---T
	2200	12.5x25	820	EHP0JM222W25---T
	3300	16x25	1110	EHP0JM332L25---T
	4700	16x30	1430	EHP0JM472L30---T
10	6800	18x35	1830	EHP0JM682M35---T
	22	5x11	37	EHP1AM220D11---T
	33	5x11	45	EHP1AM330D11---T
	47	5x11	54	EHP1AM470D11---T
	100	6.3x11	90	EHP1AM101E11---T
	220	8x11	150	EHP1AM221F11---T
	330	10x16	240	EHP1AM331G16---T
	470	10x16	290	EHP1AM471G16---T
	1000	12.5x20	510	EHP1AM102W20---T
	2200	16x25	910	EHP1AM222L25---T
16	3300	16x30	1200	EHP1AM332L30---T
	4700	18x35	1520	EHP1AM472M35---T
	10	5x11	27	EHP1CM100D11---T
	22	5x11	40	EHP1CM220D11---T
	33	5x11	49	EHP1CM330D11---T
	47	6.3x11	67	EHP1CM470E11---T
	100	8x11	110	EHP1CM101F11---T
	220	10x13	195	EHP1CM221G13---T
	330	10x16	265	EHP1CM331G16---T
	470	10x20	345	EHP1CM471G20---T
25	1000	12.5x25	605	EHP1CM102W25---T
	2200	16x30	1070	EHP1CM222L30---T
	3300	18x35	1400	EHP1CM332M35---T
	10	5x11	27	EHP1EM100D11---T
	22	5x11	46	EHP1EM220D11---T
	33	6.3x11	56	EHP1EM330E11---T
	47	6.3x11	67	EHP1EM470E11---T
	100	8x11	110	EHP1EM101F11---T
	220	10x16	215	EHP1EM221G16---T
	330	12.5x20	320	EHP1EM331W20---T
35	470	12.5x20	380	EHP1EM471W20---T
	1000	16x25	670	EHP1EM102L25---T
	2200	18x35	1140	EHP1EM222M35---T
	10	5x11	30	EHP1VM100D11---T
	22	6.3x11	51	EHP1VM220E11---T
	33	8x11	72	EHP1VM330F11---T
	47	8x11	86	EHP1VM470F11---T
	100	10x16	160	EHP1VM101G16---T

WV (V <sub>dc</sub> )	Cap (μF)	Size DxD(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
35	220	12.5x20	290	EHP1VM221W20---T
	330	12.5x20	350	EHP1VM331W20---T
	470	12.5x25	465	EHP1VM471W25---T
	1000	16x30	805	EHP1VM102L30---T
50	0.47	5x11	7	EHP1HMR47D11---T
	1	5x11	10	EHP1HM010D11---T
	2.2	5x11	15	EHP1HM2R2D11---T
	3.3	5x11	18	EHP1HM3R3D11---T
	4.7	5x11	22	EHP1HM4R7D11---T
	10	6.3x11	37	EHP1HM100E11---T
	22	8x11	63	EHP1HM220F11---T
	33	8x11	77	EHP1HM330F11---T
	47	10x13	105	EHP1HM470G13---T
	100	10x20	190	EHP1HM101G20---T
63	220	12.5x25	340	EHP1HM221W25---T
	330	16x25	460	EHP1HM331L25---T
	470	16x30	590	EHP1HM471L30---T
	3.3	5x11	20	EHP1JM3R3D11---T
	4.7	6.3x11	24	EHP1JM4R7E11---T
	10	6.3x11	40	EHP1JM100E11---T
	22	8x11	68	EHP1JM220F11---T
	33	10x13	98	EHP1JM330G13---T
	47	10x16	130	EHP1JM470G16---T
	100	12.5x20	225	EHP1JM101W20---T
80	220	16x25	405	EHP1JM221L25---T
	330	16x30	535	EHP1JM331L30---T
	470	18x35	680	EHP1JM471M35---T
	2.2	5x11	16	EHP1BM2R2D11---T
	3.3	6.3x11	23	EHP1BM3R3E11---T
	4.7	6.3x11	27	EHP1BM4R7E11---T
	10	8x11	46	EHP1BM100F11---T
	22	10x16	89	EHP1BM220G16---T
	33	10x16	105	EHP1BM330G16---T
	47	10x20	140	EHP1BM470G20---T
100	100	12.5x25	245	EHP1BM101W25---T
	220	16x30	435	EHP1BM221L30---T
	330	18x35	570	EHP1BM331M35---T
	0.47	5x11	8	EHP1KMR47D11---T
	1	5x11	12	EHP1KM010D11---T
	2.2	6.3x11	20	EHP1KM2R2E11---T
	3.3	6.3x11	25	EHP1KM3R3E11---T
	4.7	6.3x11	30	EHP1KM4R7E11---T
	10	8x11	50	EHP1KM100F11---T
	22	10x16	97	EHP1KM220G16---T
35	33	12.5x20	140	EHP1KM330W20---T
	47	12.5x20	170	EHP1KM470W20---T
	100	16x25	300	EHP1KM101L25---T
	220	18x35	510	EHP1KM221M35---T

Specifications subject to change without notice.

# CD11GC series

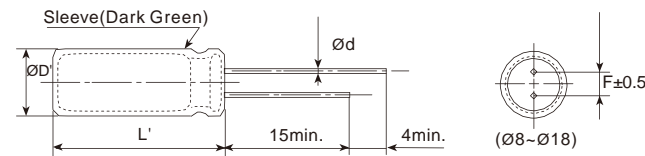
- Endurance: +130°C 4,000~5,000 hours ; +105°C 15,000~20,000 hours
- Withstand high temperature, extremely long life.
- Suitable for output circuit and input circuit of LED driving power, electronic ballast.
- RoHS Compliant



■ SPECIFICATIONS

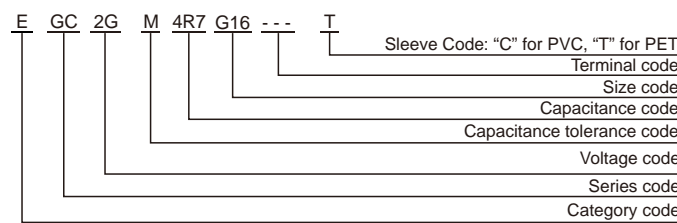
Items	Characteristics						
Category Temperature Range	- 40~+130°C						
Rated Voltage Range	160~450 V <sub>dc</sub>						
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)						
Leakage Current	160~400 V <sub>dc</sub>	450 V <sub>dc</sub>		Where, I: Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)			
	I 0.02CV+10μA	I 0.03CV+10μA					
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450
	Z(-25°C)/Z(+20°C)	3	3	3	5	5	6
	Z(-40°C)/Z(+20°C)	6	6	6	6	6	9
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 130°C or 105°C.						
	Capacitance Change	±30% of the initial value			Height (mm)	130°C Load life (hours)	105°C Load life (hours)
	Dissipation Factor	300% of the initial specified value			L 10	4,000	15,000
	Leakage Current	The initial specified value			L>10	5,000	20,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.						
	Capacitance Change	±20% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	Leakage Current	200% of the initial specified value					

■ DIMENSIONS[mm]



øD	8	10	12.5	16	18
ød	0.5	0.6	0.6	0.8	0.8
F	3.5	5.0	5.0	7.5	7.5
øD'	øD+0.5max.				
L'	L+2max.				

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)	120	1k	10k	100k
160~450		0.50	0.80	0.90	1.00

# CD11GC series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL (mm)	Rated ripple current (mA rms/130°C/100kHz)	Part Number
160	3.3	8x12	70	EGC2CM3R3F12---T
	4.7	8x12	77	EGC2CM4R7F12---T
	5.6	8x12	80	EGC2CM5R6F12---T
	8.2	8x12	135	EGC2CM8R2F12---T
	10	8x12	180	EGC2CM100F12---T
	10	10x16	223	EGC2CM100G16---T
	15	10x16	300	EGC2CM150G16---T
	22	10x16	360	EGC2CM220G16---T
	33	12.5x20	480	EGC2CM330W20---T
	47	12.5x25	590	EGC2CM470W25---T
	68	16x25	750	EGC2CM680L25---T
	82	16x25	825	EGC2CM820L25---T
	100	16x25	960	EGC2CM101L25---T
	100	18x20	960	EGC2CM101M20---T
	150	18x30	1050	EGC2CM151M30---T
	220	18x35	1500	EGC2CM221M35---T
200	3.3	8x12	73	EGC2DM3R3F12---T
	4.7	8x12	100	EGC2DM4R7F12---T
	5.6	8x12	120	EGC2DM5R6F12---T
	6.8	8x12	145	EGC2DM6R8F12---T
	8.2	8x12	165	EGC2DM8R2F12---T
	10	8x16	220	EGC2DM100F16---T
	10	10x16	230	EGC2DM100G16---T
	15	10x16	305	EGC2DM150G16---T
	22	10x20	350	EGC2DM220G20---T
	22	12.5x20	430	EGC2DM220W20---T
	33	12.5x20	500	EGC2DM330W20---T
	47	12.5x25	650	EGC2DM470W25---T
	47	16x20	650	EGC2DM470L20---T
	68	16x25	750	EGC2DM680L25---T
	82	16x30	900	EGC2DM820L30---T
	82	18x25	900	EGC2DM820M25---T
100	16x30	1100	EGC2DM101L30---T	
100	18x25	1100	EGC2DM101M25---T	
150	18x35	1350	EGC2DM151M35---T	
250	2.2	8x12	64	EGC2EM2R2F12---T
	3.3	8x12	80	EGC2EM3R3F12---T
	4.7	8x12	110	EGC2EM4R7F12---T
	6.8	8x12	140	EGC2EM6R8F12---T
	6.8	10x16	169	EGC2EM6R8G16---T
	8.2	10x16	203	EGC2EM8R2G16---T
	10	10x16	238	EGC2EM100G16---T
	15	10x20	327	EGC2EM150G20---T
	22	12.5x20	430	EGC2EM220W20---T
	33	12.5x25	530	EGC2EM330W25---T
	33	16x20	530	EGC2EM330L20---T
	47	16x25	690	EGC2EM470L25---T
	47	18x20	690	EGC2EM470M20---T
	68	16x30	780	EGC2EM680L30---T
	68	18x25	780	EGC2EM680M25---T
	82	18x25	900	EGC2EM820M25---T
100	18x30	970	EGC2EM101M30---T	
350	1	8x12	49	EGC2VM010F12---T
	2.2	8x12	65	EGC2VM2R2F12---T
	3.3	10x12	87	EGC2VM3R3G12---T
	4.7	10x16	130	EGC2VM4R7G16---T
	5.6	10x16	140	EGC2VM5R6G16---T
	6.8	10x16	170	EGC2VM6R8G16---T
	8.2	12.5x20	205	EGC2VM8R2W20---T
	10	12.5x20	250	EGC2VM100W20---T
	15	12.5x25	335	EGC2VM150W25---T
	15	16x20	335	EGC2VM150L20---T
	22	16x25	450	EGC2VM220L25---T
	33	16x30	535	EGC2VM330L30---T
	47	18x30	700	EGC2VM470M30---T
	68	18x40	900	EGC2VM680M40---T

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL (mm)	Rated ripple current (mA rms/130°C/100kHz)	Part Number
400	1	8x12	54	EGC2GM010F12---T
	2.2	8x12	75	EGC2GM2R2F12---T
	3.3	10x12	94	EGC2GM3R3G12---T
	4.7	10x16	130	EGC2GM4R7G16---T
	5.6	10x16	142	EGC2GM5R6G16---T
	6.8	10x16	180	EGC2GM6R8G16---T
	8.2	10x20	215	EGC2GM8R2G20---T
	8.2	12.5x20	230	EGC2GM8R2W20---T
	10	12.5x20	255	EGC2GM100W20---T
	15	16x20	335	EGC2GM150L20---T
	22	16x20	430	EGC2GM220L20---T
	33	16x30	600	EGC2GM330L30---T
	47	18x30	680	EGC2GM470M30---T
	68	18x40	900	EGC2GM680M40---T
	100	18x50	1030	EGC2GM101M50---T
	450	1	8x12	50
1.5		8x12	62	EGC2WM1R5F12---T
2.2		10x16	77	EGC2WM2R2G16---T
3.3		10x16	88	EGC2WM3R3G16---T
4.7		10x16	94	EGC2WM4R7G16---T
5.6		12.5x20	144	EGC2WM5R6W20---T
6.8		12.5x20	175	EGC2WM6R8W20---T
8.2		12.5x20	183	EGC2WM8R2W20---T
10		12.5x20	225	EGC2WM100W20---T
15		12.5x25	294	EGC2WM150W25---T
22		16x25	395	EGC2WM220L25---T
33		18x30	500	EGC2WM330M30---T
47		18x30	585	EGC2WM470M30---T
68		18x40	710	EGC2WM680M40---T
100		18x50	840	EGC2WM101M50---T



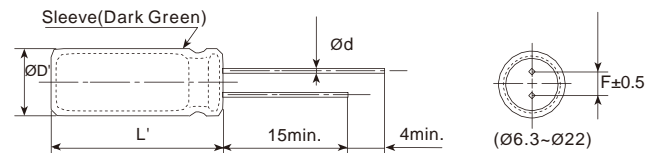
# CD11GES series

- Endurance: 3,000 hours at 130°C; 12,000 hours at 105°C
- Withstand high temperature 130°C, miniaturized and long life
- Suitable for output circuit and input circuit of LED driving power, electronic ballast.
- RoHS Compliant

■ SPECIFICATIONS

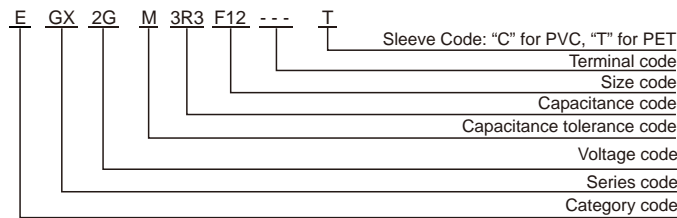
Items	Characteristics							
Category Temperature Range	-40~+130°C(160~ 450 Vdc)		-40~+105°C(500 Vdc)					
Rated Voltage Range	160~500 Vdc							
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)							
Leakage Current	160~400 Vdc	450~500 Vdc	Where, I: Max.leakage current (µA),C:Nominal capacitance (µF), V: Rated voltage (V) (at 20°C after 2 minutes)					
	I 0.02CV+10µA	I 0.03CV+10µA						
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160	200	250	350	400	450	500
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.24
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	160	200	250	350	400	450	500
	Z(-25°C)/Z(+20°C)	3	3	3	5	5	6	6
	Z(-40°C)/Z(+20°C)	6	6	6	6	6	9	15
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20 after rated DC voltage is applied for 3,000 hours (160~450Vdc) at 130 or after DC voltage plus rated ripple current is applied for 12,000 hours at 105 (500 Vdc: 10,000 hours)							
	Capacitance Change	±20% of the initial value						
	Dissipation Factor	200% of the initial specified value						
	Leakage Current	The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.							
	Capacitance Change	±20% of the initial value						
	Dissipation Factor	200% of the initial specified value						
	Leakage Current	200% of the initial specified value						

■ DIMENSIONS[mm]



øD	6.3	8	10	12.5	16	18	22
ød	0.5	0.5	0.6	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5	10
øD'	øD+0.5max.						
L'	L+2max.						

■ PART NUMBERING SYSTEM

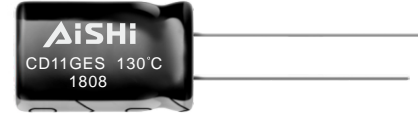


■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(µF)	Freq.(Hz)	120	1k	10k	100k
Cap.<33		0.40	0.70	0.90	1.00
Cap. 33		0.50	0.80	0.90	1.00

Miniaturized



# CD11GES series

■ STANDARD RATINGS

VV (Vdc)	Cap (µF)	Size DxL (mm)	Rated ripple current (mA rms/105°C/100kHz)	Part Number
160	2.2	6.3x9	56	EGX2CM2R2E09---T
	3.3	6.3x9	85	EGX2CM3R3E09---T
	4.7	6.3x12	96	EGX2CM4R7E12---T
	5.6	6.3x12	102	EGX2CM5R6E12---T
	5.6	8x9	102	EGX2CM5R6F09---T
	6.8	6.3x12	109	EGX2CM6R8E12---T
	6.8	8x9	109	EGX2CM6R8F09---T
	8.2	8x9	160	EGX2CM8R2F09---T
	10	8x9	220	EGX2CM100F09---T
	15	8x9	280	EGX2CM150F09---T
	22	8x12	400	EGX2CM220F12---T
	33	10x12	510	EGX2CM330G12---T
	47	10x16	680	EGX2CM470G16---T
	56	10x20	865	EGX2CM560G20---T
	68	10x20	950	EGX2CM680G20---T
	68	12.5x20	1180	EGX2CM680W20---T
	82	12.5x20	1260	EGX2CM820W20---T
	200	100	12.5x20	1350
150		12.5x25	1600	EGX2CM151W25---T
150		16x20	1790	EGX2CM151L20---T
220		16x25	2130	EGX2CM221L25---T
330		18x25	2650	EGX2CM331M25---T
1		6.3x9	55	EGX2DM010E09---T
1.5		6.3x9	62	EGX2DM1R5E09---T
2.2		6.3x9	72	EGX2DM2R2E09---T
3.3		6.3x12	112	EGX2DM3R3E12---T
4.7		6.3x12	132	EGX2DM4R7E12---T
4.7		8x12	160	EGX2DM4R7F12---T
5.6		8x12	190	EGX2DM5R6F12---T
6.8		8x12	200	EGX2DM6R8F12---T
8.2		8x12	250	EGX2DM8R2F12---T
10		8x12	260	EGX2DM100F12---T
15		10x12	330	EGX2DM150G12---T
22		10x16	500	EGX2DM220G16---T
33		10x20	650	EGX2DM330G20---T
47	12.5x20	980	EGX2DM470W20---T	
68	12.5x25	1300	EGX2DM680W25---T	
68	16x20	1300	EGX2DM680L20---T	
82	16x20	1380	EGX2DM820L20---T	
100	16x20	1420	EGX2DM101L20---T	
100	16x25	1494	EGX2DM101L25---T	
150	16x25	1890	EGX2DM151L25---T	
150	16x30	1989	EGX2DM151L30---T	
250	1	6.3x9	55	EGX2EM010E09---T
	1.5	6.3x9	62	EGX2EM1R5E09---T
	2.2	6.3x9	74	EGX2EM2R2E09---T
	3.3	6.3x12	112	EGX2EM3R3E12---T
	3.9	6.3x12	125	EGX2EM3R9E12---T
	4.7	6.3x12	142	EGX2EM4R7E12---T
	4.7	8x12	160	EGX2EM4R7F12---T
	5.6	8x12	190	EGX2EM5R6F12---T
	6.8	8x12	200	EGX2EM6R8F12---T
	8.2	8x12	240	EGX2EM8R2F12---T
	10	8x12	295	EGX2EM100F12---T
	10	10x12	305	EGX2EM100G12---T
	15	8x16	400	EGX2EM150F16---T
	15	10x12	400	EGX2EM150G12---T
	22	10x16	500	EGX2EM220G16---T
	33	10x20	720	EGX2EM330G20---T
	33	12.5x16	760	EGX2EM330W16---T
	47	12.5x20	980	EGX2EM470W20---T
56	12.5x25	1080	EGX2EM560W25---T	
68	12.5x25	1200	EGX2EM680W25---T	
68	16x20	1270	EGX2EM680L20---T	
82	12.5x30	1500	EGX2EM820W30---T	
82	16x20	1400	EGX2EM820L20---T	
100	16x25	1580	EGX2EM101L25---T	
150	18x25	1800	EGX2EM151M25---T	
350	1	6.3x9	56	EGX2VM010E09---T
	1.5	8x9	71	EGX2VM1R5F09---T

VV (Vdc)	Cap (µF)	Size DxL (mm)	Rated ripple current (mA rms/105°C/100kHz)	Part Number
350	2.2	8x9	90	EGX2VM2R2F09---T
	3.3	8x9	110	EGX2VM3R3F09---T
	4.7	8x12	150	EGX2VM4R7F12---T
	5.6	8x12	180	EGX2VM5R6F12---T
	6.8	8x16	225	EGX2VM6R8F16---T
	6.8	10x12	225	EGX2VM6R8G12---T
	8.2	10x16	288	EGX2VM8R2G16---T
	10	8x20	320	EGX2VM100F20---T
	10	10x16	330	EGX2VM100G16---T
	15	12.5x16	455	EGX2VM150W16---T
	22	12.5x20	650	EGX2VM220W20---T
	33	12.5x20	855	EGX2VM330W20---T
	33	16x20	900	EGX2VM330L20---T
	47	16x20	1080	EGX2VM470L20---T
	68	16x25	1368	EGX2VM680L25---T
	68	18x20	1368	EGX2VM680M20---T
	82	18x25	1530	EGX2VM820M25---T
	100	18x25	1600	EGX2VM101M25---T
400	1	6.3x9	60	EGX2GM010E09---T
	1.5	6.3x9	78	EGX2GM1R5E09---T
	2.2	8x9	95	EGX2GM2R2F09---T
	2.8	8x12	130	EGX2GM2R8F12---T
	3.3	8x12	140	EGX2GM3R3F12---T
	4.7	8x12	160	EGX2GM4R7F12---T
	4.7	10x12	170	EGX2GM4R7G12---T
	5.6	8x12	190	EGX2GM5R6F12---T
	5.6	10x12	202	EGX2GM5R6G12---T
	6.8	10x12	240	EGX2GM6R8G12---T
	8.2	10x16	288	EGX2GM8R2G16---T
	10	10x16	310	EGX2GM100G16---T
	15	10x20	500	EGX2GM150G20---T
	15	12.5x20	550	EGX2GM150W20---T
	22	12.5x20	680	EGX2GM220W20---T
	22	16x20	760	EGX2GM220L20---T
	33	12.5x25	810	EGX2GM330W25---T
	33	16x20	900	EGX2GM330L20---T
47	16x25	1140	EGX2GM470L25---T	
56	18x25	1476	EGX2GM560M25---T	
68	18x30	1547	EGX2GM680M30---T	
100	18x30	1610	EGX2GM101M30---T	
450	1	6.3x12	80	EGX2WM010E12---T
	1.5	8x12	88	EGX2WM1R5F12---T
	2.2	8x12	93	EGX2WM2R2F12---T
	3.3	8x12	120	EGX2WM3R3F12---T
	4.7	10x12	160	EGX2WM4R7G12---T
	5.6	10x16	227	EGX2WM5R6G16---T
	6.8	10x16	250	EGX2WM6R8G16---T
	8.2	10x16	268	EGX2WM8R2G16---T
	10	10x20	300	EGX2WM100G20---T
	15	12.5x20	450	EGX2WM150W20---T
	22	12.5x25	600	EGX2WM220W25---T
	22	16x20	730	EGX2WM220L20---T
	33	12.5x30	800	EGX2WM330W30---T
	33	16x25	980	EGX2WM330L25---T
	47	16x25	1000	EGX2WM470L25---T
	47	18x20	1120	EGX2WM470M20---T
	56	18x25	1290	EGX2WM560M25---T
	68	18x25	1360	EGX2WM680M25---T
100	18x35	1600	EGX2WM101M35---T	
500	10	12.5x20	320	EGX2HM100W20---T
	15	12.5x20	375	EGX2HM150W20---T
	22	16x20	510	EGX2HM220L20---T
	22	18x20	560	EGX2HM220M20---T
	33	18x25	700	EGX2HM330M25---T
	47	18x30	880	EGX2HM470M30---T
	56	18x30	960	EGX2HM560M30---T
	68	18x35	1040	EGX2HM680M35---T
	82	22x35	1255	EGX2HM820O35---T
	100	22x35	1500	EGX2HM101O35---T

Radial Type



# CD11GK series

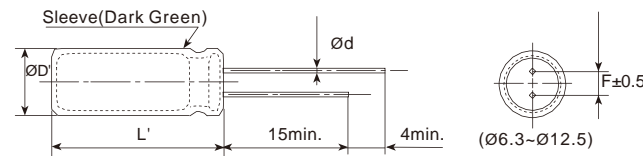
- Endurance: 12,000 – 20,000 hours at 105°C
- Extremely miniaturized, high ripple current
- Suitable for output circuit and input circuit of LED driving power.
- RoHS Compliant



■ SPECIFICATIONS

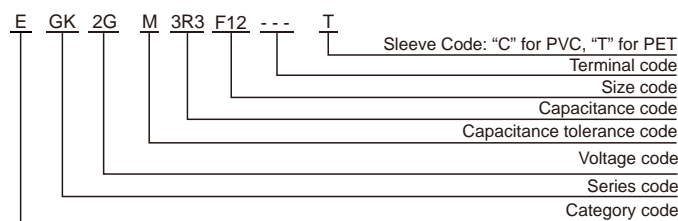
Items	Characteristics										
Category Temperature Range	-40~+105°C										
Rated Voltage Range	160~450 V <sub>dc</sub>										
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)										
Leakage Current	160~400 V <sub>dc</sub>		450 V <sub>dc</sub>		Where, I: Max.leakage current (μA),C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)						
	I 0.03CV+15μA		I 0.03CV+25μA								
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )										
	160		200		250		350		400		450
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )										
	160		200		250		350		400		450
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20 °C after DC voltage plus rated ripple current is applied for a specified period of time at 105°C.										
	Capacitance Change		±30% of the initial value		Size(mm)		Load life (hours)				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.										
	Capacitance Change		±20% of the initial value		Size(mm)		Load life (hours)				

■ DIMENSIONS[mm]



∅D	6.3	8	10	12.5
∅d	0.5	0.5	0.6	0.6
F	2.5	3.5	5.0	5.0
∅D'	∅D+0.5max.			
L'	L+2max.			

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)			
	120	1k	10k	100k
160~450	0.50	0.80	0.90	1.00

# CD11GK series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
160	2.2	6.3x9	76	EGK2CM2R2E09---T	
	3.3	6.3x12	92	EGK2CM3R3E12---T	
	4.7	6.3x12	104	EGK2CM4R7E12---T	
	5.6	6.3x12	110	EGK2CM5R6E12---T	
	6.8	6.3x12	124	EGK2CM6R8E12---T	
	8.2	8x9	135	EGK2CM8R2F09---T	
	10	8x9	150	EGK2CM100F09---T	
	15	8x12	190	EGK2CM150F12---T	
	15	10x9	210	EGK2CM150G09---T	
	22	10x12	250	EGK2CM220G12---T	
	33	10x16	412	EGK2CM330G16---T	
	47	10x20	525	EGK2CM470G20---T	
	200	1	6.3x9	52	EGK2DM010E09---T
		1.5	6.3x9	60	EGK2DM1R5E09---T
2.2		6.3x12	72	EGK2DM2R2E12---T	
3.3		6.3x12	88	EGK2DM3R3E12---T	
4.7		6.3x12	102	EGK2DM4R7E12---T	
5.6		8x9	116	EGK2DM5R6F09---T	
6.8		8x9	128	EGK2DM6R8F09---T	
8.2		8x9	144	EGK2DM8R2F09---T	
10		8x12	160	EGK2DM100F12---T	
15		8x16	240	EGK2DM150F16---T	
15		10x12	280	EGK2DM150G12---T	
22		10x16	340	EGK2DM220G16---T	
33		10x20	550	EGK2DM330G20---T	
47		12.5x20	750	EGK2DM470W20---T	
250	1	6.3x9	52	EGK2EM010E09---T	
	1.5	6.3x9	60	EGK2EM1R5E09---T	
	2.2	6.3x12	72	EGK2EM2R2E12---T	
	3.3	6.3x12	92	EGK2EM3R3E12---T	
	4.7	6.3x12	120	EGK2EM4R7E12---T	
	4.7	8x9	125	EGK2EM4R7F09---T	
	5.6	8x9	132	EGK2EM5R6F09---T	
	6.8	8x9	160	EGK2EM6R8F09---T	
	8.2	8x9	172	EGK2EM8R2F09---T	
	10	8x12	200	EGK2EM100F12---T	
	15	10x12	270	EGK2EM150G12---T	
	22	10x16	370	EGK2EM220G16---T	
	33	10x20	562	EGK2EM330G20---T	
	47	12.5x20	788	EGK2EM470W20---T	
350	1	6.3x9	56	EGK2VM010E09---T	
	1.5	6.3x12	66	EGK2VM1R5E12---T	
	1.8	6.3x12	72	EGK2VM1R8E12---T	
	2.2	8x9	80	EGK2VM2R2F09---T	
	2.8	8x12	92	EGK2VM2R8F12---T	
	3.3	8x12	100	EGK2VM3R3F12---T	
	3.3	10x9	120	EGK2VM3R3G09---T	
	4.7	8x12	128	EGK2VM4R7F12---T	
	5.6	8x16	136	EGK2VM5R6F16---T	
	6.8	10x12	168	EGK2VM6R8G12---T	
	8.2	10x16	180	EGK2VM8R2G16---T	
	10	10x16	210	EGK2VM100G16---T	
	15	10x20	290	EGK2VM150G20---T	
	400	1	6.3x12	54	EGK2GM010E12---T
1.2		8x9	60	EGK2GM1R2F09---T	
1.5		8x9	66	EGK2GM1R5F09---T	
1.8		8x9	72	EGK2GM1R8F09---T	
2.2		8x12	82	EGK2GM2R2F12---T	
2.8		8x12	88	EGK2GM2R8F12---T	
3.3		8x12	100	EGK2GM3R3F12---T	
3.3		10x9	110	EGK2GM3R3G09---T	
4.7		10x12	126	EGK2GM4R7G12---T	
5.6		8x20	156	EGK2GM5R6F20---T	
5.6		10x12	158	EGK2GM5R6G12---T	
6.8		8x20	170	EGK2GM6R8F20---T	
6.8		10x16	180	EGK2GM6R8G16---T	

Specifications subject to change without notice.

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
400	8.2	10x16	190	EGK2GM8R2G16---T
	10	10x16	224	EGK2GM100G16---T
	15	12.5x20	300	EGK2GM150W20---T
	1	6.3x12	54	EGK2WM010E12---T
450	1.5	8x12	70	EGK2WM1R5F12---T
	1.8	8x12	80	EGK2WM1R8F12---T
	2.2	8x12	88	EGK2WM2R2F12---T
	2.8	8x16	100	EGK2WM2R8F16---T
	3.3	8x16	110	EGK2WM3R3F16---T
	4.7	10x12	140	EGK2WM4R7G12---T
	5.6	10x16	180	EGK2WM5R6G16---T
	6.8	10x16	200	EGK2WM6R8G16---T
	8.2	10x20	238	EGK2WM8R2G20---T
	10	10x20	284	EGK2WM100G20---T

# CD11GN series

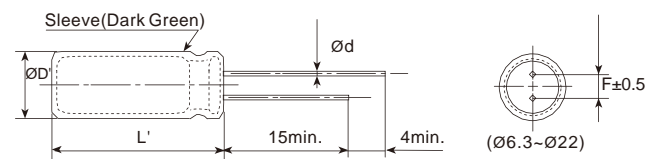
- Endurance: 1,000~2,000 hours at 130°C; 8,000~12,000 hours at 105°C
- Withstand high temperature, miniaturized, long life
- Suitable for output circuit and input circuit of LED driving power.
- RoHS Compliant



■ SPECIFICATIONS

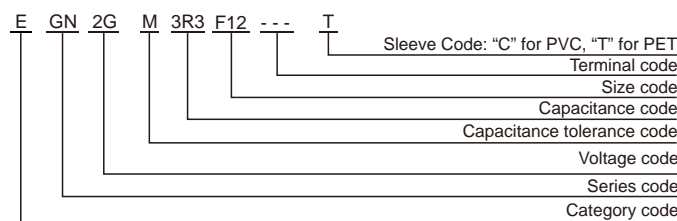
Items	Characteristics							
Category Temperature Range	-40~+130°C(160~ 450 V <sub>dc</sub> )				-40~+105°C(500 V <sub>dc</sub> )			
Rated Voltage Range	160~500 V <sub>dc</sub>							
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)							
Leakage Current	160~400 V <sub>dc</sub>	450~500 V <sub>dc</sub>		Where, I: Max.leakage current (μA),C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)				
	I 0.02CV+10μA	I 0.03CV+10μA						
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450	500
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.24
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450	500
	Z(-25°C)/Z(+20°C)	3	3	3	5	5	6	6
	Z(-40°C)/Z(+20°C)	6	6	6	6	6	9	15
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105°C.							
	Capacitance Change	±20% of the initial value			Case Dia. (mm)	130°C Load life (hours)	105°C Load life (hours)	
	Dissipation Factor	200% of the initial specified value				160~450V <sub>dc</sub>	160~450V <sub>dc</sub> 500V <sub>dc</sub>	
	Leakage Current	The initial specified value			∅D=6.3	1,000	8,000	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.							
	Capacitance Change	±20% of the initial value						
	Dissipation Factor	200% of the initial specified value						
	Leakage Current	200% of the initial specified value						

■ DIMENSIONS[mm]



∅D	6.3	8	10	12.5	16	18	22
∅d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5	10
∅D'	∅D+0.5max.						
L'	L+2max.						

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	Freq.(Hz)			
	120	1k	10k	100k
Cap.<33	0.40	0.70	0.90	1.00
Cap. 33	0.50	0.80	0.90	1.00

# CD11GN series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C/100kHz)	Rated ripple current (mA <sub>RMS</sub> /130°C/100kHz)	Part Number	
160	1	6.3×9	45	30	EGN2CM010E09---T	
	1.5	6.3×9	50	34	EGN2CM1R5E09---T	
	2.2	6.3×9	64	42	EGN2CM2R2E09---T	
	3.3	6.3×9	72	47	EGN2CM3R3E09---T	
	4.7	6.3×9	76	49	EGN2CM4R7E09---T	
	4.7	8×9	82	54	EGN2CM4R7F09---T	
	5.6	8×9	88	58	EGN2CM5R6F09---T	
	6.8	8×9	100	65	EGN2CM6R8F09---T	
	10	8×9	170	110	EGN2CM100F09---T	
	15	8×9	230	150	EGN2CM150F09---T	
	22	8×12	340	221	EGN2CM220F12---T	
	22	10×12	420	273	EGN2CM220G12---T	
	33	10×16	520	340	EGN2CM330G16---T	
	47	10×16	570	371	EGN2CM470G16---T	
	68	10×20	680	442	EGN2CM680G20---T	
	68	12.5×16	680	442	EGN2CM680W16---T	
	100	12.5×20	1100	715	EGN2CM101W20---T	
	150	12.5×25	1200	780	EGN2CM151W25---T	
	150	16×20	1200	780	EGN2CM151L20---T	
	220	16×25	1400	910	EGN2CM221L25---T	
	330	18×30	1655	1075	EGN2CM331M30---T	
	200	1	6.3×9	52	40	EGN2DM010E09---T
1.5		6.3×9	56	42	EGN2DM1R5E09---T	
2.2		6.3×12	74	55	EGN2DM2R2E12---T	
3.3		6.3×12	96	72	EGN2DM3R3E12---T	
4.7		6.3×12	128	102	EGN2DM4R7E12---T	
4.7		8×9	135	107	EGN2DM4R7F09---T	
5.6		8×9	150	120	EGN2DM5R6F09---T	
6.8		8×9	158	125	EGN2DM6R8F09---T	
8.2		8×12	195	150	EGN2DM8R2F12---T	
10		8×12	240	168	EGN2DM100F12---T	
15		8×16	338	235	EGN2DM150F16---T	
22		8×20	382	248	EGN2DM220F20---T	
22		10×16	446	290	EGN2DM220G16---T	
33		10×20	570	370	EGN2DM330G20---T	
33		12.5×16	570	370	EGN2DM330W16---T	
47		12.5×20	628	408	EGN2DM470W20---T	
68		12.5×25	760	494	EGN2DM680W25---T	
68		16×20	800	520	EGN2DM680L20---T	
82		16×20	880	572	EGN2DM820L20---T	
100		12.5×30	1010	657	EGN2DM101W30---T	
100		16×25	1060	690	EGN2DM101L25---T	
150		12.5×40	1120	728	EGN2DM151W40---T	
150	16×30	1220	793	EGN2DM151L30---T		
250	1	6.3×9	52	40	EGN2EM010E09---T	
	1.5	6.3×9	56	42	EGN2EM1R5E09---T	
	2.2	6.3×9	68	50	EGN2EM2R2E09---T	
	3.3	6.3×9	86	65	EGN2EM3R3E09---T	
	4.7	8×12	154	122	EGN2EM4R7F12---T	
	5.6	8×12	165	132	EGN2EM5R6F12---T	
	6.8	8×12	216	162	EGN2EM6R8F12---T	
	8.2	8×12	245	180	EGN2EM8R2F12---T	
	10	8×16	294	205	EGN2EM100F16---T	
	15	8×16	340	221	EGN2EM150F16---T	
	22	10×16	462	300	EGN2EM220G16---T	
	33	12.5×20	610	398	EGN2EM330W20---T	
	47	12.5×20	648	420	EGN2EM470W20---T	
	68	12.5×25	805	523	EGN2EM680W25---T	
	68	16×20	830	540	EGN2EM680L20---T	
	100	12.5×35	966	628	EGN2EM101W35---T	
	100	16×25	1030	668	EGN2EM101L25---T	
	150	12.5×50	1288	838	EGN2EM151W50---T	
	150	16×35	1400	910	EGN2EM151L35---T	
	150	18×25	1330	865	EGN2EM151M25---T	
	350	1	6.3×9	52	40	EGN2VM010E09---T
		1.5	6.3×12	65	50	EGN2VM1R5E12---T

Specifications subject to change without notice.

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C/100kHz)	Rated ripple current (mA <sub>RMS</sub> /130°C/100kHz)	Part Number
350	1.5	8×9	68	52	EGN2VM1R5F09---T
	2.2	6.3×12	78	60	EGN2VM2R2E12---T
	2.2	8×9	82	63	EGN2VM2R2F09---T
	3.3	8×9	95	71	EGN2VM3R3F09---T
	4.7	8×12	135	108	EGN2VM4R7F12---T
	5.6	8×12	140	109	EGN2VM5R6F12---T
	6.8	8×16	170	123	EGN2VM6R8F16---T
	8.2	8×20	250	164	EGN2VM8R2F20---T
	10	10×16	275	178	EGN2VM100G16---T
	15	10×20	380	247	EGN2VM150G20---T
	22	12.5×20	476	309	EGN2VM220W20---T
	33	16×20	600	390	EGN2VM330L20---T
	47	16×20	740	480	EGN2VM470L20---T
	68	18×25	880	572	EGN2VM680M25---T
100	18×30	1160	754	EGN2VM101M30---T	
400	1	6.3×12	66	60	EGN2GM010E12---T
	1.2	6.3×12	68	62	EGN2GM1R2E12---T
	1.5	8×9	75	68	EGN2GM1R5F09---T
	2.2	6.3×12	87	72	EGN2GM2R2E12---T
	3.3	8×12	120	96	EGN2GM3R3F12---T
	4.7	8×12	148	110	EGN2GM4R7F12---T
	5.6	8×12	153	116	EGN2GM5R6F12---T
	5.6	10×12	162	122	EGN2GM5R6G12---T
	6.8	10×16	210	148	EGN2GM6R8G16---T
	8.2	10×16	252	164	EGN2GM8R2G16---T
	10	10×16	288	187	EGN2GM100G16---T
	15	12.5×20	400	260	EGN2GM150W20---T
	22	12.5×20	490	318	EGN2GM220W20---T
	22	12.5×25	532	346	EGN2GM220W25---T
33	16×20	560	364	EGN2GM330L20---T	
47	16×25	700	455	EGN2GM470L25---T	
68	18×25	835	543	EGN2GM680M25---T	
100	18×35	1090	708	EGN2GM101M35---T	
450	1	8×12	68	62	EGN2WM010F12---T
	1.5	8×12	84	74	EGN2WM1R5F12---T
	2.2	8×16	92	78	EGN2WM2R2F16---T
	3.3	8×16	125	100	EGN2WM3R3F16---T
	4.7	8×20	168	125	EGN2WM4R7F20---T
	4.7	10×12	150	110	EGN2WM4R7G12---T
	5.6	10×16	180	135	EGN2WM5R6G16---T
	6.8	10×16	200	132	EGN2WM6R8G16---T
	8.2	10×16	235	153	EGN2WM8R2G16---T
	10	12.5×16	290	188	EGN2WM100W16---T
	15	12.5×20	400	260	EGN2WM150W20---T
	22	16×20	500	325	EGN2WM220L20---T
	47	12.5×45	720	468	EGN2WM470W45---T
	47	16×35	818	532	EGN2WM470L35---T
68	18×30	900	585	EGN2WM680M30---T	
100	18×35	1110	722	EGN2WM101M35---T	
100	18×40	1180	768	EGN2WM101M40---T	
500	10	12.5×20	288	/	EGN2HM100W20---T
	15	12.5×25	396	/	EGN2HM150W25---T
	15	16×20	396	/	EGN2HM150L20---T
	22	12.5×35	504	/	EGN2HM220W35---T
	22	16×25	504	/	EGN2HM220L25---T
	33	18×25	630	/	EGN2HM330M25---T
	47	18×30	792	/	EGN2HM470M30---T
	68	22×35	1100	/	EGN2HM680O35---T
	82	22×35	1200	/	EGN2HM820O35---T
	100	22×35	1480	/	EGN2HM101O35---T

Radial Type

# CD11GZ series

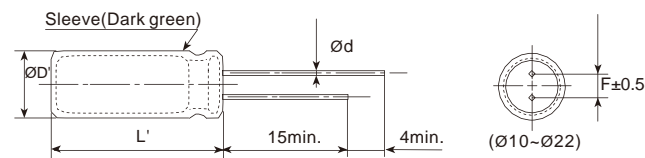
- Endurance: 12,000 hours at 105°C
- Excellent low-temperature characteristics. Suitable for outdoor lighting; long life
- RoHS Compliant



**SPECIFICATIONS**

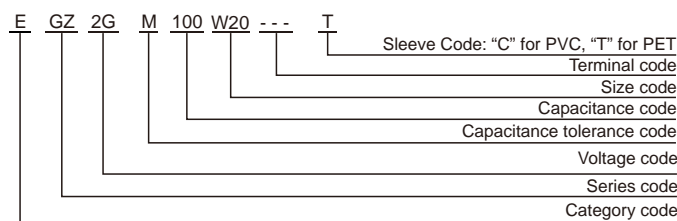
Items	Characteristics					
Category Temperature Range	-40~+105°C					
Rated Voltage Range	250~500 V <sub>dc</sub>					
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)					
Leakage Current	250~400 V <sub>dc</sub>	450~500 V <sub>dc</sub>		Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
	I 0.02CV+10μA	I 0.03CV+10μA				
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	250	350	400	450	500
	Dissipation Factor (Max.)	0.15	0.20	0.20	0.20	0.24
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	250	350	400	450	500
	Z(-25°C)/Z(+20°C)	3	3	3	3	3
	Z(-40°C)/Z(+20°C)	4	4	4	4	4
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 12,000 hours at 105°C (500V <sub>dc</sub> : 10,000 hours).					
	Capacitance Change	±20% of the initial value				
	Dissipation Factor	200% of the initial specified value				
	Leakage Current	The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.					
	Capacitance Change	±20% of the initial value				
	Dissipation Factor	200% of the initial specified value				
	Leakage Current	200% of the initial specified value				

**DIMENSIONS[mm]**



øD	10	12.5	16	18	22
ød	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	10
øD'	øD+0.5max.				
L'	L+2max.				

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Cap.(μF)	Freq.(Hz)			
	120	1k	10k	100k
Cap.<33	0.40	0.70	0.90	1.00
Cap. 33	0.50	0.80	0.90	1.00

# CD11GZ series

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL (mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
250	10	10x16	320	EGZ2EM100G16---T	
	15	10x20	420	EGZ2EM150G20---T	
	22	12.5x16	550	EGZ2EM220W16---T	
	33	12.5x20	800	EGZ2EM330W20---T	
	47	12.5x25	980	EGZ2EM470W25---T	
	68	16x25	1368	EGZ2EM680L25---T	
	82	16x25	1500	EGZ2EM820L25---T	
	100	16x30	1610	EGZ2EM101L30---T	
	150	18x35	2000	EGZ2EM151M35---T	
350	10	10x20	350	EGZ2VM100G20---T	
	15	12.5x20	450	EGZ2VM150W20---T	
	22	12.5x20	650	EGZ2VM220W20---T	
	33	16x20	900	EGZ2VM330L20---T	
	47	16x25	1080	EGZ2VM470L25---T	
	68	18x25	1470	EGZ2VM680M25---T	
	82	18x30	1530	EGZ2VM820M30---T	
	100	18x35	1700	EGZ2VM101M35---T	
	150	18x45	1860	EGZ2VM151M45---T	
400	10	12.5x20	350	EGZ2GM100W20---T	
	15	12.5x25	550	EGZ2GM150W25---T	
	22	16x20	760	EGZ2GM220L20---T	
	33	16x30	1125	EGZ2GM330L30---T	
	47	18x30	1180	EGZ2GM470M30---T	
	68	18x30	1547	EGZ2GM680M30---T	
	82	18x35	1620	EGZ2GM820M35---T	
	100	18x40	1718	EGZ2GM101M40---T	
	120	22x35	1820	EGZ2GM121O35---T	
	150	22x40	1880	EGZ2GM151O40---T	
	450	10	12.5x20	330	EGZ2WM100W20---T
		15	12.5x25	450	EGZ2WM150W25---T
22		16x20	730	EGZ2WM220L20---T	
33		16x30	980	EGZ2WM330L30---T	
47		18x30	1200	EGZ2WM470M30---T	
68		18x35	1500	EGZ2WM680M35---T	
82		18x35	1560	EGZ2WM820M35---T	
100		18x45	1666	EGZ2WM101M45---T	
120		22x40	1780	EGZ2WM121O40---T	
150	22x46	1820	EGZ2WM151O46---T		
500	10	12.5x20	320	EGZ2HM100W20---T	
	15	12.5x25	440	EGZ2HM150W25---T	
	22	16x25	560	EGZ2HM220L25---T	
	33	18x25	700	EGZ2HM330M25---T	
	47	18x30	880	EGZ2HM470M30---T	
	68	22x35	1200	EGZ2HM680O35---T	
82	22x35	1420	EGZ2HM820O35---T		

WV (Vdc)	Cap (μF)	Size DxL (mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
500	100	22x35	1460	EGZ2HM101O35---T
	120	22x40	1560	EGZ2HM121O40---T
	150	22x46	1630	EGZ2HM151O46---T

Specifications subject to change without notice.



# CD11GAS series

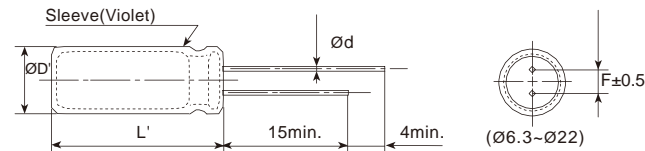
- Miniaturized, long life
- Endurance: 8,000 ~ 10,000 hours at 105°C
- RoHS Compliant



■ SPECIFICATIONS

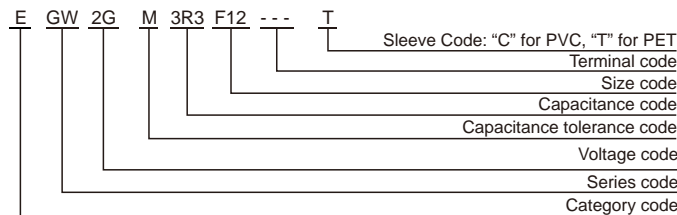
Items	Characteristics									
Category Temperature Range	-40~+105°C									
Rated Voltage Range	140~500 V <sub>dc</sub>									
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)									
Leakage Current	140~400 V <sub>dc</sub>	450~500 V <sub>dc</sub>		Where, I: Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)						
	I 0.02CV+10μA	I 0.03CV+10μA								
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	140	160	200	250	315	350	400	450	500
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.20	0.24
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	140	160	200	250	315	350	400	450	500
	Z(-25°C)/Z(+20°C)	3	3	3	3	5	5	5	6	6
	Z(-40°C)/Z(+20°C)	6	6	6	6	6	6	6	9	15
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 10,000 hours (500 V <sub>dc</sub> : 8,000 hours) at 105°C.									
	Capacitance Change	±20% of the initial value								
	Dissipation Factor	200% of the initial specified value								
	Leakage Current	The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.									
	Capacitance Change	±20% of the initial value								
	Dissipation Factor	200% of the initial specified value								
	Leakage Current	200% of the initial specified value								

■ DIMENSIONS[mm]



øD	6.3	8	10	12.5	16	18	22
ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5	10
øD'	øD+0.5max.						
L'	L+2max.						

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)	120	1k	10k	100k
	140~500	0.50	0.80	0.90	1.00

# CD11GAS series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
140	10	6.3x12	115	EGW2AM100E12---T
	15	6.3x12	145	EGW2AM150E12---T
	22	8x12	270	EGW2AM220F12---T
	33	10x12	380	EGW2AM330G12---T
	47	8x20	480	EGW2AM470F20---T
	68	10x20	570	EGW2AM680G20---T
	100	12.5x16	710	EGW2AM101W16---T
	150	12.5x25	980	EGW2AM151W25---T
	220	16x20	1320	EGW2AM221L20---T
	160	1	6.3x9	40
1.5		6.3x9	45	EGW2CM1R5E09---T
2.2		6.3x9	55	EGW2CM2R2E09---T
3.3		6.3x9	85	EGW2CM3R3E09---T
4.7		6.3x9	92	EGW2CM4R7E09---T
5.6		6.3x9	96	EGW2CM5R6E09---T
6.8		6.3x9	100	EGW2CM6R8E09---T
6.8		8x9	107	EGW2CM6R8F09---T
8.2		6.3x12	150	EGW2CM8R2E12---T
8.2		8x9	150	EGW2CM8R2F09---T
10		8x9	190	EGW2CM100F09---T
12		8x12	265	EGW2CM120F12---T
15		8x12	290	EGW2CM150F12---T
22		8x12	390	EGW2CM220F12---T
22		10x12	430	EGW2CM220G12---T
33		8x16	490	EGW2CM330F16---T
33		10x16	520	EGW2CM330G16---T
47		8x20	620	EGW2CM470F20---T
47		10x16	680	EGW2CM470G16---T
56		10x20	800	EGW2CM560G20---T
68	10x20	950	EGW2CM680G20---T	
68	12.5x16	1060	EGW2CM680W16---T	
82	12.5x20	1260	EGW2CM820W20---T	
100	12.5x20	1350	EGW2CM101W20---T	
150	12.5x25	1750	EGW2CM151W25---T	
150	16x20	1790	EGW2CM151L20---T	
180	16x20	1900	EGW2CM181L20---T	
220	16x25	2130	EGW2CM221L25---T	
330	18x30	2520	EGW2CM331M30---T	
470	18x35	2880	EGW2CM471M35---T	
200	1	6.3x9	50	EGW2DM10E09---T
	1.5	6.3x9	60	EGW2DM1R5E09---T
	2.2	6.3x9	72	EGW2DM2R2E09---T
	3.3	6.3x9	105	EGW2DM3R3E09---T
	4.7	6.3x12	115	EGW2DM4R7E12---T
	4.7	8x9	117	EGW2DM4R7F09---T
	5.6	8x9	120	EGW2DM5R6F09---T
	6.8	8x9	126	EGW2DM6R8F09---T
	8.2	8x9	180	EGW2DM8R2F09---T
	10	8x12	230	EGW2DM100F12---T
	10	10x12	275	EGW2DM100G12---T
	15	8x16	310	EGW2DM150F16---T
	15	10x12	310	EGW2DM150G12---T
	18	10x16	410	EGW2DM180G16---T
	22	10x16	475	EGW2DM220G16---T
	33	10x20	650	EGW2DM330G20---T
	33	12.5x16	650	EGW2DM330W16---T
	47	12.5x16	880	EGW2DM470W16---T
	68	12.5x20	1080	EGW2DM680W20---T
	82	16x20	1380	EGW2DM820L20---T
100	16x20	1420	EGW2DM101L20---T	
150	16x25	1680	EGW2DM151L25---T	
220	18x30	2150	EGW2DM221M30---T	
330	18x35	2250	EGW2DM331M35---T	
250	1	6.3x9	50	EGW2EM10E09---T
	1.5	6.3x9	60	EGW2EM1R5E09---T

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
140	2.2	6.3x9	72	EGW2EM2R2E09---T
	3.3	6.3x9	102	EGW2EM3R3E09---T
	4.7	6.3x12	115	EGW2EM4R7E12---T
	4.7	8x12	120	EGW2EM4R7F12---T
	5.6	8x12	126	EGW2EM5R6F12---T
	6.8	8x12	150	EGW2EM6R8F12---T
	8.2	8x12	200	EGW2EM8R2F12---T
	10	8x12	220	EGW2EM100F12---T
	15	8x16	350	EGW2EM150F16---T
	15	10x12	360	EGW2EM150G12---T
250	18	10x16	450	EGW2EM180G16---T
	22	10x16	480	EGW2EM220G16---T
	33	10x20	600	EGW2EM330G20---T
	33	12.5x16	600	EGW2EM330W16---T
	47	12.5x16	880	EGW2EM470W16---T
	68	12.5x25	1180	EGW2EM680W25---T
	68	16x20	1250	EGW2EM680L20---T
	82	16x20	1320	EGW2EM820L20---T
	100	16x20	1360	EGW2EM101L20---T
	150	16x30	1820	EGW2EM151L30---T
315	150	18x25	1820	EGW2EM151M25---T
	220	18x30	2150	EGW2EM221M30---T
	330	18x40	2310	EGW2EM331M40---T
	2.2	6.3x9	82	EGW2FM2R2E09---T
	3.3	6.3x12	100	EGW2FM3R3E12---T
	4.7	8x9	120	EGW2FM4R7F09---T
	5.6	8x12	142	EGW2FM5R6F12---T
	6.8	8x12	162	EGW2FM6R8F12---T
	8.2	8x12	194	EGW2FM8R2F12---T
	10	10x12	230	EGW2FM100G12---T
350	15	10x16	340	EGW2FM150G16---T
	22	10x20	460	EGW2FM220G20---T
	33	12.5x20	600	EGW2FM330W20---T
	47	12.5x25	680	EGW2FM470W25---T
	1	6.3x9	55	EGW2VM010E09---T
	1.5	6.3x9	65	EGW2VM1R5E09---T
	2.2	6.3x12	86	EGW2VM2R2E12---T
	3.3	8x9	100	EGW2VM3R3F09---T
	4.7	8x12	120	EGW2VM4R7F12---T
	5.6	8x12	150	EGW2VM5R6F12---T
400	6.8	8x12	172	EGW2VM6R8F12---T
	8.2	8x16	215	EGW2VM8R2F16---T
	8.2	10x12	215	EGW2VM8R2G12---T
	10	10x16	260	EGW2VM100G16---T
	15	10x20	380	EGW2VM150G20---T
	22	10x20	460	EGW2VM220G20---T
	33	12.5x20	600	EGW2VM330W20---T
	33	16x20	650	EGW2VM330L20---T
	47	16x20	700	EGW2VM470L20---T
	68	16x25	780	EGW2VM680L25---T
400	68	18x20	780	EGW2VM680M20---T
	82	16x30	1000	EGW2VM820L30---T
	82	18x25	1000	EGW2VM820M25---T
	100	18x30	1210	EGW2VM101M30---T
	1	6.3x9	65	EGW2GM010E09---T
	1.5	6.3x9	70	EGW2GM1R5E09---T
	1.8	6.3x9	72	EGW2GM1R8E09---T
	1.8	8x12	85	EGW2GM1R8F12---T
	2.2	6.3x9	76	EGW2GM2R2E09---T
	2.2	8x12	90	EGW2GM2R2F12---T
400	3.3	6.3x12	95	EGW2GM3R3E12---T
	3.3	8x12	102	EGW2GM3R3F12---T
	3.9	8x12	109	EGW2GM3R9F12---T
	4.7	8x12	120	EGW2GM4R7F12---T

Radial Type

# CD11GAS series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>rms</sub> )(105°C, 100kHz)	Part Number
400	4.7	10×12	128	EGW2GM4R7G12---T
	5.6	8×12	145	EGW2GM5R6F12---T
	5.6	10×12	156	EGW2GM5R6G12---T
	6.8	8×16	206	EGW2GM6R8F16---T
	6.8	10×12	206	EGW2GM6R8G12---T
	8.2	10×12	220	EGW2GM8R2G12---T
	10	10×16	253	EGW2GM100G16---T
	12	10×16	270	EGW2GM120G16---T
	15	10×20	324	EGW2GM150G20---T
	15	12.5×16	324	EGW2GM150W16---T
	22	12.5×20	480	EGW2GM220W20---T
	33	12.5×25	550	EGW2GM330W25---T
	33	16×20	585	EGW2GM330L20---T
	47	16×25	730	EGW2GM470L25---T
	56	16×30	770	EGW2GM560L30---T
	68	16×30	810	EGW2GM680L30---T
	68	18×25	830	EGW2GM680M25---T
	82	18×30	980	EGW2GM820M30---T
	100	18×30	1025	EGW2GM101M30---T
	150	18×40	1340	EGW2GM151M40---T
180	18×45	1470	EGW2GM181M45---T	
450	1	6.3×9	76	EGW2WM010E09---T
	1.5	8×9	82	EGW2WM1R5F09---T
	2.2	8×12	92	EGW2WM2R2F12---T
	3.3	8×12	98	EGW2WM3R3F12---T
	3.3	10×12	105	EGW2WM3R3G12---T
	3.9	8×12	110	EGW2WM3R9F12---T
	3.9	10×12	120	EGW2WM3R9G12---T
	4.7	8×12	120	EGW2WM4R7F12---T
	4.7	10×12	123	EGW2WM4R7G12---T
	5.6	10×12	142	EGW2WM5R6G12---T
	6.8	10×12	175	EGW2WM6R8G12---T
	8.2	10×16	220	EGW2WM8R2G16---T
	10	10×16	255	EGW2WM100G16---T
	10	12.5×20	315	EGW2WM100W20---T
	15	12.5×16	365	EGW2WM150W16---T
	22	12.5×20	480	EGW2WM220W20---T
	22	16×20	530	EGW2WM220L20---T
	33	16×20	600	EGW2WM330L20---T
	47	16×25	720	EGW2WM470L25---T
	56	18×25	1000	EGW2WM560M25---T
68	18×25	1150	EGW2WM680M25---T	
68	18×30	1230	EGW2WM680M30---T	
82	18×30	1320	EGW2WM820M30---T	
100	18×35	1370	EGW2WM101M35---T	
150	18×45	1700	EGW2WM151M45---T	
500	10	12.5×20	288	EGW2HM100W20---T
	15	12.5×20	355	EGW2HM150W20---T
	15	16×20	396	EGW2HM150L20---T
	22	12.5×30	480	EGW2HM220W30---T
	22	16×20	460	EGW2HM220L20---T
	33	16×30	600	EGW2HM330L30---T
	47	18×30	792	EGW2HM470M30---T
	56	18×30	860	EGW2HM560M30---T
	68	18×35	1000	EGW2HM680M35---T
	68	22×35	1070	EGW2HM680O35---T
	82	22×35	1220	EGW2HM820O35---T
	100	22×35	1420	EGW2HM101O35---T

Specifications subject to change without notice.

# CD11GD series

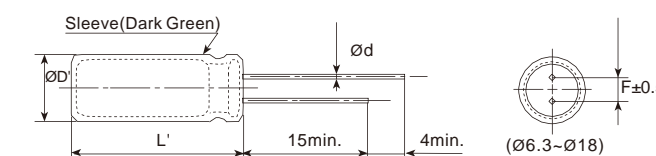
- Endurance: 8,000 hours at 105°C
- Miniaturized and high stability
- RoHS Compliant



SPECIFICATIONS

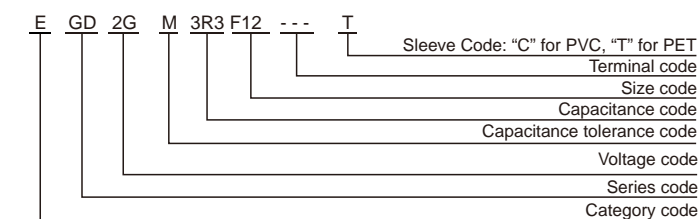
Items	Characteristics										
Category Temperature Range	-40~+105°C										
Rated Voltage Range	140~450 V <sub>dc</sub>										
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)										
Leakage Current	140~400 V <sub>dc</sub>		450V <sub>dc</sub>		Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)						
	0.02CV+10μA		0.03CV+10μA								
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	140	160	200	250	315	350	400	450	(at 20°C, 120Hz)	
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.20		
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	140	160	200	250	315	350	400	450	(at 120Hz)	
	Z(-25°C)/Z(+20°C)	3	3	3	3	5	5	5	6		
	Z(-40°C)/Z(+20°C)	6	6	6	6	6	6	6	9		
	The specifications listed below shall be satisfied when the capacitors are restored to 20 °C after DC voltage plus rated ripple current is applied for 8,000 hours at 105°C.										
Endurance	Capacitance Change	±20% of the initial value									
	Dissipation Factor	200% of the initial specified value									
	Leakage Current	The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.										
	Capacitance Change	±20% of the initial value									
	Dissipation Factor	200% of the initial specified value									
	Leakage Current	200% of the initial specified value									

DIMENSIONS[mm]



ØD	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.					
L'	L+2max.					

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)			
	120	1k	10k	100k
140~450	0.50	0.80	0.90	1.00



# CD11GD series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
140	15	6.3×12	125	EGD2AM150E12---T
	22	8×12	250	EGD2AM220F12---T
	33	10×12	365	EGD2AM330G12---T
	47	8×20	430	EGD2AM470F20---T
	68	10×20	520	EGD2AM680G20---T
	100	12.5×16	650	EGD2AM101W16---T
	150	12.5×25	750	EGD2AM151W25---T
220	16×20	850	EGD2AM221L20---T	
160	1	6.3×9	36	EGD2CM010E09---T
	1.5	6.3×9	45	EGD2CM1R5E09---T
	2.2	6.3×9	56	EGD2CM2R2E09---T
	3.3	6.3×9	65	EGD2CM3R3E09---T
	4.7	6.3×12	72	EGD2CM4R7E12---T
	5.6	6.3×12	74	EGD2CM5R6E12---T
	6.8	6.3×12	84	EGD2CM6R8E12---T
	8.2	6.3×12	120	EGD2CM8R2E12---T
	8.2	8×9	135	EGD2CM8R2F09---T
	10	6.3×12	145	EGD2CM100E12---T
	10	8×9	165	EGD2CM100F09---T
	12	8×9	180	EGD2CM120F09---T
	15	8×9	192	EGD2CM150F09---T
	22	8×12	267	EGD2CM220F12---T
22	10×12	330	EGD2CM220G12---T	
33	10×12	400	EGD2CM330G12---T	
47	10×16	455	EGD2CM470G16---T	
56	10×20	530	EGD2CM560G20---T	
68	10×20	550	EGD2CM680G20---T	
68	12.5×16	565	EGD2CM680W16---T	
82	12.5×20	640	EGD2CM820W20---T	
100	12.5×20	700	EGD2CM101W20---T	
150	12.5×25	755	EGD2CM151W25---T	
150	16×20	760	EGD2CM151L20---T	
220	16×25	900	EGD2CM221L25---T	
330	18×30	1100	EGD2CM331M30---T	
200	1	6.3×9	38	EGD2DM010E09---T
	1.5	6.3×9	50	EGD2DM1R5E09---T
	2.2	6.3×9	60	EGD2DM2R2E09---T
	3.3	6.3×9	72	EGD2DM3R3E09---T
	4.7	6.3×9	76	EGD2DM4R7E09---T
	5.6	6.3×12	90	EGD2DM5R6E12---T
	5.6	8×9	92	EGD2DM5R6F09---T
	6.8	6.3×12	94	EGD2DM6R8E12---T
	6.8	8×9	98	EGD2DM6R8F09---T
	8.2	8×9	145	EGD2DM8R2F09---T
	10	8×9	165	EGD2DM100F09---T
	15	8×12	200	EGD2DM150F12---T
	22	8×16	320	EGD2DM220F16---T
	22	10×12	320	EGD2DM220G12---T
	33	10×16	425	EGD2DM330G16---T
	33	12.5×13	430	EGD2DM330W13---T
	47	10×20	520	EGD2DM470G20---T
	47	12.5×16	520	EGD2DM470W16---T
68	12.5×20	600	EGD2DM680W20---T	
82	12.5×20	670	EGD2DM820W20---T	
100	12.5×25	720	EGD2DM101W25---T	
100	16×20	720	EGD2DM101L20---T	
150	16×25	820	EGD2DM151L25---T	
150	16×30	895	EGD2DM151L30---T	
250	1	6.3×9	40	EGD2EM010E09---T
	1.5	6.3×9	54	EGD2EM1R5E09---T
	2.2	6.3×9	62	EGD2EM2R2E09---T
	3.3	6.3×9	75	EGD2EM3R3E09---T
	4.7	6.3×12	92	EGD2EM4R7E12---T

WV (Vdc)	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
250	4.7	8×9	92	EGD2EM4R7F09---T
	5.6	8×12	105	EGD2EM5R6F12---T
	6.8	8×12	109	EGD2EM6R8F12---T
	8.2	8×12	132	EGD2EM8R2F12---T
	10	8×12	200	EGD2EM100F12---T
	15	8×16	225	EGD2EM150F16---T
	15	10×12	225	EGD2EM150G12---T
	22	10×16	380	EGD2EM220G16---T
	33	10×20	430	EGD2EM330G20---T
	33	12.5×16	450	EGD2EM330W16---T
	47	12.5×16	520	EGD2EM470W16---T
	68	12.5×25	660	EGD2EM680W25---T
	68	16×20	660	EGD2EM680L20---T
	82	16×20	720	EGD2EM820L20---T
100	16×20	765	EGD2EM101L20---T	
150	16×30	885	EGD2EM151L30---T	
150	18×25	885	EGD2EM151M25---T	
315	2.2	6.3×9	66	EGD2FM2R2E09---T
	3.3	6.3×9	74	EGD2FM3R3E09---T
	4.7	6.3×12	90	EGD2FM4R7E12---T
	5.6	8×9	95	EGD2FM5R6F09---T
	6.8	8×9	102	EGD2FM6R8F09---T
	8.2	8×12	125	EGD2FM8R2F12---T
	10	10×12	205	EGD2FM100G12---T
	15	10×16	260	EGD2FM150G16---T
	22	10×20	370	EGD2FM220G20---T
	33	12.5×20	450	EGD2FM330W20---T
	47	12.5×25	630	EGD2FM470W25---T
350	1	6.3×9	45	EGD2VM010E09---T
	1.5	6.3×9	55	EGD2VM1R5E09---T
	2.2	6.3×12	70	EGD2VM2R2E12---T
	2.2	8×9	72	EGD2VM2R2F09---T
	3.3	6.3×12	77	EGD2VM3R3E12---T
	3.3	8×9	78	EGD2VM3R3F09---T
	4.7	8×9	90	EGD2VM4R7F09---T
	4.7	8×12	102	EGD2VM4R7F12---T
	5.6	8×12	110	EGD2VM5R6F12---T
	6.8	8×12	120	EGD2VM6R8F12---T
	8.2	8×16	140	EGD2VM8R2F16---T
	8.2	10×12	140	EGD2VM8R2G12---T
	10	8×20	226	EGD2VM100F20---T
	10	10×12	205	EGD2VM100G12---T
	15	10×16	260	EGD2VM150G16---T
	22	10×20	370	EGD2VM220G20---T
	22	12.5×16	370	EGD2VM220W16---T
	33	12.5×20	450	EGD2VM330W20---T
47	16×20	600	EGD2VM470L20---T	
68	16×25	720	EGD2VM680L25---T	
68	18×20	720	EGD2VM680M20---T	
82	16×30	770	EGD2VM820L30---T	
82	18×25	770	EGD2VM820M25---T	
100	16×30	850	EGD2VM101L30---T	
100	18×25	850	EGD2VM101M25---T	
400	1	6.3×9	55	EGD2GM010E09---T
	1.5	6.3×9	65	EGD2GM1R5E09---T
	2.2	6.3×12	72	EGD2GM2R2E12---T
	2.2	8×9	75	EGD2GM2R2F09---T
	3.3	8×9	85	EGD2GM3R3F09---T
	3.3	8×12	91	EGD2GM3R3F12---T
	4.7	8×9	92	EGD2GM4R7F09---T
	4.7	8×12	104	EGD2GM4R7F12---T
5.6	8×12	114	EGD2GM5R6F12---T	

# CD11GD series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
400	5.6	10×12	124	EGD2GM5R6G12---T
	6.8	8×12	125	EGD2GM6R8F12---T
	6.8	10×12	140	EGD2GM6R8G12---T
	8.2	10×12	185	EGD2GM8R2G12---T
	8.2	10×16	218	EGD2GM8R2G16---T
	10	10×16	230	EGD2GM100G16---T
	15	10×20	255	EGD2GM150G20---T
	22	12.5×20	400	EGD2GM220W20---T
	33	12.5×25	520	EGD2GM330W25---T
	33	16×20	520	EGD2GM330L20---T
	47	12.5×30	575	EGD2GM470W30---T
	47	16×25	590	EGD2GM470L25---T
	68	16×30	680	EGD2GM680L30---T
	68	18×25	700	EGD2GM680M25---T
82	18×25	770	EGD2GM820M25---T	
100	18×30	900	EGD2GM101M30---T	
150	18×40	1250	EGD2GM151M40---T	
450	1	6.3×9	55	EGD2WM010E09---T
	1.5	6.3×9	62	EGD2WM1R5E09---T
	1.5	8×9	65	EGD2WM1R5F09---T
	2.2	8×12	74	EGD2WM2R2F12---T
	3.3	8×12	80	EGD2WM3R3F12---T
	4.7	8×12	84	EGD2WM4R7F12---T
	4.7	10×12	94	EGD2WM4R7G12---T
	5.6	8×12	96	EGD2WM5R6F12---T
	5.6	10×12	102	EGD2WM5R6G12---T
	6.8	8×16	130	EGD2WM6R8F16---T
	6.8	10×12	130	EGD2WM6R8G12---T
	8.2	10×16	185	EGD2WM8R2G16---T
	10	10×16	218	EGD2WM100G16---T
	15	12.5×16	300	EGD2WM150W16---T
	22	12.5×20	385	EGD2WM220W20---T
	33	12.5×25	485	EGD2WM330W25---T
	33	16×20	495	EGD2WM330L20---T
	47	12.5×35	595	EGD2WM470W35---T
47	16×25	630	EGD2WM470L25---T	
68	18×25	740	EGD2WM680M25---T	
82	18×30	800	EGD2WM820M30---T	
100	18×35	890	EGD2WM101M35---T	
150	18×45	1085	EGD2WM151M45---T	

Specifications subject to change without notice.



# CD11GHS series

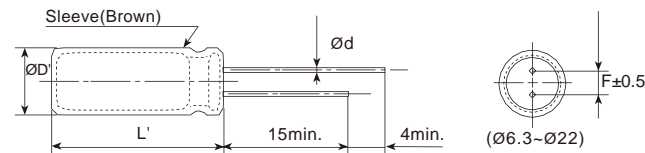
- Miniaturized, long life, economical type
- Endurance: 6,000 hours at 105°C
- RoHS Compliant



■ SPECIFICATIONS

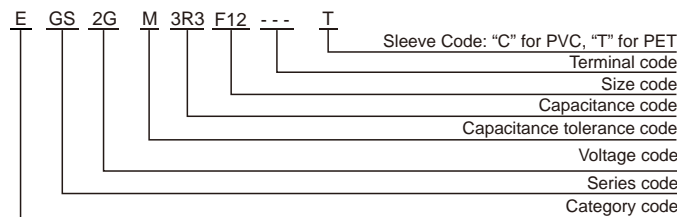
Items	Characteristics											
Category Temperature Range	-40~+105°C											
Rated Voltage Range	140~500 V <sub>dc</sub>											
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)											
Leakage Current	140~400 V <sub>dc</sub>	450~500 V <sub>dc</sub>								Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
	I 0.02CV+10μA	I 0.03CV+10μA										
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	140	160	200	250	315	350	400	450	500	(at 20°C, 120Hz)	
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.20	0.24		
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	140	160	200	250	315	350	400	450	500	(at 120Hz)	
	Z(-25°C)/Z(+20°C)	3	3	3	3	5	5	5	6	6		
	Z(-40°C)/Z(+20°C)	6	6	6	6	6	6	6	9	15		
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 6,000 hours at 105°C.											
	Capacitance Change	±20% of the initial value										
	Dissipation Factor	200% of the initial specified value										
	Leakage Current	The initial specified value										
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.											
	Capacitance Change	±20% of the initial value										
	Dissipation Factor	200% of the initial specified value										
	Leakage Current	200% of the initial specified value										

■ DIMENSIONS[mm]



øD	6.3	8	10	12.5	13	16	18	22
ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	10
øD'	øD+0.5max.							
L'	L+2max.							

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)	120	1k	10k	100k
	140~500	0.50	0.80	0.90	1.00

# CD11GHS series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA rms/105°C/100kHz)	Part Number	
140	10	6.3x12	100	EGS2AM100E12---T	
	15	6.3x12	125	EGS2AM150E12---T	
	22	8x12	250	EGS2AM220F12---T	
	33	10x12	365	EGS2AM330G12---T	
	47	8x20	430	EGS2AM470F20---T	
	68	10x20	520	EGS2AM680G20---T	
	100	12.5x16	650	EGS2AM101W16---T	
	150	12.5x25	750	EGS2AM151W25---T	
160	220	16x20	850	EGS2AM221L20---T	
	1	6.3x9	36	EGS2CM010E09---T	
	1.5	6.3x9	45	EGS2CM1R5E09---T	
	2.2	6.3x9	56	EGS2CM2R2E09---T	
	3.3	6.3x9	67	EGS2CM3R3E09---T	
	4.7	6.3x9	72	EGS2CM4R7E09---T	
	5.6	6.3x9	75	EGS2CM5R6E09---T	
	6.8	6.3x9	84	EGS2CM6R8E09---T	
	8.2	6.3x9	105	EGS2CM8R2E09---T	
	10	6.3x12	145	EGS2CM100E12---T	
160	10	8x9	165	EGS2CM100F09---T	
	15	8x9	215	EGS2CM150F09---T	
	22	8x12	306	EGS2CM220F12---T	
	22	10x12	350	EGS2CM220G12---T	
	33	10x12	400	EGS2CM330G12---T	
	47	10x16	460	EGS2CM470G16---T	
	68	10x20	560	EGS2CM680G20---T	
	68	12.5x16	570	EGS2CM680W16---T	
	82	12.5x20	665	EGS2CM820W20---T	
	100	12.5x20	720	EGS2CM101W20---T	
	150	12.5x25	780	EGS2CM151W25---T	
	150	16x20	780	EGS2CM151L20---T	
	220	16x25	980	EGS2CM221L25---T	
	330	18x30	1145	EGS2CM331M30---T	
200	1	6.3x9	38	EGS2DM010E09---T	
	1.5	6.3x9	50	EGS2DM1R5E09---T	
	2.2	6.3x9	60	EGS2DM2R2E09---T	
	3.3	6.3x9	74	EGS2DM3R3E09---T	
	4.7	6.3x12	90	EGS2DM4R7E12---T	
	5.6	6.3x12	95	EGS2DM5R6E12---T	
	5.6	8x9	95	EGS2DM5R6F09---T	
	6.8	8x12	120	EGS2DM6R8F12---T	
	8.2	8x12	160	EGS2DM8R2F12---T	
	10	8x12	185	EGS2DM100F12---T	
	15	8x16	250	EGS2DM150F16---T	
	22	10x16	400	EGS2DM220G16---T	
	33	10x20	450	EGS2DM330G20---T	
	47	10x20	550	EGS2DM470G20---T	
	47	12.5x20	610	EGS2DM470W20---T	
	68	12.5x20	635	EGS2DM680W20---T	
	82	12.5x20	705	EGS2DM820W20---T	
	100	12.5x25	735	EGS2DM101W25---T	
100	16x20	735	EGS2DM101L20---T		
150	16x25	855	EGS2DM151L25---T		
150	16x30	920	EGS2DM151L30---T		
250	1	6.3x9	40	EGS2EM010E09---T	
	1.5	6.3x9	54	EGS2EM1R5E09---T	
	2.2	6.3x9	71	EGS2EM2R2E09---T	
	3.3	6.3x12	83	EGS2EM3R3E12---T	
	4.7	6.3x12	91	EGS2EM4R7E12---T	
	4.7	8x12	102	EGS2EM4R7F12---T	
	5.6	8x9	95	EGS2EM5R6F09---T	
	6.8	8x12	109	EGS2EM6R8F12---T	
	8.2	8x12	132	EGS2EM8R2F12---T	
	10	8x12	170	EGS2EM100F12---T	
	10	10x12	210	EGS2EM100G12---T	
	250	15	8x16	295	EGS2EM150F16---T
		15	10x12	295	EGS2EM150G12---T
		22	8x16	360	EGS2EM220F16---T
22		10x16	400	EGS2EM220G16---T	
33		10x20	480	EGS2EM330G20---T	
33		12.5x20	530	EGS2EM330W20---T	
47		12.5x20	627	EGS2EM470W20---T	
68		12.5x25	675	EGS2EM680W25---T	
68		16x20	675	EGS2EM680L20---T	
82		16x20	730	EGS2EM820L20---T	
100		16x20	780	EGS2EM101L20---T	
150		16x30	930	EGS2EM151L30---T	
150		18x25	930	EGS2EM151M25---T	
315		2.2	6.3x9	71	EGS2FM2R2E09---T
		3.3	6.3x9	78	EGS2FM3R3E09---T
	4.7	6.3x12	95	EGS2FM4R7E12---T	
	5.6	8x9	100	EGS2FM5R6F09---T	
	6.8	8x9	110	EGS2FM6R8F09---T	
	8.2	8x12	130	EGS2FM8R2F12---T	
	10	10x12	215	EGS2FM100G12---T	
	15	10x16	325	EGS2FM150G16---T	
	22	10x20	420	EGS2FM220G20---T	
	33	12.5x20	540	EGS2FM330W20---T	
	47	12.5x25	645	EGS2FM470W25---T	
	350	1	6.3x9	58	EGS2VM010E09---T
		1.5	6.3x9	68	EGS2VM1R5E09---T
		2.2	6.3x9	85	EGS2VM2R2E09---T
		3.3	8x12	110	EGS2VM3R3F12---T
4.7		8x12	120	EGS2VM4R7F12---T	
5.6		8x12	130	EGS2VM5R6F12---T	
6.8		8x12	160	EGS2VM6R8F12---T	
8.2		8x16	190	EGS2VM8R2F16---T	
10		8x16	210	EGS2VM100F16---T	
10		10x16	230	EGS2VM100G16---T	
15		10x16	280	EGS2VM150G16---T	
22		10x20	385	EGS2VM220G20---T	
22		12.5x20	430	EGS2VM220W20---T	
33		12.5x20	515	EGS2VM330W20---T	
47		16x20	650	EGS2VM470L20---T	
68	16x25	760	EGS2VM680L25---T		
68	18x20	760	EGS2VM680M20---T		
82	16x30	910	EGS2VM820L30---T		
82	18x25	910	EGS2VM820M25---T		
100	16x30	960	EGS2VM101L30---T		
100	18x25	960	EGS2VM101M25---T		
400	1	6.3x9	70	EGS2GM010E09---T	
	1.5	6.3x9	74	EGS2GM1R5E09---T	
	2.2	6.3x9	85	EGS2GM2R2E09---T	
	2.2	8x9	90	EGS2GM2R2F09---T	
	3.3	8x12	120	EGS2GM3R3F12---T	
	4.7	8x12	140	EGS2GM4R7F12---T	
	5.6	8x12	150	EGS2GM5R6F12---T	
	5.6	10x12	160	EGS2GM5R6G12---T	
	6.8	8x12	165	EGS2GM6R8F12---T	
	6.8	10x12	180	EGS2GM6R8G12---T	
	8.2	10x12	200	EGS2GM8R2G12---T	
	10	10x16	252	EGS2GM100G16---T	
	12	10x20	290	EGS2GM120G20---T	
	15	10x20	300	EGS2GM150G20---T	
	15	12.5x20	320	EGS2GM150W20---T	

# CD11GHS series

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
400	22	12.5×20	400	EGS2GM220W20---T
	33	13×20	465	EGS2GM330K20---T
	33	16×20	520	EGS2GM330L20---T
	47	16×20	580	EGS2GM470L20---T
	56	16×25	650	EGS2GM560L25---T
	68	16×25	710	EGS2GM680L25---T
	68	18×25	760	EGS2GM680M25---T
	82	16×30	810	EGS2GM820L30---T
	82	18×25	810	EGS2GM820M25---T
	100	18×30	920	EGS2GM101M30---T
150	18×40	1280	EGS2GM151M40---T	
450	1	6.3×9	60	EGS2WM010E09---T
	1.5	8×9	70	EGS2WM1R5F09---T
	2.2	8×9	93	EGS2WM2R2F09---T
	3.3	8×12	120	EGS2WM3R3F12---T
	4.7	8×12	130	EGS2WM4R7F12---T
	5.6	10×12	150	EGS2WM5R6G12---T
	6.8	10×12	170	EGS2WM6R8G12---T
	8.2	10×16	210	EGS2WM8R2G16---T
	10	10×16	235	EGS2WM100G16---T
	15	12.5×20	350	EGS2WM150W20---T
	22	12.5×20	425	EGS2WM220W20---T
	33	12.5×25	470	EGS2WM330W25---T
	33	16×20	510	EGS2WM330L20---T
	47	16×25	640	EGS2WM470L25---T
	68	18×25	760	EGS2WM680M25---T
82	18×30	860	EGS2WM820M30---T	
100	18×35	940	EGS2WM101M35---T	
150	18×45	1100	EGS2WM151M45---T	
500	10	12.5×20	259	EGS2HM100W20---T
	15	12.5×20	320	EGS2HM150W20---T
	15	16×20	356	EGS2HM150L20---T
	22	16×20	405	EGS2HM220L20---T
	33	18×25	567	EGS2HM330M25---T
	47	18×30	713	EGS2HM470M30---T
	56	18×30	770	EGS2HM560M30---T
	68	18×35	900	EGS2HM680M35---T
	68	22×35	1000	EGS2HM680O35---T
	82	22×35	1150	EGS2HM820O35---T
100	22×35	1400	EGS2HM101O35---T	

Specifications subject to change without notice.

# CD11GM series

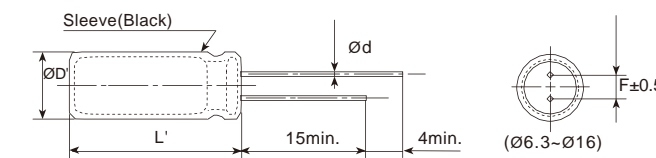


- Endurance: 3,000 hours at 105°C
- Economical type, miniaturized
- RoHS Compliant

SPECIFICATIONS

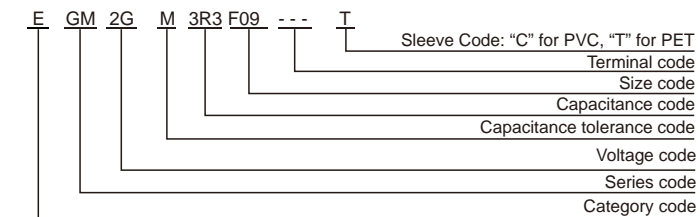
Items	Characteristics					
Category Temperature Range	-40~+105°C					
Rated Voltage Range	160~450 V <sub>dc</sub>					
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)					
Leakage Current	160~400 V <sub>dc</sub>	450 V <sub>dc</sub>		Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
	I 0.02CV+25μA	I 0.03CV+25μA				
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160	200	250	400	450
	Dissipation Factor (Max.)	0.15	0.15	0.15	0.20	0.20
		(at 20°C, 120Hz)				
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160	200	250	400	450
	Z(-25°C)/Z(+20°C)	3	3	3	5	6
	Z(-40°C)/Z(+20°C)	6	6	6	6	9
		(at 120Hz)				
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 3,000 hours at 105°C.					
	Capacitance Change	±20% of the initial value				
	Dissipation Factor	200% of the initial specified value				
	Leakage Current	The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.					
	Capacitance Change	±20% of the initial value				
	Dissipation Factor	200% of the initial specified value				
	Leakage Current	500% of the initial specified value				

DIMENSIONS[mm]



øD	6.3	8	10	12.5	13	16
ød	0.5	0.5	0.6	0.6	0.6	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5
øD'	øD+0.5max.					
L'	L+2max.					

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(V <sub>dc</sub> )	Freq.(Hz)			
	120	1k	10k	100k
160-450	0.50	0.80	0.90	1.00

# CD11GM series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
160	4.7	6.3×9	54	EGM2CM4R7E09---T	
	5.6	6.3×9	58	EGM2CM5R6E09---T	
	6.8	6.3×12	70	EGM2CM6R8E12---T	
	8.2	6.3×12	100	EGM2CM8R2E12---T	
	10	6.3×12	135	EGM2CM100E12---T	
	10	8×9	135	EGM2CM100F09---T	
	15	8×9	155	EGM2CM150F09---T	
	22	8×12	220	EGM2CM220F12---T	
	22	10×12	260	EGM2CM220G12---T	
	33	10×16	320	EGM2CM330G16---T	
	47	10×16	365	EGM2CM470G16---T	
	56	10×20	450	EGM2CM560G20---T	
	68	10×20	500	EGM2CM680G20---T	
	100	12.5×20	650	EGM2CM101W20---T	
200	4.7	6.3×9	52	EGM2DM4R7E09---T	
	5.6	6.3×12	62	EGM2DM5R6E12---T	
	6.8	6.3×12	76	EGM2DM6R8E12---T	
	6.8	8×9	76	EGM2DM6R8F09---T	
	8.2	8×12	95	EGM2DM8R2F12---T	
	10	8×12	145	EGM2DM100F12---T	
	15	8×12	170	EGM2DM150F12---T	
	22	8×16	255	EGM2DM220F16---T	
	22	10×12	255	EGM2DM220G12---T	
	33	10×16	330	EGM2DM330G16---T	
	47	10×20	420	EGM2DM470G20---T	
	56	12.5×20	500	EGM2DM560W20---T	
	250	2.2	6.3×9	48	EGM2EM2R2E09---T
		3.3	6.3×12	78	EGM2EM3R3E12---T
4.7		6.3×12	85	EGM2EM4R7E12---T	
4.7		8×12	90	EGM2EM4R7F12---T	
6.8		8×12	96	EGM2EM6R8F12---T	
8.2		8×12	100	EGM2EM8R2F12---T	
10		8×12	150	EGM2EM100F12---T	
15		8×16	195	EGM2EM150F16---T	
15		10×12	195	EGM2EM150G12---T	
22		10×16	280	EGM2EM220G16---T	
33		10×20	360	EGM2EM330G20---T	
33		12.5×16	360	EGM2EM330W16---T	
47		12.5×20	455	EGM2EM470W20---T	
400		1	6.3×9	35	EGM2GM010E09---T
	1.5	6.3×9	40	EGM2GM1R5E09---T	
	2.2	6.3×12	60	EGM2GM2R2E12---T	
	2.2	8×9	60	EGM2GM2R2F09---T	
	3.3	6.3×12	70	EGM2GM3R3E12---T	
	3.3	8×9	70	EGM2GM3R3F09---T	
	4.7	8×12	95	EGM2GM4R7F12---T	
	5.6	8×12	108	EGM2GM5R6F12---T	
	6.8	8×12	117	EGM2GM6R8F12---T	
	6.8	10×12	130	EGM2GM6R8G12---T	
	10	8×16	170	EGM2GM100F16---T	
	10	10×12	170	EGM2GM100G12---T	
	15	10×16	230	EGM2GM150G16---T	
	22	10×20	320	EGM2GM220G20---T	
22	12.5×16	320	EGM2GM220W16---T		
33	13×20	445	EGM2GM330K20---T		
47	16×20	600	EGM2GM470L20---T		
450	2.2	6.3×12	65	EGM2WM2R2E12---T	
	2.2	8×9	65	EGM2WM2R2F09---T	
	3.3	8×12	85	EGM2WM3R3F12---T	
	4.7	8×12	105	EGM2WM4R7F12---T	
	6.8	10×12	140	EGM2WM6R8G12---T	
	10	10×16	205	EGM2WM100G16---T	
	15	10×20	265	EGM2WM150G20---T	
	22	12.5×20	360	EGM2WM220W20---T	
	33	16×20	500	EGM2WM330L20---T	
	47	16×25	665	EGM2WM470L25---T	

Specifications subject to change without notice.

# RR series

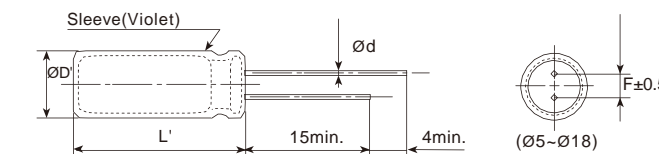
- High frequency, low impedance, high reliability
- Endurance: 2,000 hours at 105°C
- Suitable for switching power, UPS, power sources, etc.
- RoHS Compliant



SPECIFICATIONS

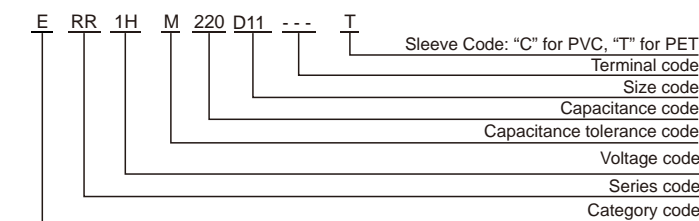
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Voltage Range	6.3~120 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 80 100 120 Dissipation Factor (Max.) 0.22 0.18 0.14 0.12 0.10 0.08 0.08 0.08 0.08 0.12 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 80 100 120 Z(-25°C)/Z(+20°C) 2 2 2 2 2 2 2 2 2 3 (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 2,000 hours at 105 °C. Capacitance Change ±20% of the initial value ( 6.3-10 V <sub>dc</sub> : ±30%) Dissipation Factor 200% of the initial specified value Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours. Capacitance Change ±20% of the initial value ( 6.3-10 V <sub>dc</sub> : ±30%) Dissipation Factor 200% of the initial specified value Leakage Current 200% of the initial specified value

DIMENSIONS[mm]



øD	5	6.3	8	10	12.5	13	16	18
ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
øD'	øD+0.5max.							
L'	L+2max.							

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF) \ Freq.(Hz)	120	1k	10k	100k
Cap. <220	0.40	0.75	0.90	1.00
220 Cap. <680	0.50	0.85	0.94	1.00
680 Cap. <2200	0.60	0.87	0.95	1.00
2200 Cap. <4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00



RR series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
6.3	220	6.3x7	0.350	218	ERR0JM221E07---T	
	330	6.3x9	0.200	350	ERR0JM331E09---T	
	470	6.3x9	0.180	400	ERR0JM471E09---T	
	560	6.3x11	0.180	480	ERR0JM561E11---T	
	560	8x9	0.120	550	ERR0JM561F09---T	
	820	8x16	0.056	995	ERR0JM821F16---T	
	820	10x9	0.085	800	ERR0JM821G09---T	
	1000	10x13	0.053	1030	ERR0JM102G13---T	
	1200	8x20	0.041	1250	ERR0JM122F20---T	
	1200	10x16	0.038	1430	ERR0JM122G16---T	
	1500	10x20	0.023	1820	ERR0JM152G20---T	
	2200	10x25	0.022	2150	ERR0JM222G25---T	
	3900	12.5x25	0.018	2770	ERR0JM392W25---T	
	4700	12.5x30	0.016	3290	ERR0JM472W30---T	
	5600	12.5x35	0.015	3400	ERR0JM562W35---T	
	5600	16x20	0.018	3140	ERR0JM562L20---T	
	6800	16x25	0.016	3460	ERR0JM682L25---T	
	10	100	5x11	0.550	250	ERR1AM101D11---T
150		5x12	0.500	300	ERR1AM151D12---T	
220		6.3x11	0.130	405	ERR1AM221E11---T	
330		6.3x11	0.120	471	ERR1AM331E11---T	
470		6.3x12	0.091	630	ERR1AM471E12---T	
470		8x11	0.072	760	ERR1AM471F11---T	
680		8x12	0.070	830	ERR1AM681F12---T	
680		10x13	0.053	1030	ERR1AM681G13---T	
820		8x12	0.055	950	ERR1AM821F12---T	
1000		8x16	0.050	1074	ERR1AM102F16---T	
1000		10x16	0.038	1430	ERR1AM102G16---T	
1200		10x16	0.034	1550	ERR1AM122G16---T	
1500		10x16	0.034	1587	ERR1AM152G16---T	
2200		10x20	0.031	1978	ERR1AM222G20---T	
2200		12.5x20	0.028	2360	ERR1AM222W20---T	
3300		12.5x20	0.025	2490	ERR1AM332W20---T	
4700		13x25	0.022	2835	ERR1AM472K25---T	
5600		16x25	0.016	3460	ERR1AM562L25---T	
16	100	5x11	0.570	320	ERR1CM101D11---T	
	100	6.3x11	0.350	326	ERR1CM101E11---T	
	220	6.3x11	0.120	530	ERR1CM221E11---T	
	220	8x11	0.085	570	ERR1CM221F11---T	
	330	6.3x12	0.110	564	ERR1CM331E12---T	
	330	8x12	0.072	760	ERR1CM331F12---T	
	470	8x16	0.056	795	ERR1CM471F16---T	
	470	10x13	0.053	1030	ERR1CM471G13---T	
	680	8x16	0.045	1070	ERR1CM681F16---T	
	1000	8x16	0.043	1380	ERR1CM102F16---T	
	1000	10x13	0.052	1380	ERR1CM102G13---T	
	1500	10x20	0.031	1980	ERR1CM152G20---T	
	2200	12.5x20	0.040	2640	ERR1CM222W20---T	
	3300	13x25	0.024	2850	ERR1CM332K25---T	
	4700	16x25	0.016	3560	ERR1CM472L25---T	
	25	47	5x11	0.720	250	ERR1EM470D11---T
		68	5x11	0.650	260	ERR1EM680D11---T
		100	5x11	0.400	350	ERR1EM101D11---T
100		6.3x11	0.280	405	ERR1EM101E11---T	
220		6.3x12	0.140	597	ERR1EM221E12---T	
220		8x11	0.072	760	ERR1EM221F11---T	
330		8x12	0.085	930	ERR1EM331F12---T	
470		8x16	0.055	1010	ERR1EM471F16---T	
470		10x13	0.057	1200	ERR1EM471G13---T	
680		8x16	0.057	980	ERR1EM681F16---T	
680		10x16	0.050	1280	ERR1EM681G16---T	
820		10x20	0.036	1500	ERR1EM821G20---T	
1000		10x20	0.035	1820	ERR1EM102G20---T	
1500		12.5x20	0.022	2150	ERR1EM152W20---T	
2200		12.5x25	0.018	2770	ERR1EM222W25---T	

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
35	33	5x11	0.600	250	ERR1VM330D11---T	
	47	5x12	0.480	270	ERR1VM470D12---T	
	47	6.3x11	0.450	352	ERR1VM470E11---T	
	56	6.3x11	0.390	405	ERR1VM560E11---T	
	100	6.3x11	0.350	490	ERR1VM101E11---T	
	100	8x11	0.200	538	ERR1VM101F11---T	
	150	8x12	0.170	760	ERR1VM151F12---T	
	220	8x12	0.100	789	ERR1VM221F12---T	
	220	10x13	0.066	1030	ERR1VM221G13---T	
	330	8x16	0.064	1030	ERR1VM331F16---T	
	470	8x20	0.055	1320	ERR1VM471F20---T	
	470	10x16	0.045	1485	ERR1VM471G16---T	
	560	10x20	0.035	1850	ERR1VM561G20---T	
	680	10x20	0.030	1980	ERR1VM681G20---T	
	1000	12.5x20	0.028	2440	ERR1VM102W20---T	
	1500	12.5x30	0.026	3010	ERR1VM152W30---T	
	2200	16x25	0.025	3490	ERR1VM222L25---T	
	50	22	5x11	0.840	238	ERR1HM220D11---T
22		6.3x11	0.540	260	ERR1HM220E11---T	
47		6.3x11	0.300	310	ERR1HM470E11---T	
56		6.3x12	0.280	385	ERR1HM560E12---T	
100		8x12	0.130	724	ERR1HM101F12---T	
120		8x16	0.100	950	ERR1HM121F16---T	
120		10x13	0.120	900	ERR1HM121G13---T	
150		10x13	0.120	979	ERR1HM151G13---T	
220		8x16	0.120	960	ERR1HM221F16---T	
220		10x13	0.110	980	ERR1HM221G13---T	
330		10x16	0.072	1370	ERR1HM331G16---T	
470		10x20	0.046	1690	ERR1HM471G20---T	
470		12.5x20	0.042	2050	ERR1HM471W20---T	
680		12.5x20	0.038	2200	ERR1HM681W20---T	
1000		13x25	0.030	2500	ERR1HM102K25---T	
63		33	6.3x11	0.450	266	ERR1JM330E11---T
		47	6.3x12	0.450	266	ERR1JM470E12---T
		47	8x12	0.350	320	ERR1JM470F12---T
	100	8x12	0.250	450	ERR1JM101F12---T	
	220	10x13	0.210	690	ERR1JM221G13---T	
	330	10x20	0.080	1160	ERR1JM331G20---T	
	470	13x20	0.060	1995	ERR1JM471K20---T	
	680	12.5x25	0.045	2350	ERR1JM681W25---T	
	680	16x20	0.039	2400	ERR1JM681L20---T	
	1000	13x30	0.056	2680	ERR1JM102K30---T	
	1000	16x25	0.050	2800	ERR1JM102L25---T	
	1500	18x30	0.035	2900	ERR1JM152M30---T	
	2200	18x40	0.032	3250	ERR1JM222M40---T	
	80	22	6.3x11	1.200	136	ERR1BM220E11---T
		33	6.3x12	0.970	145	ERR1BM330E12---T
		33	8x9	1.000	140	ERR1BM330F09---T
		47	8x12	0.420	450	ERR1BM470F12---T
		56	8x12	0.400	480	ERR1BM560F12---T
68		8x12	0.380	510	ERR1BM680F12---T	
82		8x16	0.360	585	ERR1BM820F16---T	
100		8x16	0.320	620	ERR1BM101F16---T	
150		10x16	0.250	800	ERR1BM151G16---T	
220		10x20	0.200	870	ERR1BM221G20---T	
220		12.5x16	0.200	870	ERR1BM221W16---T	
100		0.47	5x11	5.000	10	ERR1KM47D11---T
		1	5x11	4.500	50	ERR1KM010D11---T
		2.2	5x11	3.600	60	ERR1KM2R2D11---T
		3.3	5x11	3.000	75	ERR1KM3R3D11---T
		4.7	5x11	2.500	90	ERR1KM4R7D11---T
		10	5x11	1.850	130	ERR1KM100D11---T
		10	6.3x11	1.500	140	ERR1KM100E11---T
	22	6.3x12	0.800	210	ERR1KM220E12---T	
	33	8x12	0.450	235	ERR1KM330F12---T	

RR series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
100	47	8x12	0.450	235	ERR1KM470F12---T	
	47	10x13	0.340	380	ERR1KM470G13---T	
	68	8x16	0.300	360	ERR1KM680F16---T	
	68	10x13	0.300	380	ERR1KM680G13---T	
	100	8x25	0.350	453	ERR1KM101F25---T	
	100	10x16	0.350	460	ERR1KM101G16---T	
	150	10x20	0.170	740	ERR1KM151G20---T	
	220	13x20	0.100	880	ERR1KM221K20---T	
	330	13x25	0.080	1010	ERR1KM331K25---T	
	330	16x20	0.078	1030	ERR1KM331L20---T	
	470	16x25	0.048	1250	ERR1KM471L25---T	
	680	16x35	0.038	1660	ERR1KM681L35---T	
	680	18x30	0.035	1650	ERR1KM681M30---T	
	1000	18x35	0.030	2300	ERR1KM102M35---T	
	120	10	6.3x12	6.000	85	ERR2BM100E12---T
		15	6.3x12	4.000	110	ERR2BM150E12---T
		22	8x12	3.000	140	ERR2BM220F12---T
		33	8x16	2.000	220	ERR2BM330F16---T
33		10x13	3.000	240	ERR2BM330G13---T	
47		8x20	2.800	285	ERR2BM470F20---T	
47		10x16	2.800	300	ERR2BM470G16---T	
56		10x16	2.500	350	ERR2BM560G16---T	
68		10x16	2.200	350	ERR2BM680G16---T	
82		10x20	2.000	380	ERR2BM820G20---T	
100		10x25	1.700	420	ERR2BM101G25---T	
120		12.5x20	1.500	500	ERR2BM121W20---T	
150		12.5x25	1.100	620	ERR2BM151W25---T	
220		13x30	0.850	760	ERR2BM221K30---T	
220		16x20	1.200	760	ERR2BM221L20---T	
330		16x30	0.400	950	ERR2BM331L30---T	
330		18x25	0.450	930	ERR2BM331M25---T	
470		16x40	0.350	1030	ERR2BM471L40---T	
470	18x30	0.350	1030	ERR2BM471M30---T		

Specifications subject to change without notice.

**RE series**

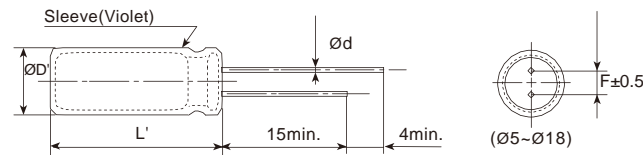
- Low impedance and high frequency.
- Endurance: 2,000 ~ 4,000 hours at 105°C
- Suitable for switching power, UPS, power sources, etc.
- RoHS Compliant



**SPECIFICATIONS**

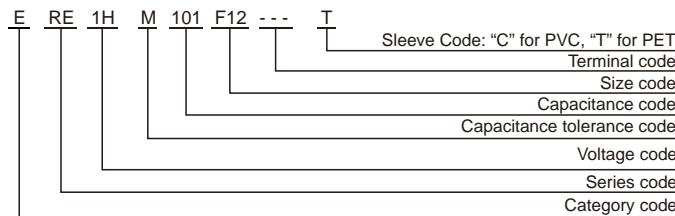
Items	Characteristics												
Category Temperature Range	-40~+105°C												
Rated Voltage Range	6.3~120 V <sub>dc</sub>												
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)												
Leakage Current	I 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)												
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	120		
	Dissipation Factor (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08	0.12		
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)													
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	120		
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	2	3		
	Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3	3	6		
(at 120Hz)													
Endurance	The following specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105 °C.												
	Capacitance Change	±25% of the initial value					Case Dia.(mm)		Load life (hours)				
	Dissipation Factor	200% of the initial specified value					ØD 6.3		2,000				
	Leakage Current	The initial specified value					ØD=8&10		3,000				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.												
	Capacitance Change	±25% of the initial value					ØD 12.5		4,000				
	Dissipation Factor	200% of the initial specified value											
	Leakage Current	200% of the initial specified value											

**DIMENSIONS[mm]**



ØD	5	6.3	8	10	12.5	13	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.							
L'	L+2max.							

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Cap.(μF)	120	1k	10k	100k
Cap.<220	0.40	0.75	0.90	1.00
220 Cap.<680	0.50	0.85	0.94	1.00
680 Cap.<2200	0.60	0.87	0.95	1.00
2200 Cap.<4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00

**RE series**

**STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
6.3	330	8x11	0.130	650	ERE0JM331F11---T	
	470	8x11	0.130	650	ERE0JM471F11---T	
	680	8x12	0.130	680	ERE0JM681F12---T	
	1000	8x12	0.130	720	ERE0JM102F12---T	
	1000	10x13	0.080	870	ERE0JM102G13---T	
	1500	10x16	0.060	1210	ERE0JM152G16---T	
	2200	10x20	0.045	1400	ERE0JM222G20---T	
	3300	12.5x20	0.035	1900	ERE0JM332W20---T	
	4700	12.5x25	0.030	2130	ERE0JM472W25---T	
	10	470	8x11	0.130	650	ERE1AM471F11---T
680		8x12	0.130	650	ERE1AM681F12---T	
1000		8x16	0.087	850	ERE1AM102F16---T	
1000		10x16	0.060	1210	ERE1AM102G16---T	
1500		10x16	0.050	1300	ERE1AM152G16---T	
2200		10x20	0.045	1400	ERE1AM222G20---T	
3300		13x25	0.030	2130	ERE1AM332K25---T	
16		220	8x11	0.250	650	ERE1CM221F11---T
		330	8x11	0.130	650	ERE1CM331F11---T
		470	8x12	0.130	650	ERE1CM471F12---T
	470	10x13	0.080	870	ERE1CM471G13---T	
	560	8x12	0.130	650	ERE1CM561F12---T	
	680	8x16	0.087	850	ERE1CM681F16---T	
	680	10x13	0.080	870	ERE1CM681G13---T	
	1000	8x20	0.060	1210	ERE1CM102F20---T	
	1000	10x13	0.080	870	ERE1CM102G13---T	
	1500	10x20	0.045	1400	ERE1CM152G20---T	
25	2200	13x20	0.035	1900	ERE1CM222K20---T	
	3300	12.5x35	0.027	2500	ERE1CM332W35---T	
	100	6.3x11	0.250	340	ERE1EM101E11---T	
	220	6.3x11	0.210	350	ERE1EM221E11---T	
	220	8x12	0.130	650	ERE1EM221F12---T	
	330	8x12	0.130	650	ERE1EM331F12---T	
	470	8x16	0.087	840	ERE1EM471F16---T	
	470	10x13	0.080	870	ERE1EM471G13---T	
	560	10x13	0.078	960	ERE1EM561G13---T	
	680	8x16	0.080	870	ERE1EM681F16---T	
35	680	10x16	0.060	1210	ERE1EM681G16---T	
	1000	10x20	0.045	1400	ERE1EM102G20---T	
	1000	12.5x13	0.050	1250	ERE1EM102W13---T	
	1500	13x20	0.035	1900	ERE1EM152K20---T	
	2200	12.5x25	0.030	2130	ERE1EM222W25---T	
	3300	12.5x30	0.025	2600	ERE1EM332W30---T	
	3300	16x20	0.025	2600	ERE1EM332L20---T	
	4700	16x25	0.023	2860	ERE1EM472L25---T	
	56	5x12	0.800	200	ERE1VM560D12---T	
	68	5x12	0.720	220	ERE1VM680D12---T	
50	100	6.3x11	0.350	350	ERE1VM101E11---T	
	100	8x11	0.130	650	ERE1VM101F11---T	
	150	8x12	0.130	650	ERE1VM151F12---T	
	220	8x12	0.130	650	ERE1VM221F12---T	
	330	8x16	0.072	840	ERE1VM331F16---T	
	330	10x13	0.080	870	ERE1VM331G13---T	
	470	10x16	0.060	1210	ERE1VM471G16---T	
	560	10x16	0.060	1210	ERE1VM561G16---T	
	680	10x20	0.045	1400	ERE1VM681G20---T	
	680	12.5x16	0.058	1380	ERE1VM681W16---T	
63	1000	12.5x20	0.035	1900	ERE1VM102W20---T	
	1500	12.5x25	0.030	2124	ERE1VM152W25---T	
	2200	16x25	0.029	2450	ERE1VM222L25---T	
	47	6.3x11	0.300	295	ERE1HM470E11---T	
	100	6.3x12	0.280	375	ERE1HM101E12---T	
	100	8x12	0.130	620	ERE1HM101F12---T	
	150	8x12	0.130	620	ERE1HM151F12---T	
	220	8x16	0.100	840	ERE1HM221F16---T	
	220	10x16	0.084	1050	ERE1HM221G16---T	
	330	10x16	0.080	1100	ERE1HM331G16---T	
63	470	10x20	0.075	1200	ERE1HM471G20---T	
	560	12.5x16	0.061	1750	ERE1HM561W16---T	
	820	12.5x20	0.040	1900	ERE1HM821W20---T	
	820	16x20	0.032	2130	ERE1HM821L20---T	
	1000	12.5x25	0.034	2100	ERE1HM102W25---T	
	1000	16x20	0.034	2100	ERE1HM102L20---T	
	68	8x12	0.510	235	ERE1JM680F12---T	
	100	8x12	0.500	235	ERE1JM101F12---T	
	150	10x13	0.380	320	ERE1JM151G13---T	
	220	10x16	0.170	450	ERE1JM221G16---T	
470	13x20	0.085	950	ERE1JM471K20---T		

Specifications subject to change without notice.

WV (V <sub>dc</sub> )	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
63	560	16x18	0.079	1020	ERE1JM561L18---T
	680	16x20	0.070	1280	ERE1JM681L20---T
	820	12.5x30	0.071	1200	ERE1JM821W30---T
	820	16x20	0.070	1280	ERE1JM821L20---T
	1000	16x25	0.045	1900	ERE1JM102L25---T
	80	56	8x12	0.490	260
68		8x12	0.400	290	ERE1BM680F12---T
100		10x13	0.300	330	ERE1BM101G13---T
150		10x16	0.240	440	ERE1BM151G16---T
220		10x20	0.180	510	ERE1BM221G20---T
220		12.5x16	0.180	530	ERE1BM221W16---T
330		12.5x20	0.150	760	ERE1BM331W20---T
470		12.5x25	0.072	980	ERE1BM471W25---T
560		16x20	0.070	1050	ERE1BM561L20---T
680		16x25	0.065	1250	ERE1BM681L25---T
100	1000	16x35	0.052	1320	ERE1BM102L35---T
	22	6.3x12	0.920	150	ERE1KM220E12---T
	47	8x12	0.910	260	ERE1KM470F12---T
	47	10x13	0.340	315	ERE1KM470G13---T
	68	8x16	0.320	360	ERE1KM680F16---T
	68	10x13	0.320	360	ERE1KM680G13---T
	100	10x16	0.200	450	ERE1KM101G16---T
	150	10x20	0.170	500	ERE1KM151G20---T
	220	13x20	0.095	930	ERE1KM221K20---T
	330	12.5x25	0.092	950	ERE1KM331W25---T
120	330	16x20	0.088	1050	ERE1KM331L20---T
	470	16x25	0.078	1250	ERE1KM471L25---T
	470	18x20	0.070	1200	ERE1KM471M20---T
	10	6.3x12	6.000	75	ERE2BM100E12---T
	15	6.3x12	5.000	96	ERE2BM150E12---T
	22	8x12	4.000	123	ERE2BM220F12---T
	33	8x16	3.500	212	ERE2BM330F16---T
	33	10x13	3.000	212	ERE2BM330G13---T
	47	8x20	2.800	250	ERE2BM470F20---T
	47	10x16	2.800	265	ERE2BM470G16---T
120	56	10x16	2.500	270	ERE2BM560G16---T
	68	10x16	2.200	280	ERE2BM680G16---T
	82	10x20	2.000	360	ERE2BM820G20---T
	100	10x25	1.800	400	ERE2BM101G25---T
	100	12.5x16	1.900	370	ERE2BM101W16---T
	120	12.5x20	1.500	495	ERE2BM121W20---T
	150	12.5x25	1.100	540	ERE2BM151W25---T
	220	16x20	0.820	660	ERE2BM221L20---T
	270	16x25	0.600	750	ERE2BM271L25---T
	270	18x20	0.600	750	ERE2BM271M20---T
120	330	16x30	0.450	810	ERE2BM331L30---T
	330	18x25	0.450	810	ERE2BM331M25---T
	470	16x40	0.350	900	ERE2BM471L40---T
	470	18x30	0.350	900	ERE2BM471M30---T



**RF series**

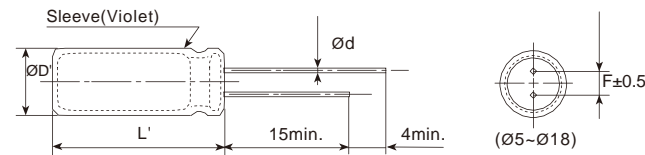
- Ultra-low impedance, high ripple current
- Endurance: 3,000–6,000 hours at 105°C
- RoHS Compliant



**SPECIFICATIONS**

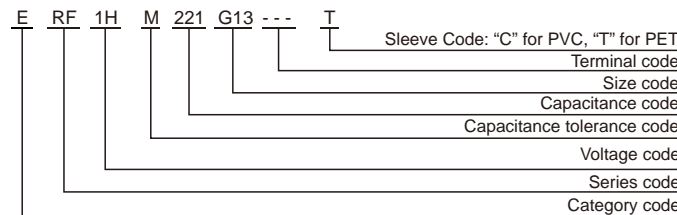
Items	Characteristics																																	
Category Temperature Range	-40~+105°C																																	
Rated Voltage Range	6.3~120 V <sub>dc</sub>																																	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																																	
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)																																	
Dissipation Factor (tan δ)	<table border="1"> <tr> <td>Rated Voltage (V<sub>dc</sub>)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> <td>120</td> </tr> <tr> <td>Dissipation Factor (Max.)</td> <td>0.15</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> <td>0.08</td> <td>0.08</td> <td>0.12</td> </tr> </table> <p>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)</p>	Rated Voltage (V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	120	Dissipation Factor (Max.)	0.15	0.14	0.12	0.10	0.10	0.08	0.08	0.08	0.08	0.12											
Rated Voltage (V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	120																								
Dissipation Factor (Max.)	0.15	0.14	0.12	0.10	0.10	0.08	0.08	0.08	0.08	0.12																								
Low Temperature Characteristics (Max. Impedance Ratio)	<table border="1"> <tr> <td>Rated Voltage (V<sub>dc</sub>)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> <td>120</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>5</td> <td>4</td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td>3</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>10</td> <td>8</td> <td>5</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td></td> <td>6</td> </tr> </table> <p>(at 120Hz)</p>	Rated Voltage (V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	120	Z(-25°C)/Z(+20°C)	5	4				3				3	Z(-40°C)/Z(+20°C)	10	8	5			4				6
Rated Voltage (V <sub>dc</sub> )	6.3	10	16	25	35	50	63	80	100	120																								
Z(-25°C)/Z(+20°C)	5	4				3				3																								
Z(-40°C)/Z(+20°C)	10	8	5			4				6																								
Endurance	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105°C.</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>±25% of the initial value</td> <td>Dia. (mm)</td> <td>Load life (hours)</td> </tr> <tr> <td></td> <td></td> <td>∅D=6.3</td> <td>3,000</td> </tr> <tr> <td></td> <td></td> <td>∅D=8</td> <td>4,000</td> </tr> <tr> <td></td> <td></td> <td>∅D=10</td> <td>5,000</td> </tr> <tr> <td></td> <td></td> <td>∅D=12.5</td> <td>6,000</td> </tr> </table>	Capacitance Change	±25% of the initial value	Dia. (mm)	Load life (hours)			∅D=6.3	3,000			∅D=8	4,000			∅D=10	5,000			∅D=12.5	6,000													
Capacitance Change	±25% of the initial value	Dia. (mm)	Load life (hours)																															
		∅D=6.3	3,000																															
		∅D=8	4,000																															
		∅D=10	5,000																															
		∅D=12.5	6,000																															
Shelf Life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>±25% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>200% of the initial specified value</td> </tr> <tr> <td>Leakage Current</td> <td>200% of the initial specified value</td> </tr> </table>	Capacitance Change	±25% of the initial value	Dissipation Factor	200% of the initial specified value	Leakage Current	200% of the initial specified value																											
Capacitance Change	±25% of the initial value																																	
Dissipation Factor	200% of the initial specified value																																	
Leakage Current	200% of the initial specified value																																	

**DIMENSIONS [mm]**



∅D	5	6.3	8	10	12.5	13	16	18
∅d	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
∅D'	∅D+0.5max.							
L'	L+2max.							

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Cap. (μF)	120	1k	10k	100k
Cap. <220	0.40	0.75	0.90	1.00
220 Cap. <680	0.50	0.85	0.94	1.00
680 Cap. <2200	0.60	0.87	0.95	1.00
2200 Cap. <4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00

**RF series**

**STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size DxD(mm)	Impedance max/20°C, 100kHz	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
6.3	150	5x11	0.290	300	ERF0JM151D11---T
	220	6.3x11	0.205	377	ERF0JM221E11---T
	330	6.3x11	0.120	455	ERF0JM331E11---T
	470	6.3x12	0.100	510	ERF0JM471E12---T
	1000	8x16	0.052	1000	ERF0JM102F16---T
	1200	8x20	0.040	1300	ERF0JM122F20---T
	1200	10x16	0.037	1480	ERF0JM122G16---T
	1500	10x16	0.037	1480	ERF0JM152G16---T
	2200	10x20	0.021	2200	ERF0JM222G20---T
	3300	12.5x20	0.020	2410	ERF0JM332W20---T
	4700	12.5x30	0.015	3340	ERF0JM472W30---T
	6800	16x25	0.015	3510	ERF0JM682L25---T
10	100	5x11	0.290	300	ERF1AM101D11---T
	100	6.3x9	0.290	300	ERF1AM101E09---T
	220	6.3x11	0.120	455	ERF1AM221E11---T
	470	8x12	0.071	810	ERF1AM471F12---T
	470	10x9	0.092	720	ERF1AM471G09---T
	680	8x16	0.055	1046	ERF1AM681F16---T
	680	10x13	0.052	1080	ERF1AM681G13---T
	1000	8x20	0.040	1300	ERF1AM102F20---T
	1000	10x16	0.037	1480	ERF1AM102G16---T
	2200	12.5x20	0.020	2410	ERF1AM222W20---T
	3300	12.5x25	0.020	2820	ERF1AM332W25---T
	4700	12.5x35	0.021	3450	ERF1AM472W35---T
5600	16x25	0.015	3510	ERF1AM562L25---T	
16	100	5x11	0.210	320	ERF1CM101D11---T
	220	6.3x12	0.084	721	ERF1CM221E12---T
	330	8x12	0.071	810	ERF1CM331F12---T
	330	10x9	0.092	680	ERF1CM331G09---T
	470	8x16	0.055	1045	ERF1CM471F16---T
	470	10x13	0.052	1080	ERF1CM471G13---T
	680	8x20	0.040	1300	ERF1CM681F20---T
	680	10x16	0.040	1480	ERF1CM681G16---T
	1000	10x20	0.023	1870	ERF1CM102G20---T
	1200	10x25	0.021	2200	ERF1CM122G25---T
	1500	12.5x20	0.029	2410	ERF1CM152W20---T
	2200	12.5x25	0.017	2820	ERF1CM222W25---T
2700	12.5x30	0.015	3340	ERF1CM272W30---T	
2700	16x20	0.017	3190	ERF1CM272L20---T	
3300	12.5x35	0.014	3450	ERF1CM332W35---T	
3300	16x25	0.016	3350	ERF1CM332L25---T	
3900	16x25	0.015	3510	ERF1CM392L25---T	
25	47	5x11	0.290	300	ERF1EM470D11---T
	100	5x11	0.260	320	ERF1EM101D11---T
	100	6.3x11	0.140	455	ERF1EM101E11---T
	220	6.3x11	0.150	455	ERF1EM221E11---T
	220	8x12	0.078	810	ERF1EM221F12---T
	330	8x16	0.055	1045	ERF1EM331F16---T
	330	10x13	0.052	1080	ERF1EM331G13---T
	470	8x16	0.045	1120	ERF1EM471F16---T
	560	10x16	0.030	1675	ERF1EM561G16---T
	680	10x20	0.036	1870	ERF1EM681G20---T
	820	10x20	0.035	1900	ERF1EM821G20---T
	1000	12.5x16	0.028	1920	ERF1EM102W16---T
1500	12.5x25	0.030	2750	ERF1EM152W25---T	
2200	12.5x25	0.027	2820	ERF1EM222W25---T	
2700	16x25	0.015	3510	ERF1EM272L25---T	
35	33	5x12	0.570	300	ERF1VM330D12---T
	100	6.3x12	0.450	440	ERF1VM101E12---T
	100	8x11	0.200	632	ERF1VM101F11---T
	220	8x12	0.100	810	ERF1VM221F12---T

WV (V <sub>dc</sub> )	Cap (μF)	Size DxD(mm)	Impedance max/20°C, 100kHz	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
35	220	10x9	0.120	720	ERF1VM221G09---T
	330	10x16	0.037	1480	ERF1VM331G16---T
	470	10x16	0.055	1526	ERF1VM471G16---T
	680	12.5x20	0.045	2410	ERF1VM681W20---T
	1000	12.5x25	0.025	2820	ERF1VM102W25---T
	1200	16x20	0.017	3190	ERF1VM122L20---T
	1500	12.5x35	0.014	3450	ERF1VM152W35---T
50	22	5x12	0.540	288	ERF1HM220D12---T
	56	6.3x12	0.300	435	ERF1HM560E12---T
	100	8x12	0.160	774	ERF1HM101F12---T
	120	8x16	0.130	1000	ERF1HM121F16---T
	150	10x13	0.110	1029	ERF1HM151G13---T
	180	8x20	0.085	1240	ERF1HM181F20---T
	220	10x13	0.130	1029	ERF1HM221G13---T
	270	10x16	0.090	1020	ERF1HM271G16---T
	330	10x16	0.045	1150	ERF1HM331G16---T
	470	10x20	0.036	1500	ERF1HM471G20---T
63	560	12.5x20	0.035	2150	ERF1HM561W20---T
	680	12.5x20	0.040	2100	ERF1HM681W20---T
	820	16x20	0.022	2780	ERF1HM821L20---T
	1000	16x25	0.025	3060	ERF1HM102L25---T
	33	6.3x11	1.200	126	ERF1JM330E11---T
	47	6.3x12	0.800	150	ERF1JM470E12---T
	82	8x12	0.480	320	ERF1JM820F12---T
	82	10x13	0.420	420	ERF1JM820G13---T
	100	8x12	0.500	280	ERF1JM101F12---T
	100	10x13	0.300	420	ERF1JM101G13---T
80	120	8x16	0.350	350	ERF1JM121F16---T
	150	10x13	0.300	400	ERF1JM151G13---T
	220	10x16	0.160	480	ERF1JM221G16---T
	330	10x20	0.160	640	ERF1JM331G20---T
	470	13x20	0.100	880	ERF1JM471K20---T
	560	13x20	0.086	1180	ERF1JM561K20---T
	680	16x20	0.085	1250	ERF1JM681L20---T
	820	16x25	0.057	1570	ERF1JM821L25---T
	1000	16x25	0.045	1800	ERF1JM102L25---T
	1000	18x20	0.050	1780	ERF1JM102M20---T
100	1500	18x30	0.036	2150	ERF1JM152M30---T
	1800	18x40	0.032	2280	ERF1JM182M40---T
	150	10x16	0.240	600	ERF1BM151G16---T
	220	10x20	0.150	680	ERF1BM221G20---T
	330	12.5x20	0.120	750	ERF1BM331W20---T
	470	16x20	0.070	1150	ERF1BM471L20---T
	680	18x25	0.036	1750	ERF1BM681M25---T
	1000	16x40	0.029	2200	ERF1BM102L40---T
	1000	18x35	0.027	2200	ERF1BM102M35---T
	100	6.8	5x11	1.400	86
6.8		6.3x9	1.800	80	ERF1KM6R8E09---T
22		6.3x12	1.000	235	ERF1KM220E12---T
27		10x9	0.470	320	ERF1KM270G09---T
33		10x13	0.450	320	ERF1KM330G13---T
47		10x13	0.320	480	ERF1KM470G13---T
68		10x16	0.220	600	ERF1KM680G16---T
100		10x16	0.200	750	ERF1KM101G16---T
150		10x20	0.170	850	ERF1KM151G20---T
220		13x20	0.150	860	ERF1KM221K20---T
100	330	12.5x25	0.100	1000	ERF1KM331W25---T
	330	16x20	0.070	1350	ERF1KM331L20---T
	470	16x25	0.045	1640	ERF1KM471L25---T
	560	18x25	0.050	1800	ERF1KM561M25---T
	680	16x40	0.034	2200	ERF1KM681L40---T

Radial Type



RF series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
100	680	18x35	0.034	2200	ERF1KM681M35---T
	820	18x40	0.032	2700	ERF1KM821M40---T
120	10	6.3x12	5.500	80	ERF2BM100E12---T
	22	8x12	3.500	130	ERF2BM220F12---T
	33	8x16	3.000	220	ERF2BM330F16---T
	33	10x13	3.000	220	ERF2BM330G13---T
	47	10x16	2.500	270	ERF2BM470G16---T
	56	10x16	2.200	285	ERF2BM560G16---T
	68	10x20	1.800	300	ERF2BM680G20---T
	100	10x25	1.500	380	ERF2BM101G25---T
	120	13x20	1.300	620	ERF2BM121K20---T
	150	12.5x25	1.000	570	ERF2BM151W25---T
	220	12.5x30	0.800	750	ERF2BM221W30---T
	220	16x20	0.600	760	ERF2BM221L20---T
	270	16x25	0.550	800	ERF2BM271L25---T
	270	18x20	0.500	800	ERF2BM271M20---T
	330	16x30	0.420	860	ERF2BM331L30---T
	330	18x25	0.420	860	ERF2BM331M25---T
	470	16x40	0.300	960	ERF2BM471L40---T
	470	18x30	0.300	960	ERF2BM471M30---T

Specifications subject to change without notice.

RS series

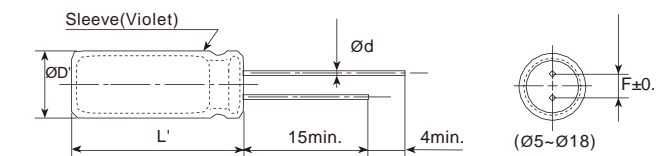
- High performance, high reliability
- Low impedance, high ripple current, long life
- Endurance: 4,000~10,000 hours at 105°C
- RoHS Compliant



SPECIFICATIONS

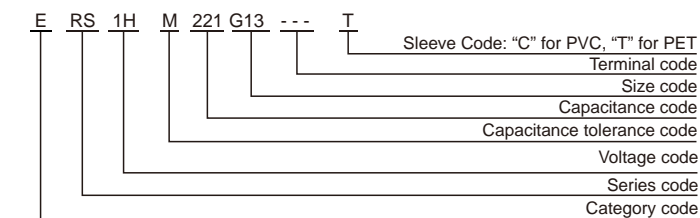
Items	Characteristics		
Category Temperature Range	-40~+105°C		
Rated Voltage Range	6.3~120 V <sub>dc</sub>		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)		
Leakage Current	I: 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 80 100 120	
	Dissipation Factor (Max.)	0.22 0.19 0.16 0.14 0.12 0.10 0.09 0.08 0.08 0.12	
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)			
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 80 100 120	
	Z(-25°C)/Z(+20°C)	4 3 2 3	
Z(-40°C)/Z(+20°C) 8 6 4 3 6 (at 120Hz)			
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105 °C.		
	Capacitance Change	±20% of the initial value (6.3~10V <sub>dc</sub> : ±30%)	Case Dia Load life (hours) 6.3~10V <sub>dc</sub> : 16~120V <sub>dc</sub>
	Dissipation Factor	200% of the initial specified value	∅D 6.3 4,000 5,000 ∅D=8&10 6,000 7,000 ∅D 12.5 8,000 10,000
	Leakage Current	The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.		
	Capacitance Change	±20% of the initial value (6.3~10V <sub>dc</sub> : ±30%)	
	Dissipation Factor	200% of the initial specified value	
Leakage Current	200% of the initial specified value		

DIMENSIONS[mm]



∅D	5	6.3	8	10	12.5	13	16	18
∅d	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
∅D'	∅D+0.5max.							
L'	L+2max.							

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz)	120	1k	10k	100k
Cap.<220	0.40	0.75	0.90	1.00
220 Cap.<680	0.50	0.85	0.94	1.00
680 Cap.<2200	0.60	0.87	0.95	1.00
2200 Cap.<4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00

**RS series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
6.3	150	5x11	0.570	200	ERS0JM151D11---T
	220	6.3x9	0.480	220	ERS0JM221E09---T
	330	6.3x11	0.210	350	ERS0JM331E11---T
	470	6.3x12	0.150	350	ERS0JM471E12---T
	680	8x12	0.130	660	ERS0JM681F12---T
	820	10x13	0.080	870	ERS0JM821G13---T
	1000	8x16	0.086	850	ERS0JM102F16---T
	1500	10x20	0.046	1400	ERS0JM152G20---T
	1800	12.5x16	0.049	1450	ERS0JM182W16---T
	2200	10x20	0.042	1650	ERS0JM222G20---T
	3300	10x25	0.038	1800	ERS0JM332G25---T
	3300	12.5x20	0.035	1910	ERS0JM332W20---T
	3900	12.5x25	0.026	2230	ERS0JM392W25---T
	4700	12.5x30	0.024	2650	ERS0JM472W30---T
	5600	12.5x35	0.020	2880	ERS0JM562W35---T
	5600	16x20	0.027	2530	ERS0JM562L20---T
	6800	12.5x40	0.017	3350	ERS0JM682W40---T
	6800	16x25	0.020	2930	ERS0JM682L25---T
6800	18x20	0.026	2860	ERS0JM682M20---T	
8200	16x30	0.017	3450	ERS0JM822L30---T	
10000	16x35	0.015	3610	ERS0JM103L35---T	
10000	18x25	0.019	3140	ERS0JM103M25---T	
12000	16x40	0.013	4100	ERS0JM123L40---T	
12000	18x30	0.015	4170	ERS0JM123M30---T	
15000	18x35	0.014	4220	ERS0JM153M35---T	
18000	18x40	0.012	4300	ERS0JM183M40---T	
10	100	5x11	0.570	200	ERS1AM101D11---T
	220	6.3x11	0.210	350	ERS1AM221E11---T
	330	6.3x12	0.190	400	ERS1AM331E12---T
	470	8x12	0.130	660	ERS1AM471F12---T
	680	8x16	0.086	850	ERS1AM681F16---T
	680	10x13	0.080	870	ERS1AM681G13---T
	1000	8x20	0.069	1050	ERS1AM102F20---T
	1000	10x16	0.060	1230	ERS1AM102G16---T
	1200	10x20	0.046	1400	ERS1AM122G20---T
	1500	10x25	0.042	1650	ERS1AM152G25---T
	1500	12.5x16	0.049	1450	ERS1AM152W16---T
	2200	10x25	0.040	1640	ERS1AM222G25---T
	2200	12.5x20	0.035	1910	ERS1AM222W20---T
	2200	16x15	0.041	1950	ERS1AM222L15---T
	3300	12.5x25	0.026	2230	ERS1AM332W25---T
	3900	12.5x30	0.024	2650	ERS1AM392W30---T
	3900	16x20	0.027	2530	ERS1AM392L20---T
	4700	12.5x35	0.020	2880	ERS1AM472W35---T
5600	12.5x40	0.017	3350	ERS1AM562W40---T	
5600	16x25	0.021	2930	ERS1AM562L25---T	
5600	18x20	0.026	2860	ERS1AM562M20---T	
6800	16x30	0.017	3450	ERS1AM682L30---T	
6800	18x25	0.019	3140	ERS1AM682M25---T	
8200	16x35	0.015	3610	ERS1AM822L35---T	
8200	18x30	0.015	4170	ERS1AM822M30---T	
10000	16x40	0.013	4100	ERS1AM103L40---T	
10000	18x35	0.014	4220	ERS1AM103M35---T	
12000	18x40	0.012	4300	ERS1AM123M40---T	
16	56	5x11	0.570	200	ERS1CM560D11---T
	100	5x11	0.550	272	ERS1CM101D11---T
	120	6.3x11	0.210	350	ERS1CM121E11---T
	220	6.3x11	0.140	450	ERS1CM221E11---T
	330	8x12	0.130	660	ERS1CM331F12---T
	470	8x12	0.130	800	ERS1CM471F12---T

WV (Vdc)	Cap (μF)	Size D×L (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
16	470	8x16	0.087	850	ERS1CM471F16---T
	470	10x13	0.080	870	ERS1CM471G13---T
	680	8x16	0.100	976	ERS1CM681F16---T
	680	10x16	0.060	1230	ERS1CM681G16---T
	1000	10x16	0.075	1269	ERS1CM102G16---T
	1000	10x20	0.046	1400	ERS1CM102G20---T
	1200	10x25	0.042	1650	ERS1CM122G25---T
	1500	12.5x20	0.035	1910	ERS1CM152W20---T
	2200	12.5x20	0.031	1720	ERS1CM222W20---T
	3300	12.5x35	0.020	2880	ERS1CM332W35---T
	3900	12.5x40	0.017	3350	ERS1CM392W40---T
	3900	16x25	0.021	2930	ERS1CM392L25---T
	3900	18x20	0.026	2860	ERS1CM392M20---T
	4700	16x30	0.017	3450	ERS1CM472L30---T
	4700	18x25	0.019	3140	ERS1CM472M25---T
	5600	16x35	0.015	3610	ERS1CM562L35---T
	5600	18x30	0.015	4170	ERS1CM562M30---T
	6800	16x40	0.013	4100	ERS1CM682L40---T
8200	18x35	0.014	4220	ERS1CM822M35---T	
10000	18x40	0.012	4300	ERS1CM103M40---T	
25	47	5x11	0.570	200	ERS1EM470D11---T
	47	6.3x9	0.740	180	ERS1EM470E09---T
	100	6.3x11	0.210	350	ERS1EM101E11---T
	220	8x12	0.130	660	ERS1EM221F12---T
	330	8x12	0.100	700	ERS1EM331F12---T
	330	8x16	0.086	850	ERS1EM331F16---T
	330	10x13	0.080	870	ERS1EM331G13---T
	470	8x16	0.075	950	ERS1EM471F16---T
	470	8x20	0.069	1050	ERS1EM471F20---T
	470	10x16	0.060	1230	ERS1EM471G16---T
	680	10x20	0.046	1400	ERS1EM681G20---T
	680	12.5x16	0.049	1450	ERS1EM681W16---T
	820	10x25	0.042	1650	ERS1EM821G25---T
	1000	10x30	0.030	1920	ERS1EM102G30---T
	1000	12.5x20	0.035	1910	ERS1EM102W20---T
	1500	12.5x25	0.026	2230	ERS1EM152W25---T
	2200	12.5x25	0.030	2230	ERS1EM222W25---T
	2200	18x20	0.026	2860	ERS1EM222M20---T
3300	16x30	0.017	3450	ERS1EM332L30---T	
3300	18x25	0.019	3140	ERS1EM332M25---T	
4700	16x40	0.013	4100	ERS1EM472L40---T	
4700	18x35	0.014	4220	ERS1EM472M35---T	
5600	18x40	0.012	4300	ERS1EM562M40---T	
35	33	5x11	0.570	200	ERS1VM330D11---T
	33	6.3x9	0.740	180	ERS1VM330E09---T
	56	6.3x11	0.210	350	ERS1VM560E11---T
	100	6.3x12	0.250	400	ERS1VM101E12---T
	150	8x9	0.170	560	ERS1VM151F09---T
	150	8x12	0.130	660	ERS1VM151F12---T
	220	8x12	0.100	660	ERS1VM221F12---T
	220	8x16	0.086	850	ERS1VM221F16---T
	220	10x13	0.080	870	ERS1VM221G13---T
	330	10x16	0.060	1230	ERS1VM331G16---T
	470	10x20	0.046	1400	ERS1VM471G20---T
	560	10x20	0.060	1400	ERS1VM561G20---T
	560	10x25	0.042	1650	ERS1VM561G25---T
	680	10x20	0.042	1700	ERS1VM681G20---T
	680	12.5x20	0.035	1910	ERS1VM681W20---T
	1000	12.5x20	0.030	2210	ERS1VM102W20---T
	1200	12.5x25	0.032	2200	ERS1VM122W25---T

**RS series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
35	1200	16x20	0.028	2247	ERS1VM122L20---T	
	1500	12.5x25	0.032	2250	ERS1VM152W25---T	
	1500	13x20	0.035	2050	ERS1VM152K20---T	
	1800	16x20	0.030	2930	ERS1VM182L20---T	
	2200	16x25	0.030	2980	ERS1VM222L25---T	
	2200	16x30	0.017	3450	ERS1VM222L30---T	
	2200	18x25	0.019	3140	ERS1VM222M25---T	
	2700	16x25	0.030	3410	ERS1VM272L25---T	
	2700	16x35	0.015	3610	ERS1VM272L35---T	
	3300	16x40	0.012	4100	ERS1VM332L40---T	
	3300	18x35	0.014	4220	ERS1VM332M35---T	
	3900	18x40	0.011	4300	ERS1VM392M40---T	
	50	22	5x12	0.680	190	ERS1HM220D12---T
		22	6.3x9	0.890	170	ERS1HM220E09---T
		47	6.3x11	0.350	260	ERS1HM470E11---T
		56	6.3x11	0.300	300	ERS1HM560E11---T
		100	8x12	0.170	560	ERS1HM101F12---T
		100	10x9	0.220	500	ERS1HM101G09---T
150		8x12	0.180	560	ERS1HM151F12---T	
150		10x13	0.120	760	ERS1HM151G13---T	
180		8x20	0.090	910	ERS1HM181F20---T	
220		10x13	0.120	760	ERS1HM221G13---T	
220		10x16	0.084	1050	ERS1HM221G16---T	
270		10x13	0.150	650	ERS1HM271G13---T	
330		10x16	0.065	1150	ERS1HM331G16---T	
470		10x20	0.055	1500	ERS1HM471G20---T	
470		12.5x20	0.045	1660	ERS1HM471W20---T	
470		16x15	0.055	1690	ERS1HM471L15---T	
560		12.5x16	0.060	1520	ERS1HM561W16---T	
560		12.5x25	0.034	1960	ERS1HM561W25---T	
680	12.5x20	0.045	1720	ERS1HM681W20---T		
680	12.5x25	0.035	2022	ERS1HM681W25---T		
820	12.5x20	0.045	1800	ERS1HM821W20---T		
820	12.5x25	0.035	2030	ERS1HM821W25---T		
820	16x20	0.034	2210	ERS1HM821L20---T		
1000	12.5x25	0.035	2030	ERS1HM102W25---T		
1000	16x25	0.025	2560	ERS1HM102L25---T		
1200	16x25	0.032	2600	ERS1HM122L25---T		
1200	18x20	0.036	2490	ERS1HM122M20---T		
1500	18x25	0.028	2740	ERS1HM152M25---T		
1800	16x40	0.016	3710	ERS1HM182L40---T		
1800	18x30	0.021	3640	ERS1HM182M30---T		
2200	18x35	0.017	3680	ERS1HM222M35---T		
2700	18x40	0.014	3800	ERS1HM272M40---T		
63	15	5x11	1.800	165	ERS1JM150D11---T	
	15	6.3x9	1.150	145	ERS1JM150E09---T	
	33	6.3x12	1.000	265	ERS1JM330E12---T	
	47	6.3x12	0.800	300	ERS1JM470E12---T	
	56	8x12	0.500	500	ERS1JM560F12---T	
	100	8x12	0.450	550	ERS1JM101F12---T	
	100	10x13	0.350	580	ERS1JM101G13---T	
	120	10x13	0.330	600	ERS1JM121G13---T	
	180	10x16	0.310	650	ERS1JM181G16---T	
	220	10x20	0.160	700	ERS1JM221G20---T	
	330	12.5x20	0.096	1500	ERS1JM331W20---T	
	390	12.5x25	0.090	1900	ERS1JM391W25---T	
	470	12.5x25	0.088	1950	ERS1JM471W25---T	
	470	16x20	0.080	2000	ERS1JM471L20---T	
	560	12.5x30	0.077	2060	ERS1JM561W30---T	
	680	12.5x30	0.077	2060	ERS1JM681W30---T	
	680	16x20	0.070	2150	ERS1JM681L20---T	

WV (Vdc)	Cap (μF)	Size D×L (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
63	820	18x20	0.065	2300	ERS1JM821M20---T	
	1000	18x25	0.042	2900	ERS1JM102M25---T	
	1200	16x40	0.028	3400	ERS1JM122L40---T	
	1200	18x30	0.036	3300	ERS1JM122M30---T	
	1500	18x35	0.032	3400	ERS1JM152M35---T	
	1800	18x40	0.030	3500	ERS1JM182M40---T	
	80	68	8x12	0.400	340	ERS1BM680F12---T
		100	8x16	0.270	460	ERS1BM101F16---T
		100	10x13	0.250	490	ERS1BM101G13---T
		120	10x13	0.220	520	ERS1BM121G13---T
		150	10x16	0.210	520	ERS1BM151G16---T
		150	12.5x13	0.200	580	ERS1BM151W13---T
		220	10x20	0.130	850	ERS1BM221G20---T
		330				

# RS series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
120	220	16x20	0.850	760	ERS2BM221L20---T
	270	16x25	0.600	860	ERS2BM271L25---T
	270	18x20	0.550	900	ERS2BM271M20---T
	330	16x30	0.460	930	ERS2BM331L30---T
	330	18x25	0.480	930	ERS2BM331M25---T
	470	16x40	0.330	1035	ERS2BM471L40---T
	470	18x30	0.330	1035	ERS2BM471M30---T

Specifications subject to change without notice.

# RN series

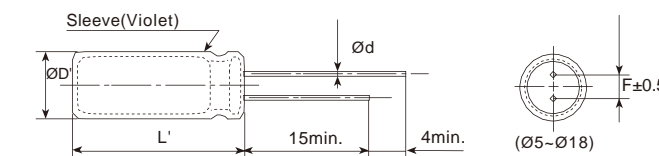
- Miniaturized, high performance, high reliability
- Low impedance, high ripple current, long life
- Endurance: 5,000~10,000 hours at 105°C
- RoHS Compliant



SPECIFICATIONS

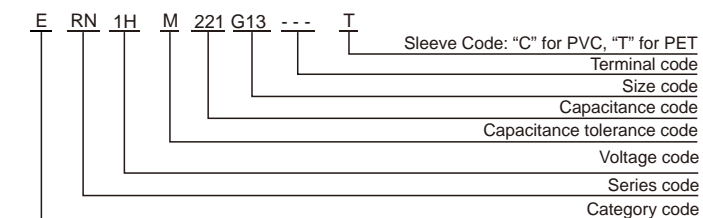
Items	Characteristics		
Category Temperature Range	-40~+105°C		
Rated Voltage Range	25~120 V <sub>dc</sub>		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)		
Leakage Current	I ≤ 0.01 CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	25 35 50 63 80 100 120	
	Dissipation Factor (Max.)	0.14 0.12 0.10 0.09 0.08 0.08 0.12	
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)			
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	25 35 50 63 80 100 120	
	Z(-25°C)/Z(+20°C)	2 3	
	Z(-40°C)/Z(+20°C)	4 6 (at 120Hz)	
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105 °C.		
	Capacitance Change	±20% of the initial value	Dia. (mm) Load life (hours)
	Dissipation Factor	200% of the initial specified value	ØD 6.3 5,000
	Leakage Current	The initial specified value	ØD=8&10 7,000 ØD 12.5 10,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.		
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	200% of the initial specified value	
	Leakage Current	200% of the initial specified value	

DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	13	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.							
L'	L+2max.							

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF) \ Freq.(Hz)	120	1k	10k	100k
Cap.<47	0.40	0.75	0.90	1.00
47 Cap.<330	0.50	0.85	0.94	1.00
330 Cap.<820	0.75	0.90	0.95	1.00
Cap. 820	0.85	0.95	0.98	1.00



RN series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
25	10	5x9	3.500	80	ERN1EM100D09---T
	15	5x9	3.500	80	ERN1EM150D09---T
	22	5x9	3.500	80	ERN1EM220D09---T
	33	5x9	0.810	150	ERN1EM330D09---T
	47	5x9	0.650	180	ERN1EM470D09---T
	56	5x11	0.570	200	ERN1EM560D11---T
	68	5x11	0.570	200	ERN1EM680D11---T
	68	6.3x9	0.740	180	ERN1EM680E09---T
	100	5x11	0.570	200	ERN1EM101D11---T
	120	6.3x9	0.740	180	ERN1EM121E09---T
	180	6.3x11	0.210	350	ERN1EM181E11---T
	180	8x9	0.270	310	ERN1EM181F09---T
	220	6.3x11	0.210	350	ERN1EM221E11---T
	220	8x9	0.270	310	ERN1EM221F09---T
	330	8x12	0.130	660	ERN1EM331F12---T
	330	10x9	0.170	590	ERN1EM331G09---T
	390	8x14	0.150	885	ERN1EM391F14---T
	470	8x16	0.086	850	ERN1EM471F16---T
	470	10x13	0.080	870	ERN1EM471G13---T
	560	8x20	0.069	1050	ERN1EM561F20---T
560	10x13	0.080	870	ERN1EM561G13---T	
680	8x20	0.069	1050	ERN1EM681F20---T	
680	10x16	0.060	1230	ERN1EM681G16---T	
820	10x16	0.060	1230	ERN1EM821G16---T	
1000	10x20	0.046	1400	ERN1EM102G20---T	
1200	10x25	0.042	1650	ERN1EM122G25---T	
1500	12.5x20	0.035	1910	ERN1EM152W20---T	
35	10	5x9	3.500	80	ERN1VM100D09---T
	15	5x9	3.500	80	ERN1VM150D09---T
	22	5x9	3.500	80	ERN1VM220D09---T
	33	5x9	0.810	150	ERN1VM330D09---T
	47	5x11	0.570	200	ERN1VM470D11---T
	56	5x11	0.570	200	ERN1VM560D11---T
	68	6.3x9	0.740	180	ERN1VM680E09---T
	100	6.3x11	0.210	350	ERN1VM101E11---T
	100	8x9	0.270	310	ERN1VM101F09---T
	120	8x9	0.270	310	ERN1VM121F09---T
	180	8x12	0.130	660	ERN1VM181F12---T
	180	10x9	0.170	590	ERN1VM181G09---T
	220	8x12	0.130	660	ERN1VM221F12---T
	220	10x9	0.170	590	ERN1VM221G09---T
	330	8x16	0.086	850	ERN1VM331F16---T
	330	10x13	0.080	870	ERN1VM331G13---T
	390	8x20	0.069	1050	ERN1VM391F20---T
	390	10x13	0.080	870	ERN1VM391G13---T
	470	8x20	0.069	1050	ERN1VM471F20---T
	470	10x16	0.060	1230	ERN1VM471G16---T
560	10x16	0.060	1230	ERN1VM561G16---T	
680	10x20	0.046	1400	ERN1VM681G20---T	
680	12.5x16	0.049	1450	ERN1VM681W16---T	
820	10x20	0.046	1400	ERN1VM821G20---T	
820	12.5x16	0.049	1450	ERN1VM821W16---T	
1000	12.5x20	0.035	1910	ERN1VM102W20---T	
1200	12.5x20	0.035	1910	ERN1VM122W20---T	
50	10	5x9	2.800	100	ERN1HM100D09---T
	15	5x9	2.800	100	ERN1HM150D09---T
	22	5x9	2.800	100	ERN1HM220D09---T
	33	5x11	0.680	190	ERN1HM330D11---T
	47	6.3x9	0.890	170	ERN1HM470E09---T
	56	6.3x11	0.300	300	ERN1HM560E11---T
	56	8x9	0.390	270	ERN1HM560F09---T
	68	6.3x11	0.300	300	ERN1HM680E11---T
	68	8x9	0.390	270	ERN1HM680F09---T
	100	8x9	0.390	270	ERN1HM101F09---T
	120	8x12	0.170	560	ERN1HM121F12---T

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
50	120	10x9	0.220	500	ERN1HM121G09---T	
	150	8x12	0.170	560	ERN1HM151F12---T	
	150	10x9	0.220	500	ERN1HM151G09---T	
	180	8x16	0.120	740	ERN1HM181F16---T	
	180	10x13	0.120	760	ERN1HM181G13---T	
	220	8x16	0.120	740	ERN1HM221F16---T	
	220	10x13	0.120	760	ERN1HM221G13---T	
	330	10x16	0.084	1050	ERN1HM331G16---T	
	470	10x20	0.058	1230	ERN1HM471G20---T	
	560	12.5x16	0.061	1260	ERN1HM561W16---T	
	680	12.5x20	0.045	1660	ERN1HM681W20---T	
	820	12.5x25	0.034	1960	ERN1HM821W25---T	
	1000	12.5x30	0.030	2310	ERN1HM102W30---T	
	1000	16x20	0.034	2210	ERN1HM102L20---T	
	63	10	5x9	3.000	100	ERN1JM100D09---T
		15	5x9	3.000	100	ERN1JM150D09---T
		18	5x9	3.000	100	ERN1JM180D09---T
		22	5x11	2.200	125	ERN1JM220D11---T
		39	6.3x9	2.800	110	ERN1JM390E09---T
		47	6.3x11	0.850	200	ERN1JM470E11---T
47		8x9	1.100	175	ERN1JM470F09---T	
68		8x9	1.100	175	ERN1JM680F09---T	
82		8x12	0.560	300	ERN1JM820F12---T	
100		8x12	0.500	375	ERN1JM101F12---T	
150		8x16	0.320	500	ERN1JM151F16---T	
180		10x13	0.220	520	ERN1JM181G13---T	
220		10x16	0.180	650	ERN1JM221G16---T	
270		10x16	0.160	720	ERN1JM271G16---T	
270		12.5x13	0.150	780	ERN1JM271W13---T	
330		10x20	0.120	860	ERN1JM331G20---T	
390		12.5x16	0.144	860	ERN1JM391W16---T	
470		12.5x20	0.082	1120	ERN1JM471W20---T	
560		12.5x25	0.062	1420	ERN1JM561W25---T	
680		12.5x30	0.056	1730	ERN1JM681W30---T	
680	16x20	0.064	1500	ERN1JM681L20---T		
820	12.5x30	0.056	1730	ERN1JM821W30---T		
820	16x20	0.064	1500	ERN1JM821L20---T		
80	27	6.3x11	0.900	180	ERN1BM270E11---T	
	27	8x9	1.200	160	ERN1BM270F09---T	
	33	6.3x11	0.900	180	ERN1BM330E11---T	
	33	8x9	1.200	160	ERN1BM330F09---T	
	39	8x9	1.200	160	ERN1BM390F09---T	
	47	8x12	0.650	260	ERN1BM470F12---T	
	56	8x12	0.650	260	ERN1BM560F12---T	
	56	10x9	0.850	220	ERN1BM560G09---T	
	68	8x12	0.650	260	ERN1BM680F12---T	
	68	10x9	0.850	220	ERN1BM680G09---T	
	82	8x16	0.480	350	ERN1BM820F16---T	
	82	10x13	0.340	380	ERN1BM820G13---T	
	100	8x16	0.480	350	ERN1BM101F16---T	
	100	10x13	0.340	380	ERN1BM101G13---T	
	150	10x14	0.340	380	ERN1BM151G14---T	
	180	10x16	0.220	480	ERN1BM181G16---T	
	220	10x20	0.180	640	ERN1BM221G20---T	
	220	12.5x16	0.220	600	ERN1BM221W16---T	
	330	12.5x20	0.130	880	ERN1BM331W20---T	
	390	12.5x25	0.094	1000	ERN1BM391W25---T	
470	13x25	0.094	1000	ERN1BM471K25---T		
470	16x20	0.096	1080	ERN1BM471L20---T		
560	12.5x30	0.084	1200	ERN1BM561W30---T		
560	16x25	0.076	1360	ERN1BM561L25---T		
680	12.5x35	0.072	1320	ERN1BM681W35---T		
680	16x25	0.076	1360	ERN1BM681L25---T		
100	2.7	5x9	4.500	80	ERN1KM2R7D09---T	
	3.3	5x9	3.000	80	ERN1KM3R3D09---T	

RN series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number
100	4.7	5x9	3.000	80	ERN1KM4R7D09---T
	5.6	5x11	3.000	80	ERN1KM5R6D11---T
	6.8	5x11	3.000	80	ERN1KM6R8D11---T
	10	5x11	3.000	80	ERN1KM100D11---T
	15	6.3x9	2.000	70	ERN1KM150E09---T
	22	6.3x12	0.900	180	ERN1KM220E12---T
	22	8x9	1.200	160	ERN1KM220F09---T
	33	8x9	1.200	160	ERN1KM330F09---T
	47	8x12	0.650	260	ERN1KM470F12---T
	47	10x9	0.850	220	ERN1KM470G09---T
	56	8x16	0.480	350	ERN1KM560F16---T
	56	10x13	0.340	380	ERN1KM560G13---T
	68	8x20	0.360	430	ERN1KM680F20---T
	82	8x20	0.360	430	ERN1KM820F20---T
	82	10x13	0.340	380	ERN1KM820G13---T
	100	10x16	0.220	480	ERN1KM101G16---T
	120	10x16	0.220	480	ERN1KM121G16---T
	150	10x20	0.180	640	ERN1KM151G20---T
	150	12.5x16	0.220	600	ERN1KM151W16---T
	220	12.5x20	0.130	880	ERN1KM221W20---T
270	12.5x25	0.094	1000	ERN1KM271W25---T	
330	12.5x30	0.084	1200	ERN1KM331W30---T	
330	16x20	0.096	1080	ERN1KM331L20---T	
390	12.5x35	0.072	1320	ERN1KM391W35---T	
390	16x25	0.076	1360	ERN1KM391L25---T	
470	16x25	0.076	1360	ERN1KM471L25---T	
470	18x20	0.096	1080	ERN1KM471M20---T	
560	16x30	0.064	1480	ERN1KM561L30---T	
560	18x25	0.072	1400	ERN1KM561M25---T	
120	10	6.3x11	5.5	94	ERN2BM100E11---T
	15	6.3x12	4.5	120	ERN2BM150E12---T
	18	8x9	4.0	140	ERN2BM180F09---T
	22	8x12	3.5	154	ERN2BM220F12---T
	33	8x16	3.0	266	ERN2BM330F16---T
	33	10x13	3.0	266	ERN2BM330G13---T
	47	8x20	2.5	320	ERN2BM470F20---T
	47	10x16	2.5	338	ERN2BM470G16---T
	56	10x16	2.2	338	ERN2BM560G16---T
	68	10x16	2.0	338	ERN2BM680G16---T
	82	10x20	1.8	360	ERN2BM820G20---T
	100	10x25	1.5	450	ERN2BM101G25---T
	120	12.5x20	1.3	620	ERN2BM121W20---T
	150	12.5x25	1.0	675	ERN2BM151W25---T
	220	12.5x30	0.75	825	ERN2BM221W30---T
	220	16x20	0.75	825	ERN2BM221L20---T
	270	16x25	0.55	938	ERN2BM271L25---T
	270	18x20	0.55	938	ERN2BM271M20---T
	330	16x30	0.42	1013	ERN2BM331L30---T
	330	18x25	0.42	1013	ERN2BM331M25---T
470	16x40	0.30	1125	ERN2BM471L40---T	
470	18x30	0.30	1125	ERN2BM471M30---T	

Specifications subject to change without notice.

# RZ series

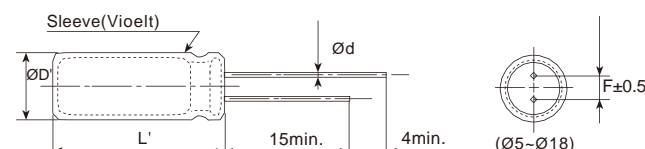
- Miniaturized, long life, low impedance
- High ripple current, high reliability
- Endurance: 6,000~10,000 hours at 105°C
- RoHS Compliant



■ SPECIFICATIONS

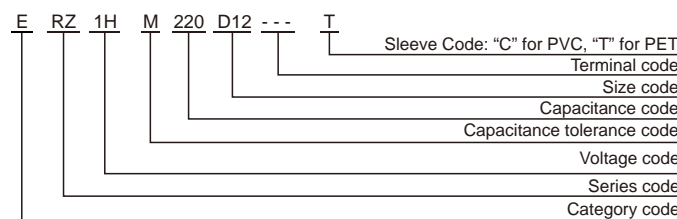
Items	Characteristics							
Category Temperature Range	-40~+105°C							
Rated Working Voltage Range	6.3~50 V <sub>dc</sub>							
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)							
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)							
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16	25	35	50	
	Dissipation Factor (max.)	0.22	0.19	0.16	0.14	0.12	0.10	
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)								
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3	10	16~50				
	Z(-25°C)/Z(+20°C)	3						
	Z(-40°C)/Z(+20°C)	6	4	3				
(at 120Hz)								
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105 °C.							
	Capacitance Change	±25% of the initial value (6.3~10V <sub>dc</sub> : ±30%)			Case Dia.(mm)	Load life (hours)		
	Dissipation Factor	200% of the initial specified value			∅D 6.3	6,000		
	Leakage Current	The initial specified value			∅D=8	8,000		
∅D 10 10,000								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.							
	Capacitance Change	±25% of the initial value (6.3~10V <sub>dc</sub> : ±30%)						
	Dissipation Factor	200% of the initial specified value						
	Leakage Current	200% of the initial specified value						

■ DIMENSIONS[mm]



∅D	5	6.3	8	10	12.5	16	18
∅d	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
∅D'	∅D+0.5max.						
L'	L+2max.						

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	Freq.(Hz)			
	120	1k	10k	100k
Cap.<220	0.40	0.75	0.90	1.00
220 Cap.<680	0.50	0.85	0.94	1.00
680 Cap.<2200	0.60	0.87	0.95	1.00
2200 Cap.<4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00

# RZ series

■ STANDARD RATINGS

VV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
6.3	220	5x12	0.22	345	ERZ0JM221D12---T
	220	6.3x9	0.30	310	ERZ0JM221E09---T
	470	6.3x12	0.094	540	ERZ0JM471E12---T
	470	8x9	0.120	485	ERZ0JM471F09---T
	820	8x12	0.056	945	ERZ0JM821F12---T
	820	10x9	0.072	850	ERZ0JM821G09---T
	1200	8x16	0.045	1250	ERZ0JM122F16---T
	1200	10x13	0.039	1330	ERZ0JM122G13---T
	1500	8x20	0.029	1500	ERZ0JM152F20---T
	1800	10x16	0.028	1760	ERZ0JM182G16---T
	2200	10x20	0.020	1960	ERZ0JM222G20---T
	2700	10x25	0.018	2250	ERZ0JM272G25---T
	3900	12.5x20	0.017	2480	ERZ0JM392W20---T
	4700	12.5x25	0.015	2900	ERZ0JM472W25---T
	5600	12.5x30	0.013	3450	ERZ0JM562W30---T
	6800	12.5x35	0.012	3570	ERZ0JM682W35---T
	6800	16x20	0.015	3250	ERZ0JM682L20---T
	8200	16x25	0.013	3630	ERZ0JM822L25---T
	10000	18x25	0.012	3650	ERZ0JM103M25---T
	10	150	5x12	0.22	345
150		6.3x9	0.30	310	ERZ1AM151E09---T
330		6.3x12	0.094	540	ERZ1AM331E12---T
330		8x9	0.120	485	ERZ1AM331F09---T
680		8x11	0.056	945	ERZ1AM681F11---T
680		10x9	0.072	850	ERZ1AM681G09---T
1000		8x16	0.045	1250	ERZ1AM102F16---T
1000		10x13	0.039	1330	ERZ1AM102G13---T
1500		8x20	0.029	1500	ERZ1AM152F20---T
1500		10x16	0.028	1760	ERZ1AM152G16---T
1800		10x20	0.020	1960	ERZ1AM182G20---T
2200		10x25	0.018	2250	ERZ1AM222G25---T
3300		12.5x20	0.017	2480	ERZ1AM332W20---T
3900		12.5x25	0.015	2900	ERZ1AM392W25---T
4700		12.5x30	0.013	3450	ERZ1AM472W30---T
4700		16x20	0.015	3250	ERZ1AM472L20---T
5600		12.5x35	0.012	3570	ERZ1AM562W35---T
6800		16x25	0.013	3630	ERZ1AM682L25---T
8200		18x25	0.012	3650	ERZ1AM822M25---T
16		100	5x12	0.22	345
	100	6.3x9	0.30	310	ERZ1CM101E09---T
	220	6.3x12	0.094	540	ERZ1CM221E12---T
	220	8x9	0.120	485	ERZ1CM221F09---T
	470	8x12	0.056	945	ERZ1CM471F12---T
	470	10x9	0.072	850	ERZ1CM471G09---T
	680	8x16	0.045	1250	ERZ1CM681F16---T
	680	10x13	0.039	1330	ERZ1CM681G13---T
	1000	8x20	0.029	1500	ERZ1CM102F20---T
	1000	10x16	0.028	1760	ERZ1CM102G16---T
	1500	10x20	0.020	1960	ERZ1CM152G20---T
	1800	10x25	0.018	2250	ERZ1CM182G25---T
	2200	12.5x20	0.017	2480	ERZ1CM222W20---T
	2700	12.5x25	0.015	2900	ERZ1CM272W25---T
	3300	12.5x30	0.013	3450	ERZ1CM332W30---T
	3300	16x20	0.015	3250	ERZ1CM332L20---T
	3900	12.5x35	0.012	3570	ERZ1CM392W35---T
	4700	16x25	0.013	3630	ERZ1CM472L25---T
	5600	18x25	0.012	3650	ERZ1CM562M25---T

Specifications subject to change without notice.

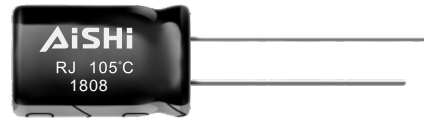
VV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
25	68	5x12	0.22	345	ERZ1EM680D12---T	
	68	6.3x9	0.30	310	ERZ1EM680E09---T	
	150	6.3x12	0.094	540	ERZ1EM151E12---T	
	150	8x9	0.120	485	ERZ1EM151F09---T	
	330	8x12	0.056	945	ERZ1EM331F12---T	
	330	10x9	0.072	850	ERZ1EM331G09---T	
	390	8x16	0.045	1250	ERZ1EM391F16---T	
	470	10x13	0.039	1330	ERZ1EM471G13---T	
	560	8x20	0.029	1500	ERZ1EM561F20---T	
	680	10x16	0.028	1760	ERZ1EM681G16---T	
	820	10x20	0.020	1960	ERZ1EM821G20---T	
	1000	10x25	0.018	2250	ERZ1EM102G25---T	
	1500	12.5x20	0.017	2480	ERZ1EM152W20---T	
	1800	12.5x25	0.015	2900	ERZ1EM182W25---T	
	2200	12.5x30	0.013	3450	ERZ1EM222W30---T	
	2200	16x20	0.015	3250	ERZ1EM222L20---T	
	2700	12.5x35	0.012	3570	ERZ1EM272W35---T	
	3300	16x25	0.013	3630	ERZ1EM332L25---T	
	3900	18x25	0.012	3650	ERZ1EM392M25---T	
	35	47	5x12	0.22	345	ERZ1VM470D12---T
47		6.3x9	0.30	310	ERZ1VM470E09---T	
100		6.3x12	0.094	540	ERZ1VM101E12---T	
100		8x9	0.120	485	ERZ1VM101F09---T	
220		8x16	0.056	945	ERZ1VM221F16---T	
270		8x20	0.045	1250	ERZ1VM271F20---T	
330		10x13	0.039	1330	ERZ1VM331G13---T	
390		8x20	0.029	1500	ERZ1VM391F20---T	
470		10x16	0.028	1760	ERZ1VM471G16---T	
560		10x20	0.020	1960	ERZ1VM561G20---T	
680		10x25	0.018	2250	ERZ1VM681G25---T	
1000		12.5x20	0.017	2480	ERZ1VM102W20---T	
1200		12.5x25	0.015	2900	ERZ1VM122W25---T	
1500		12.5x30	0.013	3450	ERZ1VM152W30---T	
1500		16x20	0.015	3250	ERZ1VM152L20---T	
1800		12.5x35	0.012	3570	ERZ1VM182W35---T	
2200		16x25	0.013	3630	ERZ1VM222L25---T	
2700		18x25	0.012	3650	ERZ1VM272M25---T	
50		22	5x12	0.34	238	ERZ1HM220D12---T
		22	6.3x9	0.44	214	ERZ1HM220E09---T
	56	6.3x12	0.14	385	ERZ1HM560E12---T	
	56	8x9	0.18	345	ERZ1HM560F09---T	
	100	8x12	0.074	724	ERZ1HM101F12---T	
	100	10x9	0.096	650	ERZ1HM101G09---T	
	120	8x16	0.061	950	ERZ1HM121F16---T	
	150	10x13	0.061	979	ERZ1HM151G13---T	
	180	8x20	0.046	1190	ERZ1HM181F20---T	
	220	10x16	0.042	1370	ERZ1HM221G16---T	
	270	10x20	0.030	1580	ERZ1HM271G20---T	
	330	10x25	0.028	1870	ERZ1HM331G25---T	
	470	12.5x20	0.027	2050	ERZ1HM471W20---T	
	560	12.5x25	0.023	2410	ERZ1HM561W25---T	
	680	12.5x30	0.021	2860	ERZ1HM681W30---T	
	820	12.5x35	0.019	2960	ERZ1HM821W35---T	
	820	16x20	0.023	2730	ERZ1HM821L20---T	
	1000	16x25	0.021	3010	ERZ1HM102L25---T	
	1500	18x25	0.019	3290	ERZ1HM152M25---T	

Radial Type



RJ series

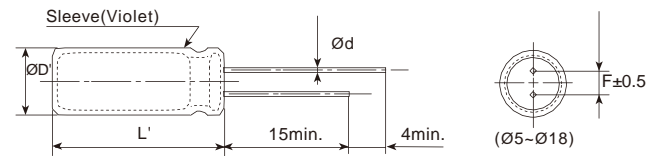
- Miniaturized
- Low impedance, high ripple current, long life
- Endurance: 8,000 ~12,000 hours at 105°C
- RoHS Compliant



SPECIFICATIONS

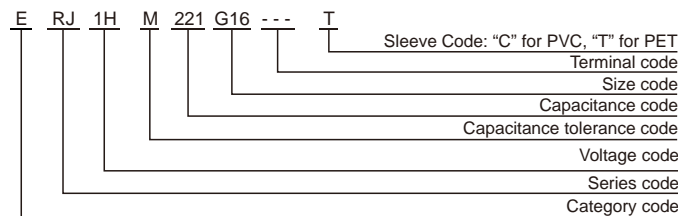
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Voltage Range	10~120 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	1 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 10 16 25 35 50 63 80 100 120
	Dissipation Factor (Max.) 0.19 0.16 0.14 0.12 0.10 0.09 0.09 0.08 0.12 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 10 16 25 35 50 63 80 100 120
	Z(-25°C)/Z(+20°C) 2 2 3
	Z(-40°C)/Z(+20°C) 4 3 6 (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105°C.
	Capacitance Change ±25% of the initial value(10V: ±30%) Case Dia.(mm) Load life (hours)
	Dissipation Factor 200% of the initial specified value ØD 6.3 8,000
	Leakage Current The initial specified value ØD=8&10 10,000 ØD 12.5 12,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.
	Capacitance Change ±25% of the initial value(10V: ±30%)
	Dissipation Factor 200% of the initial specified value
	Leakage Current 200% of the initial specified value

DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.						
L'	L+2max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	120	1k	10k	100k
Cap.<47	0.42	0.70	0.90	1.00
47 Cap.<330	0.50	0.73	0.92	1.00
330 Cap.<820	0.55	0.77	0.94	1.00
820 Cap.<2200	0.60	0.80	0.96	1.00
Cap. 2200	0.70	0.85	0.98	1.00

RJ series

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL (mm)	Impedance max/20°C, 100kHz (Ω)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
10	150	5x12	0.400	450	ERJ1AM151D12---T
	330	6.3x12	0.170	520	ERJ1AM331E12---T
	560	8x12	0.075	1200	ERJ1AM561F12---T
	680	8x16	0.059	1600	ERJ1AM681F16---T
	820	10x13	0.053	1700	ERJ1AM821G13---T
	1000	8x20	0.041	1960	ERJ1AM102F20---T
	1200	10x16	0.038	2000	ERJ1AM122G16---T
	1800	10x20	0.036	2300	ERJ1AM182G20---T
	2200	10x25	0.024	2900	ERJ1AM222G25---T
	2700	12.5x20	0.025	2600	ERJ1AM272W20---T
	3300	12.5x25	0.019	3200	ERJ1AM332W25---T
	4700	12.5x30	0.018	3660	ERJ1AM472W30---T
	4700	16x20	0.021	3330	ERJ1AM472L20---T
	5600	12.5x35	0.016	4120	ERJ1AM562W35---T
	5600	16x25	0.017	3810	ERJ1AM562L25---T
	16	120	5x11	0.400	450
270		6.3x12	0.170	700	ERJ1CM271E12---T
270		8x9	0.220	590	ERJ1CM271F09---T
470		8x12	0.075	1200	ERJ1CM471F12---T
560		8x16	0.059	1600	ERJ1CM561F16---T
680		10x13	0.053	1700	ERJ1CM681G13---T
820		8x20	0.041	1960	ERJ1CM821F20---T
1000		10x16	0.038	2000	ERJ1CM102G16---T
1500		10x20	0.028	2500	ERJ1CM152G20---T
1800		10x25	0.024	2900	ERJ1CM182G25---T
2200		12.5x20	0.025	2600	ERJ1CM222W20---T
2700		12.5x25	0.019	3200	ERJ1CM272W25---T
3300		12.5x30	0.018	3660	ERJ1CM332W30---T
3300		16x20	0.021	3330	ERJ1CM332L20---T
3900		12.5x35	0.016	4120	ERJ1CM392W35---T
4700		16x25	0.017	3810	ERJ1CM472L25---T
25	68	5x11	0.400	450	ERJ1EM680D11---T
	100	5x12	0.380	460	ERJ1EM101D12---T
	100	6.3x11	0.220	450	ERJ1EM101E11---T
	150	6.3x11	0.170	700	ERJ1EM151E11---T
	220	6.3x12	0.170	700	ERJ1EM221E12---T
	330	8x12	0.075	1200	ERJ1EM331F12---T
	330	10x9	0.097	1020	ERJ1EM331G09---T
	390	8x16	0.059	1600	ERJ1EM391F16---T
	470	8x16	0.059	1600	ERJ1EM471F16---T
	470	10x13	0.053	1700	ERJ1EM471G13---T
	560	8x20	0.041	1960	ERJ1EM561F20---T
	680	10x16	0.038	2000	ERJ1EM681G16---T
	1000	10x20	0.028	2500	ERJ1EM102G20---T
	1200	10x25	0.024	2900	ERJ1EM122G25---T
	1500	12.5x20	0.025	2600	ERJ1EM152W20---T
	1800	12.5x25	0.019	3200	ERJ1EM182W25---T
2200	12.5x30	0.018	3660	ERJ1EM222W30---T	
2200	16x20	0.021	3330	ERJ1EM222L20---T	
2700	12.5x35	0.016	4120	ERJ1EM272W35---T	
3300	16x25	0.017	3810	ERJ1EM332L25---T	
35	47	5x11	0.400	450	ERJ1VM470D11---T
	47	6.3x9	0.520	380	ERJ1VM470E09---T
	68	5x12	0.400	460	ERJ1VM680D12---T
	100	6.3x12	0.170	700	ERJ1VM101E12---T
	100	8x9	0.220	590	ERJ1VM101F09---T
	180	8x12	0.075	1200	ERJ1VM181F12---T
	220	8x16	0.059	1600	ERJ1VM221F16---T
	270	10x13	0.053	1700	ERJ1VM271G13---T
	330	8x20	0.041	1960	ERJ1VM331F20---T
	330	10x13	0.053	1780	ERJ1VM331G13---T
	390	10x16	0.038	2000	ERJ1VM391G16---T
	560	10x20	0.028	2500	ERJ1VM561G20---T
	820	12.5x20	0.035	2600	ERJ1VM821W20---T
	1200	12.5x25	0.019	3200	ERJ1VM122W25---T
	1500	12.5x30	0.018	3660	ERJ1VM152W30---T
	1500	16x20	0.021	3330	ERJ1VM152L20---T
1800	12.5x35	0.025	3370	ERJ1VM182W35---T	
1800	16x25	0.023	3660	ERJ1VM182L25---T	

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL (mm)	Impedance max/20°C, 100kHz (Ω)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
50	22	5x11	0.420	255	ERJ1HM220D11---T
	47	6.3x11	0.300	320	ERJ1HM470E11---T
	56	6.3x11	0.220	500	ERJ1HM560E11---T
	56	8x9	0.290	425	ERJ1HM560F09---T
	100	8x12	0.120	950	ERJ1HM101F12---T
	100	10x9	0.160	800	ERJ1HM101G09---T
	120	8x16	0.082	1230	ERJ1HM121F16---T
	150	8x12	0.150	800	ERJ1HM151F12---T
	150	10x13	0.073	1280	ERJ1HM151G13---T
	180	8x20	0.058	1580	ERJ1HM181F20---T
	220	10x16	0.053	1650	ERJ1HM221G16---T
	330	10x20	0.038	2060	ERJ1HM331G20---T
	390	10x25	0.032	2420	ERJ1HM391G25---T
	470	10x20	0.046	2060	ERJ1HM471G20---T
	470	12.5x20	0.032	2300	ERJ1HM471W20---T
	680	12.5x25	0.025	2800	ERJ1HM681W25---T
820	12.5x30	0.023	3370	ERJ1HM821W30---T	
820	16x20	0.026	3070	ERJ1HM821L20---T	
1000	12.5x35	0.021	3810	ERJ1HM102W35---T	
1000	16x25	0.022	3510	ERJ1HM102L25---T	
63	10	5x11	1.800	160	ERJ1JM100D11---T
	22	6.3x11	0.690	275	ERJ1JM220E11---T
	47	6.3x12	0.280	420	ERJ1JM470E12---T
	47	8x9	0.360	350	ERJ1JM470F09---T
	82	8x12	0.180	720	ERJ1JM820F12---T
	82	10x9	0.300	610	ERJ1JM820G09---T
	100	8x12	0.210	720	ERJ1JM101F12---T
	100	8x16	0.130	990	ERJ1JM101F16---T
	120	10x13	0.110	990	ERJ1JM121G13---T
	150	8x20	0.096	1200	ERJ1JM151F20---T
	150	10x13	0.160	1000	ERJ1JM151G13---T
	180	10x16	0.140	1200	ERJ1JM181G16---T
	220	10x20	0.070	1420	ERJ1JM221G20---T
	270	10x20	0.056	1570	ERJ1JM271G20---T
	270	12.5x16	0.072	1570	ERJ1JM271W16---T
	330	10x25	0.046	1990	ERJ1JM331G25---T
390	12.5x20	0.041	1990	ERJ1JM391W20---T	
470	12.5x25	0.031	2460	ERJ1JM471W25---T	
560	12.5x30	0.032	2800	ERJ1JM561W30---T	
560	16x20	0.032	2380	ERJ1JM561L20---T	
680	12.5x35	0.024	3040	ERJ1JM681W35---T	
820	16x25	0.025	2890	ERJ1JM821L25---T	
820	18x20	0.030	2580	ERJ1JM821M20---T	
80	12	5x11	1.200	220	ERJ1BM120D11---T
	27	6.3x11	0.460	267	ERJ1BM270E11---T
	47	8x12	0.290	620	ERJ1BM470F12---T
	47	10x9	0.380	620	ERJ1BM470G09---T
	56	8x16	0.200	780	ERJ1BM560F16---T
	68	10x13	0.220	780	ERJ1BM680G13---T
	82	8x20	0.160	1040	ERJ1BM820F20---T
	100	10x13	0.200	780	ERJ1BM101G13---T
	100	10x16	0.110	1040	ERJ1BM101G16---T
	150	10x20	0.084	1430	ERJ1BM151G20---T
	150	12.5x16	0.110	1430	ERJ1BM151W16---T
	180	10x25	0.069	1620	ERJ1BM181G25---T
	220	12.5x20	0.062	1750	ERJ1BM221W20---T
	270	12.5x25	0.047	2210	ERJ1BM271W25---T
	330	12.5x30	0.042	2400	ERJ1BM331W30---T
	330	16x20	0.048	1950	ERJ1BM331L20---T
390	12.5x35	0.036	2600	ERJ1BM391W35---T	
470	16x25	0.038	2430	ERJ1BM471L25---T	
470	18x20	0.045	2270	ERJ1BM471M20---T	
560	16x30	0.032	2640	ERJ1BM561L30---T	
680	16x35	0.033	2860	ERJ1BM681L35---T	
680	18x25	0.036	2500	ERJ1BM681M25---T	
820	16x40	0.027	3510	ERJ1BM821L40---T	
820	18x30	0.030	2860	ERJ1BM821M30---T	
1000	18x35	0.027	3510	ERJ1BM102M35---T	
1200	18x40	0.026	3860	ERJ1BM122M40---T	

Radial Type



# RJ series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number	
100	18	6.3x11	0.460	370	ERJ1KM180E11---T	
	22	8x12	0.320	540	ERJ1KM220F12---T	
	33	8x12	0.290	620	ERJ1KM330F12---T	
	33	10x9	0.380	520	ERJ1KM330G09---T	
	47	8x12	0.290	620	ERJ1KM470F12---T	
	47	8x16	0.200	780	ERJ1KM470F16---T	
	56	10x13	0.170	780	ERJ1KM560G13---T	
	68	8x16	0.200	800	ERJ1KM680F16---T	
	82	10x16	0.110	1040	ERJ1KM820G16---T	
	100	10x16	0.140	1040	ERJ1KM101G16---T	
	100	10x20	0.084	1430	ERJ1KM101G20---T	
	120	10x20	0.084	1430	ERJ1KM121G20---T	
	150	10x20	0.120	1430	ERJ1KM151G20---T	
	150	12.5x20	0.062	1750	ERJ1KM151W20---T	
	220	12.5x25	0.047	2210	ERJ1KM221W25---T	
	270	12.5x30	0.042	2400	ERJ1KM271W30---T	
	270	16x20	0.048	1950	ERJ1KM271L20---T	
	330	12.5x35	0.036	2600	ERJ1KM331W35---T	
	390	12.5x40	0.032	2860	ERJ1KM391W40---T	
	390	16x25	0.038	2430	ERJ1KM391L25---T	
	390	18x20	0.045	2270	ERJ1KM391M20---T	
	470	16x30	0.032	2640	ERJ1KM471L30---T	
	470	18x25	0.036	2500	ERJ1KM471M25---T	
	560	16x35	0.045	2560	ERJ1KM561L35---T	
	560	18x30	0.030	2860	ERJ1KM561M30---T	
	680	16x40	0.027	3510	ERJ1KM681L40---T	
	680	18x35	0.027	3510	ERJ1KM681M35---T	
	820	18x40	0.026	3860	ERJ1KM821M40---T	
	120	10	6.3x12	4.600	94	ERJ2BM100E12---T
		15	6.3x12	3.800	145	ERJ2BM150E12---T
18		8x9	3.500	145	ERJ2BM180F09---T	
22		8x12	3.000	180	ERJ2BM220F12---T	
33		8x16	2.500	320	ERJ2BM330F16---T	
33		10x13	2.500	320	ERJ2BM330G13---T	
47		8x20	2.000	385	ERJ2BM470F20---T	
47		10x16	2.000	400	ERJ2BM470G16---T	
56		10x16	2.500	332	ERJ2BM560G16---T	
68		10x16	2.500	332	ERJ2BM680G16---T	
82		10x20	2.000	350	ERJ2BM820G20---T	
100		10x25	1.300	540	ERJ2BM101G25---T	
120		12.5x20	1.100	750	ERJ2BM121W20---T	
150		12.5x25	0.850	810	ERJ2BM151W25---T	
220		12.5x30	0.650	990	ERJ2BM221W30---T	
220		16x20	0.650	990	ERJ2BM221L20---T	
270		16x25	0.470	1125	ERJ2BM271L25---T	
270		18x20	0.470	1125	ERJ2BM271M20---T	
330		16x30	0.300	1215	ERJ2BM331L30---T	
330		18x25	0.300	1215	ERJ2BM331M25---T	
470	16x40	0.260	1350	ERJ2BM471L40---T		
470	18x30	0.260	1300	ERJ2BM471M30---T		

Specifications subject to change without notice.

# RH series

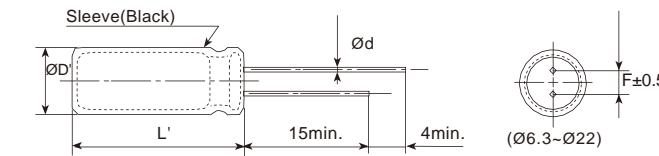
- High frequency, low impedance
- Endurance: 2,000~3,000 hours at 105°C
- RoHS Compliant



SPECIFICATIONS

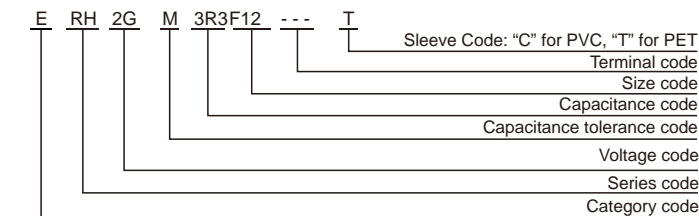
Items	Characteristics						
Category Temperature Range	-40~+105°C (160~450 Vdc)						
Rated Working Voltage Range	160~450 Vdc						
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)						
Leakage Current	I: 0.02CV or 10μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)						
Dissipation Factor (tan δ)	Rated Voltage (Vdc)	160 200 250 350 400 450					
	Dissipation Factor (Max.)	0.12 0.12 0.12 0.15 0.15 0.20 (at 20°C, 120Hz)					
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	160 200 250 350 400 450					
	Z(-25°C)/Z(+20°C)	3 5 5 5 5 6					
	Z(-40°C)/Z(+20°C)	4 7 7 7 7 10 (at 120Hz)					
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.						
	Capacitance Change	±20% of the initial value				Case Dia. (mm)	Life time (hours)
	Dissipation Factor	200% of the initial specified value				ØD 8	2,000
	Leakage Current	The initial specified value				ØD 10	3,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.						
	Capacitance Change	±20% of the initial value					
	Dissipation Factor	200% of the initial specified value					
	Leakage Current	200% of the initial specified value					

DIMENSIONS [mm]



ØD	6.3	8	10	12.5	13	16	18	22
Ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	10.0
ØD'	ØD+0.5max.							
L'	L+2max.							

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq. (Hz)	120	1k	10k	100k
Cap. < 10	0.40	0.70	0.92	1.00
10 Cap. < 100	0.56	0.83	0.95	1.00
100 Cap. 1000	0.67	0.87	0.96	1.00

**RH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
160	2.2	6.3x11	80	ERH2CM2R2E11---T
	3.3	6.3x11	103	ERH2CM3R3E11---T
	4.7	8x12	121	ERH2CM4R7F12---T
	10	10x12	150	ERH2CM100G12---T
	22	10x16	228	ERH2CM220G16---T
	33	10x20	293	ERH2CM330G20---T
	47	12.5x20	368	ERH2CM470W20---T
	100	12.5x25	587	ERH2CM101W25---T
	220	16x25	767	ERH2CM221L25---T
200	1	5x11	50	ERH2DM010D11---T
	2.2	6.3x11	77	ERH2DM2R2E11---T
	3.3	6.3x11	103	ERH2DM3R3E11---T
	4.7	8x12	121	ERH2DM4R7F12---T
	10	10x12	152	ERH2DM100G12---T
	22	10x16	228	ERH2DM220G16---T
	22	10x20	238	ERH2DM220G20---T
	33	10x20	319	ERH2DM330G20---T
	33	12.5x20	365	ERH2DM330W20---T
	47	12.5x20	405	ERH2DM470W20---T
	56	12.5x25	476	ERH2DM560W25---T
	68	10x30	484	ERH2DM680G30---T
	82	10x30	574	ERH2DM820G30---T
	100	16x25	774	ERH2DM101L25---T
	120	16x25	801	ERH2DM121L25---T
150	18x25	908	ERH2DM151M25---T	
180	12.5x35	948	ERH2DM181W35---T	
220	18x30	1032	ERH2DM221M30---T	
250	0.47	6.3x11	32	ERH2EMR47E11---T
	1	6.3x11	59	ERH2EM010E11---T
	2.2	6.3x11	77	ERH2EM2R2E11---T
	3.3	8x12	106	ERH2EM3R3F12---T
	4.7	8x12	124	ERH2EM4R7F12---T
	10	10x12	152	ERH2EM100G12---T
	22	10x16	205	ERH2EM220G16---T
	33	12.5x20	371	ERH2EM330W20---T
	47	12.5x20	355	ERH2EM470W20---T
	56	12.5x25	472	ERH2EM560W25---T
	82	16x25	637	ERH2EM820L25---T
	100	16x30	795	ERH2EM101L30---T
	220	18x35	1085	ERH2EM221M35---T
	330	18x45	1182	ERH2EM331M45---T
	470	22x46	1290	ERH2EM471O46---T
350	0.47	6.3x11	32	ERH2VMR47E11---T
	1	6.3x11	59	ERH2VM010E11---T
	2.2	8x12	80	ERH2VM2R2F12---T
	3.3	8x12	109	ERH2VM3R3F12---T
	3.3	10x12	118	ERH2VM3R3G12---T
	4.7	10x16	153	ERH2VM4R7G16---T
	10	10x16	179	ERH2VM100G16---T
	22	12.5x25	316	ERH2VM220W25---T
	33	16x25	365	ERH2VM330L25---T
47	16x30	532	ERH2VM470L30---T	
400	1	6.3x11	41	ERH2GM010E11---T
	2.2	6.3x11	63	ERH2GM2R2E11---T
	3.3	6.3x12	93	ERH2GM3R3E12---T
	3.3	8x12	100	ERH2GM3R3F12---T
	4.7	8x12	117	ERH2GM4R7F12---T

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
400	10	10x14	166	ERH2GM100G14---T
	10	10x16	177	ERH2GM100G16---T
	22	10x18	233	ERH2GM220G18---T
	27	10x18	280	ERH2GM270G18---T
	33	13x25	510	ERH2GM330K25---T
	33	16x20	487	ERH2GM330L20---T
	39	10x30	422	ERH2GM390G30---T
	47	16x20	652	ERH2GM470L20---T
	47	18x20	640	ERH2GM470M20---T
	56	12.5x35	748	ERH2GM560W35---T
	56	16x25	737	ERH2GM560L25---T
	68	16x30	949	ERH2GM680L30---T
	68	18x25	870	ERH2GM680M25---T
	82	12.5x40	941	ERH2GM820W40---T
	82	18x30	924	ERH2GM820M30---T
100	12.5x50	956	ERH2GM101W50---T	
100	18x30	935	ERH2GM101M30---T	
120	22x31	962	ERH2GM121O31---T	
150	18x35	976	ERH2GM151M35---T	
150	22x31	1010	ERH2GM151O31---T	
450	1	8x12	59	ERH2WM010F12---T
	2.2	8x12	72	ERH2WM2R2F12---T
	3.3	8x12	83	ERH2WM3R3F12---T
	4.7	8x12	81	ERH2WM4R7F12---T
	8.2	10x12	92	ERH2WM8R2G12---T
	10	10x14	98	ERH2WM100G14---T
	10	10x16	101	ERH2WM100G16---T
	18	10x18	145	ERH2WM180G18---T
	22	13x16	221	ERH2WM220K16---T
	22	16x20	545	ERH2WM220L20---T
	33	10x35	509	ERH2WM330G35---T
	33	18x20	498	ERH2WM330M20---T
	39	10x40	554	ERH2WM390G40---T
	47	10x45	703	ERH2WM470G45---T
	47	12.5x30	698	ERH2WM470W30---T
47	16x25	592	ERH2WM470L25---T	
56	12.5x35	781	ERH2WM560W35---T	
56	18x20	656	ERH2WM560M20---T	
68	12.5x40	830	ERH2WM680W40---T	
68	18x25	704	ERH2WM680M25---T	
82	12.5x45	886	ERH2WM820W45---T	
82	18x30	853	ERH2WM820M30---T	
100	18x35	924	ERH2WM101M35---T	
120	18x40	1128	ERH2WM121M40---T	
150	22x40	1354	ERH2WM151O40---T	
220	22x46	1537	ERH2WM221O46---T	

Specifications subject to change without notice.

**HS series**

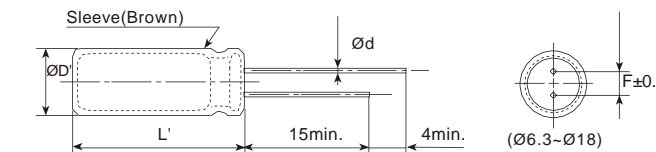
- Endurance: 3,000~5,000 hours at 105°C
- High ripple current; For power supply applications
- RoHS Compliant



■ SPECIFICATIONS

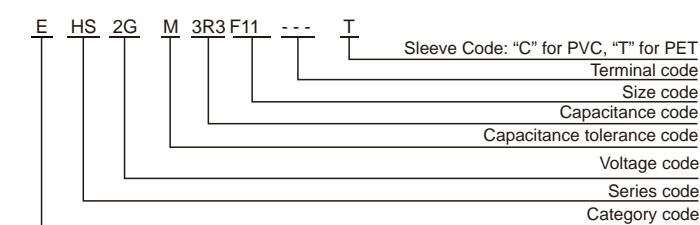
Items	Characteristics										
Category Temperature Range	-40~+105°C(160~450Vdc)					-25~+105°C(500~550Vdc)					
Rated Working Voltage Range	160~450 Vdc										
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)										
Leakage Current			After 1 minute		After 5 minutes		Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C)				
	CV 1000	I	0.1CV+40μA	I	0.03CV+15μA						
	CV>1000	I	0.04CV+100μA	I	0.02CV+25μA						
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160	200	250	350	400	420	450	500	550	(at 20°C, 120Hz)
	Dissipation Factor(Max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.20	0.24	0.24	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	160	200	250	350	400	420	450	500	550	(at 120Hz)
	Z(-25°C)/Z(+20°C)	3	3	3	6	6	6	6	8	8	
	Z(-40°C)/Z(+20°C)	8	8	8	10	10	12	15	-	-	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.										
	Capacitance Change	±20% of the initial value								Case Dia.(mm)	Load life (hours)
	Dissipation Factor	200% of the initial specified value								ØD 8	3,000
	Leakage Current	The initial specified value								ØD 10	5,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.										
	Capacitance Change	±20% of the initial value									
	Dissipation Factor	200% of the initial specified value									
	Leakage Current	200% of the initial specified value									

■ DIMENSIONS[mm]



ØD	6.3	8	10	12.5	13	16	18
Ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.						
L'	L+2max.						

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	120	1k	10k	100k
<100	1.0	1.75	2.25	2.50
100	1.0	1.67	2.05	2.25

**HS series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number	
160	1	6.3x9	15	EHS2CM010E09---T	
	2.2	6.3x9	22	EHS2CM2R2E09---T	
	2.2	6.3x11	32	EHS2CM2R2E11---T	
	3.3	6.3x11	40	EHS2CM3R3E11---T	
	4.7	6.3x12	47	EHS2CM4R7E12---T	
	6.8	8x9	62	EHS2CM6R8F09---T	
	6.8	8x11	65	EHS2CM6R8F11---T	
	8.2	8x9	70	EHS2CM8R2F09---T	
	8.2	8x11	75	EHS2CM8R2F11---T	
	10	8x12	80	EHS2CM100F12---T	
	15	8x12	115	EHS2CM150F12---T	
	18	8x12	125	EHS2CM180F12---T	
	18	8x16	145	EHS2CM180F16---T	
	22	8x16	150	EHS2CM220F16---T	
	22	10x12	165	EHS2CM220G12---T	
	33	10x12	180	EHS2CM330G12---T	
	33	10x14	190	EHS2CM330G14---T	
	47	10x14	210	EHS2CM470G14---T	
	47	10x16	240	EHS2CM470G16---T	
	68	10x18	320	EHS2CM680G18---T	
	68	12.5x16	370	EHS2CM680W16---T	
	82	12.5x16	385	EHS2CM820W16---T	
	82	12.5x20	405	EHS2CM820W20---T	
	100	12.5x20	430	EHS2CM101W20---T	
	100	16x16	445	EHS2CM101L16---T	
	150	12.5x25	465	EHS2CM151W25---T	
	150	16x20	500	EHS2CM151L20---T	
220	16x25	815	EHS2CM221L25---T		
270	16x30	880	EHS2CM271L30---T		
270	18x25	890	EHS2CM271M25---T		
200	1	6.3x9	15	EHS2DM010E09---T	
	2.2	6.3x11	32	EHS2DM2R2E11---T	
	3.3	6.3x12	40	EHS2DM3R3E12---T	
	4.7	6.3x12	47	EHS2DM4R7E12---T	
	6.8	8x9	60	EHS2DM6R8F09---T	
	6.8	8x11	70	EHS2DM6R8F11---T	
	8.2	8x11	75	EHS2DM8R2F11---T	
	10	8x12	80	EHS2DM100F12---T	
	15	8x12	95	EHS2DM150F12---T	
	15	8x16	118	EHS2DM150F16---T	
	18	8x16	125	EHS2DM180F16---T	
	22	8x16	140	EHS2DM220F16---T	
	22	10x12	155	EHS2DM220G12---T	
	33	10x14	160	EHS2DM330G14---T	
	33	10x16	175	EHS2DM330G16---T	
	47	10x16	215	EHS2DM470G16---T	
	68	12.5x18	310	EHS2DM680W18---T	
	68	12.5x20	330	EHS2DM680W20---T	
	82	12.5x20	355	EHS2DM820W20---T	
	100	12.5x25	440	EHS2DM101W25---T	
	100	16x16	450	EHS2DM101L16---T	
	150	12.5x30	600	EHS2DM151W30---T	
	150	16x25	620	EHS2DM151L25---T	
	220	18x25	680	EHS2DM221M25---T	
	270	18x30	750	EHS2DM271M30---T	
	250	1	6.3x9	15	EHS2EM010E09---T
		2.2	6.3x11	37	EHS2EM2R2E11---T

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number	
250	3.3	6.3x12	40	EHS2EM3R3E12---T	
	4.7	6.3x12	55	EHS2EM4R7E12---T	
	6.8	8x9	65	EHS2EM6R8F09---T	
	8.2	8x9	75	EHS2EM8R2F09---T	
	8.2	8x11	85	EHS2EM8R2F11---T	
	10	8x12	95	EHS2EM100F12---T	
	15	8x16	120	EHS2EM150F16---T	
	18	10x12	150	EHS2EM180G12---T	
	22	10x14	168	EHS2EM220G14---T	
	33	10x16	210	EHS2EM330G16---T	
	47	12.5x18	320	EHS2EM470W18---T	
	56	12.5x20	350	EHS2EM560W20---T	
	82	12.5x25	450	EHS2EM820W25---T	
	82	16x18	475	EHS2EM820L18---T	
	100	12.5x30	510	EHS2EM101W30---T	
	100	16x25	530	EHS2EM101L25---T	
	150	18x25	550	EHS2EM151M25---T	
	150	16x30	570	EHS2EM151L30---T	
	220	18x30	710	EHS2EM221M30---T	
	270	18x35	780	EHS2EM271M35---T	
	350	1	6.3x11	24	EHS2VM010E11---T
		2.2	6.3x11	30	EHS2VM2R2E11---T
		3.3	6.3x12	40	EHS2VM3R3E12---T
		4.7	8x9	47	EHS2VM4R7F09---T
		6.8	8x11	65	EHS2VM6R8F11---T
		8.2	8x12	78	EHS2VM8R2F12---T
		10	8x16	95	EHS2VM100F16---T
15		10x12	125	EHS2VM150G12---T	
18		10x14	160	EHS2VM180G14---T	
22		10x16	175	EHS2VM220G16---T	
33		12.5x18	240	EHS2VM330W18---T	
47		12.5x25	320	EHS2VM470W25---T	
56		16x18	355	EHS2VM560L18---T	
68		12.5x30	395	EHS2VM680W30---T	
82		16x25	475	EHS2VM820L25---T	
100		16x30	520	EHS2VM101L30---T	
100		18x25	530	EHS2VM101M25---T	
150		18x30	570	EHS2VM151M30---T	
220		18x40	720	EHS2VM221M40---T	
400		1	6.3x11	25	EHS2GM010E11---T
		2.2	6.3x11	30	EHS2GM2R2E11---T
		3.3	6.3x12	40	EHS2GM3R3E12---T
		4.7	8x9	47	EHS2GM4R7F09---T
		6.8	8x11	65	EHS2GM6R8F11---T
		8.2	8x12	78	EHS2GM8R2F12---T
		10	8x16	95	EHS2GM100F16---T
		10	10x10	100	EHS2GM100G10---T
	15	10x12	130	EHS2GM150G12---T	
	15	10x14	140	EHS2GM150G14---T	
	18	10x16	165	EHS2GM180G16---T	
	22	10x16	180	EHS2GM220G16---T	
	22	12.5x16	210	EHS2GM220W16---T	
	33	12.5x18	260	EHS2GM330W18---T	
	33	12.5x20	275	EHS2GM330W20---T	
	47	12.5x25	350	EHS2GM470W25---T	
	47	16x18	365	EHS2GM470L18---T	
	56	12.5x30	385	EHS2GM560W30---T	

**HS series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number	
400	68	16x25	420	EHS2GM680L25---T	
	82	16x30	475	EHS2GM820L30---T	
	82	18x25	500	EHS2GM820M25---T	
	100	18x25	540	EHS2GM101M25---T	
	100	18x30	560	EHS2GM101M30---T	
	150	18x40	580	EHS2GM151M40---T	
	420	1	6.3x11	25	EHS2TM010E11---T
		2.2	6.3x11	30	EHS2TM2R2E11---T
		3.3	6.3x12	40	EHS2TM3R3E12---T
		4.7	8x9	47	EHS2TM4R7F09---T
6.8		8x11	65	EHS2TM6R8F11---T	
8.2		8x12	80	EHS2TM8R2F12---T	
8.2		10x10	82	EHS2TM8R2G10---T	
10		8x16	95	EHS2TM100F16---T	
10		10x12	100	EHS2TM100G12---T	
15		10x14	140	EHS2TM150G14---T	
15		10x16	145	EHS2TM150G16---T	
18		10x16	165	EHS2TM180G16---T	
22		10x18	180	EHS2TM220G18---T	
22		12.5x16	210	EHS2TM220W16---T	
33		12.5x20	260	EHS2TM330W20---T	
33	13x18	260	EHS2TM330K18---T		
47	12.5x25	355	EHS2TM470W25---T		
47	16x20	370	EHS2TM470L20---T		
56	16x25	420	EHS2TM560L25---T		
82	16x30	540	EHS2TM820L30---T		
82	18x25	550	EHS2TM820M25---T		
100	18x30	580	EHS2TM101M30---T		
150	18x40	650	EHS2TM151M40---T		
450	1	6.3x11	25	EHS2WM010E11---T	
	2.2	6.3x11	30	EHS2WM2R2E11---T	
	3.3	8x9	40	EHS2WM3R3F09---T	
	3.3	8x11	45	EHS2WM3R3F11---T	
	4.7	8x11	50	EHS2WM4R7F11---T	
	6.8	8x12	68	EHS2WM6R8F12---T	
	8.2	10x10	85	EHS2WM8R2G10---T	
	10	8x16	100	EHS2WM100F16---T	
	10	10x12	105	EHS2WM100G12---T	
	15	10x16	150	EHS2WM150G16---T	
	18	10x18	170	EHS2WM180G18---T	
	22	12.5x16	185	EHS2WM220W16---T	
	22	12.5x20	215	EHS2WM220W20---T	
	33	12.5x25	280	EHS2WM330W25---T	
	33	16x18	290	EHS2WM330L18---T	
	47	16x20	370	EHS2WM470L20---T	
	47	16x25	390	EHS2WM470L25---T	
	56	18x20	430	EHS2WM560M20---T	
	82	16x35	550	EHS2WM820L35---T	
	82	18x30	560	EHS2WM820M30---T	
100	18x31	600	EHS2WM101M31---T		
150	18x40	680	EHS2WM151M40---T		
150	18x45	710	EHS2WM151M45---T		
500	4.7	8x16	45	EHS2HM4R7F16---T	
	5.6	10x12	50	EHS2HM5R6G12---T	
	6.8	10x14	60	EHS2HM6R8G14---T	

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number
500	8.2	10x16	75	EHS2HM8R2G16---T
	10	10x18	95	EHS2HM100G18---T
	10	12.5x16	100	EHS2HM100W16---T
	15	12.5x16	130	EHS2HM150W16---T
	15	12.5x18	135	EHS2HM150W18---T
	22	13x20	170	EHS2HM220K20---T
	22	12.5x22	185	EHS2HM220W22---T
	33	16x20	280	EHS2HM330L20---T
	33	16x25	290	EHS2HM330L25---T
	47	18x25	370	EHS2HM470M25---T
	47	16x30	390	EHS2HM470L30---T
	56	18x25	440	EHS2HM560M25---T
	68	18x30	480	EHS2HM680M30---T
	68	16x35	500	EHS2HM680L35---T
	82	18x35	560	EHS2HM820M35---T
100	18x40	620	EHS2HM101M40---T	
120	18x45	650	EHS2HM121M45---T	
550	10	12.5x16	85	EHS2JM100W16---T
	10	12.5x20	90	EHS2JM100W20---T
	12	12.5x20	110	EHS2JM120W20---T
	12	12.5x25	115	EHS2JM120W25---T
	15	12.5x25	130	EHS2JM150W25---T
	15	12.5x30	135	EHS2JM150W30---T
	22	16x20	190	EHS2JM220L20---T
	33	16x25	280	EHS2JM330L25---T
	33	18x20	295	EHS2JM330M20---T
	47	18x30	400	EHS2JM470M30---T
56	18x35	440	EHS2JM560M35---T	

Specifications subject to change without notice.

Radial Type



# HF series

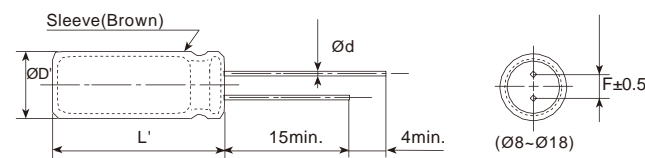
- Long life, high ripple current; For power supply applications
- Endurance: 5,000~10,000 hours at 105°C
- RoHS Compliant



## SPECIFICATIONS

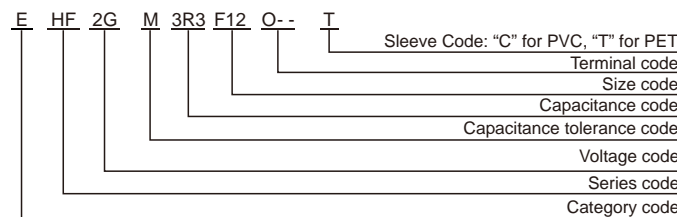
Items	Characteristics																					
Category Temperature Range	-40~+105°C(160~450V <sub>dc</sub> )																					
Rated Working Voltage Range	160~450 V <sub>dc</sub>																					
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																					
Leakage Current	<table border="1"> <tr> <td></td> <td>After 1 minute</td> <td>After 5 minutes</td> </tr> <tr> <td>CV 1000</td> <td>I 0.1CV+40μA</td> <td>I 0.03CV+15μA</td> </tr> <tr> <td>CV&gt;1000</td> <td>I 0.04CV+100μA</td> <td>I 0.02CV+25μA</td> </tr> </table> <p>Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C)</p>		After 1 minute	After 5 minutes	CV 1000	I 0.1CV+40μA	I 0.03CV+15μA	CV>1000	I 0.04CV+100μA	I 0.02CV+25μA												
	After 1 minute	After 5 minutes																				
CV 1000	I 0.1CV+40μA	I 0.03CV+15μA																				
CV>1000	I 0.04CV+100μA	I 0.02CV+25μA																				
Dissipation Factor (tan δ)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Dissipation Factor(Max.)</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> </tr> </table> <p>(at 20°C, 120Hz)</p>	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450	Dissipation Factor(Max.)	0.15	0.15	0.15	0.20	0.20	0.20							
Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450																
Dissipation Factor(Max.)	0.15	0.15	0.15	0.20	0.20	0.20																
Low Temperature Characteristics (Max. Impedance Ratio)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>6</td> <td>6</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>8</td> <td>8</td> <td>10</td> <td>10</td> <td>10</td> </tr> </table>	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450	Z(-25°C)/Z(+20°C)	3	3	3	6	6	6	Z(-40°C)/Z(+20°C)	8	8	8	10	10	10
Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450																
Z(-25°C)/Z(+20°C)	3	3	3	6	6	6																
Z(-40°C)/Z(+20°C)	8	8	8	10	10	10																
Endurance	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>±20% of the initial value</td> <td>Case Dia.(mm)</td> <td>Life time (hours)</td> </tr> <tr> <td>Dissipation Factor</td> <td>200% of the initial specified value</td> <td>∅D 8</td> <td>5,000</td> </tr> <tr> <td>Leakage Current</td> <td>The initial specified value</td> <td>∅D= 10</td> <td>8,000</td> </tr> <tr> <td></td> <td></td> <td>∅D 12.5</td> <td>10,000</td> </tr> </table>	Capacitance Change	±20% of the initial value	Case Dia.(mm)	Life time (hours)	Dissipation Factor	200% of the initial specified value	∅D 8	5,000	Leakage Current	The initial specified value	∅D= 10	8,000			∅D 12.5	10,000					
Capacitance Change	±20% of the initial value	Case Dia.(mm)	Life time (hours)																			
Dissipation Factor	200% of the initial specified value	∅D 8	5,000																			
Leakage Current	The initial specified value	∅D= 10	8,000																			
		∅D 12.5	10,000																			
Shelf Life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>±20% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>200% of the initial specified value</td> </tr> <tr> <td>Leakage Current</td> <td>200% of the initial specified value</td> </tr> </table>	Capacitance Change	±20% of the initial value	Dissipation Factor	200% of the initial specified value	Leakage Current	200% of the initial specified value															
Capacitance Change	±20% of the initial value																					
Dissipation Factor	200% of the initial specified value																					
Leakage Current	200% of the initial specified value																					

## DIMENSIONS[mm]



∅D	6.3	8	10	12.5	13	16	18	22
∅d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	10
∅D'	∅D+0.5max.							
L'	L+2max.							

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz)	120	1k	10k	100k
WV (Vdc)				
<100	1.0	1.75	2.25	2.50
100	1.0	1.67	2.05	2.25

# HF series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
160	10	8x12	78	EHF2CM100F12---T
	12	8x12	88	EHF2CM120F12---T
	15	8x16	112	EHF2CM150F16---T
	22	10x12	139	EHF2CM220G12---T
	33	10x16	210	EHF2CM330G16---T
	39	10x16	231	EHF2CM390G16---T
	47	8x20	230	EHF2CM470F20---T
	47	10x16	230	EHF2CM470G16---T
	56	10x20	267	EHF2CM560G20---T
	68	12.5x20	478	EHF2CM680W20---T
	82	10x25	466	EHF2CM820G25---T
	82	12.5x20	510	EHF2CM820W20---T
	100	12.5x25	630	EHF2CM101W25---T
	100	16x20	635	EHF2CM101L20---T
200	150	16x20	770	EHF2CM151L20---T
	150	16x25	790	EHF2CM151L25---T
	220	16x25	1020	EHF2CM221L25---T
	220	18x25	1045	EHF2CM221M25---T
	330	18x30	1402	EHF2CM331M30---T
	10	8x12	77	EHF2DM100F12---T
	12	10x12	113	EHF2DM120G12---T
	15	8x18	120	EHF2DM150F18---T
	22	10x16	172	EHF2DM220G16---T
	33	10x20	255	EHF2DM330G20---T
	33	12.5x16	225	EHF2DM330W16---T
	39	12.5x16	263	EHF2DM390W16---T
	47	12.5x20	392	EHF2DM470W20---T
	68	12.5x20	470	EHF2DM680W20---T
68	12.5x25	485	EHF2DM680W25---T	
82	16x20	554	EHF2DM820L20---T	
100	12.5x25	551	EHF2DM101W25---T	
100	16x20	556	EHF2DM101L20---T	
150	16x25	840	EHF2DM151L25---T	
150	16x30	865	EHF2DM151L30---T	
150	18x25	870	EHF2DM151M25---T	
220	18x25	1050	EHF2DM221M25---T	
220	18x30	1080	EHF2DM221M30---T	
330	18x35	1430	EHF2DM331M35---T	
330	16x45	1404	EHF2DM331L45---T	
250	4.7	8x12	70	EHF2EM4R7F12---T
	5.6	8x12	75	EHF2EM5R6F12---T
	6.8	10x12	110	EHF2EM6R8G12---T
	10	10x12	115	EHF2EM100G12---T
	22	10x16	172	EHF2EM220G16---T
	33	10x20	248	EHF2EM330G20---T
	39	10x25	315	EHF2EM390G25---T
	47	12.5x20	328	EHF2EM470W20---T
	56	12.5x20	340	EHF2EM560W20---T
	68	16x20	528	EHF2EM680L20---T
	82	16x20	550	EHF2EM820L20---T
	82	16x25	560	EHF2EM820L25---T
	100	12.5x30	584	EHF2EM101W30---T
	100	16x25	604	EHF2EM101L25---T
150	18x25	866	EHF2EM151M25---T	
180	18x25	961	EHF2EM181M25---T	
220	18x30	923	EHF2EM221M30---T	
350	4.7	10x12	70	EHF2VM4R7G12---T
	5.6	10x12	90	EHF2VM5R6G12---T
	6.8	10x16	112	EHF2VM6R8G16---T
	10	10x20	140	EHF2VM100G20---T
	22	12.5x20	265	EHF2VM220W20---T
	33	16x20	364	EHF2VM330L20---T
	39	16x20	385	EHF2VM390L20---T
47	16x20	430	EHF2VM470L20---T	

Specifications subject to change without notice.

WV (Vdc)	Cap (μF)	Size DxDL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
350	47	16x25	445	EHF2VM470L25---T
	68	16x25	560	EHF2VM680L25---T
	68	18x20	550	EHF2VM680M20---T
	68	18x25	570	EHF2VM680M25---T
	82	18x25	618	EHF2VM820M25---T
	100	18x25	700	EHF2VM101M25---T
	100	18x30	725	EHF2VM101M30---T
	120	18x30	836	EHF2VM121M30---T
	150	18x35	970	EHF2VM151M35---T
	400	1	6.3x9	18
2.2		6.3x12	34	EHF2GM2R2E12---T
3.3		8x12	60	EHF2GM3R3F12---T
4.7		8x12	65	EHF2GM4R7F12---T
6.8		8x12	70	EHF2GM6R8F12---T
10		10x16	121	EHF2GM100G16---T
15		10x16	142	EHF2GM150G16---T
22		10x18	182	EHF2GM220G18---T
22		12.5x16	196	EHF2GM220W16---T
33		16x20	368	EHF2GM330L20---T
39		12.5x25	370	EHF2GM390W25---T
47		16x20	400	EHF2GM470L20---T
47		16x25	460	EHF2GM470L25---T
47		18x20	412	EHF2GM470M20---T
56	16x25	500	EHF2GM560L25---T	
68	12.5x40	600	EHF2GM680W40---T	
68	18x25	590	EHF2GM680M25---T	
82	12.5x45	625	EHF2GM820W45---T	
82	18x25	610	EHF2GM820M25---T	
82	18x30	630	EHF2GM820M30---T	
100	12.5x50	790	EHF2GM101W50---T	
100	18x30	745	EHF2GM101M30---T	
100	18x35	785	EHF2GM101M35---T	
120	18x35	870	EHF2GM121M35---T	
150	18x40	985	EHF2GM151M40---T	
450	6.8	8x12	60	EHF2WM6R8F12---T
	10	10x16	120	EHF2WM100G16---T
	10	12.5x20	185	EHF2WM100W20---T
	15	16x16	245	EHF2WM150L16---T
	22	16x20	295	EHF2WM220L20---T
	27	12.5x25	305	EHF2WM270W25---T
	33	16x20	338	EHF2WM330L20---T
	33	16x25	390	EHF2WM330L25---T
	39	13x25	348	EHF2WM390K25---T
	47	16x25	400	EHF2WM470L25---T
	47	18x20	456	EHF2WM470M20---T
	47	18x25	496	EHF2WM470M25---T
	56	12.5x40	550	EHF2WM560W40---T
	68	18x25	558	EHF2WM680M25---T
82	12.5x50	730	EHF2WM820W50---T	
82	18x30	638	EHF2WM820M30---T	
100	18x35	750	EHF2WM101M35---T	
120	22x30	826	EHF2WM121O30---T	

Radial Type

HT series

- Endurance: 2,000 hours at 125°C
- High Temperature, High ripple current, For Power Supply
- RoHS Compliant

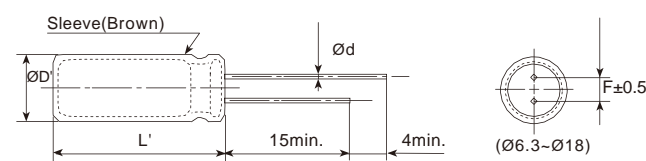
New



SPECIFICATIONS

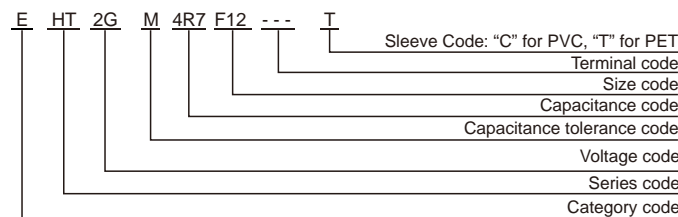
Items	Characteristics									
Category Temperature Range	-40~+125°C(160~450V <sub>dc</sub> )									
Rated Working Voltage Range	160~450 V <sub>dc</sub>									
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)									
Leakage Current	Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C)									
	<table border="1"> <tr> <td></td> <td>After 1 minute</td> <td>After 5 minutes</td> </tr> <tr> <td>CV 1000</td> <td>I 0.1CV+40μA</td> <td>I 0.03CV+15μA</td> </tr> <tr> <td>CV&gt;1000</td> <td>I 0.04CV+100μA</td> <td>I 0.02CV+25μA</td> </tr> </table>		After 1 minute	After 5 minutes	CV 1000	I 0.1CV+40μA	I 0.03CV+15μA	CV>1000	I 0.04CV+100μA	I 0.02CV+25μA
		After 1 minute	After 5 minutes							
CV 1000	I 0.1CV+40μA	I 0.03CV+15μA								
CV>1000	I 0.04CV+100μA	I 0.02CV+25μA								
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	420	450		
	Dissipation Factor(Max.)	0.18	0.18	0.18	0.24	0.24	0.24	0.24		
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	420	450		
	Z(-25°C)/Z(+20°C)	3	3	3	6	6	6	6		
	Z(-40°C)/Z(+20°C)	8	8	8	10	10	12	15		
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 125°C.									
	Capacitance Change	±30% of the initial value								
	Dissipation Factor	300% of the initial specified value								
	Leakage Current	The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.									
	Capacitance Change	±20% of the initial value								
	Dissipation Factor	200% of the initial specified value								
	Leakage Current	200% of the initial specified value								

DIMENSIONS[mm]



ØD	8	10	12.5	13	16	18
Ød	0.5	0.6	0.6	0.6	0.8	0.8
F	3.5	5.0	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.					
L'	L+2max.					

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap(μF)	120	1k	10k	100k
<100	1.0	1.75	2.25	2.50
100	1.0	1.67	2.05	2.25

HT series

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /125°C, 120Hz)	Part Number
160	4.7	8x9	20	EHT2CM4R7F09---T
	4.7	8x11	25	EHT2CM4R7F11---T
	5.6	8x11	28	EHT2CM5R6F11---T
	5.6	8x12	32	EHT2CM5R6F12---T
	6.8	8x12	35	EHT2CM6R8F12---T
	6.8	8x14	40	EHT2CM6R8F14---T
	8.2	8x12	45	EHT2CM8R2F12---T
	8.2	8x14	50	EHT2CM8R2F14---T
	10	8x16	58	EHT2CM100F16---T
	10	10x11	60	EHT2CM100G11---T
	15	8x16	75	EHT2CM150F16---T
	15	10x12	78	EHT2CM150G12---T
	22	10x12	110	EHT2CM220G12---T
	22	10x14	120	EHT2CM220G14---T
	33	10x16	136	EHT2CM330G16---T
200	4.7	8x9	35	EHT2DM4R7F09---T
	4.7	8x11	38	EHT2DM4R7F11---T
	5.6	8x11	40	EHT2DM5R6F11---T
	5.6	8x12	45	EHT2DM5R6F12---T
	6.8	8x12	50	EHT2DM6R8F12---T
	6.8	8x14	55	EHT2DM6R8F14---T
	8.2	8x12	58	EHT2DM8R2F12---T
	8.2	8x14	62	EHT2DM8R2F14---T
	10	8x16	82	EHT2DM100F16---T
	10	10x12	90	EHT2DM100G12---T
	15	10x14	100	EHT2DM150G14---T
	22	10x14	115	EHT2DM220G14---T
	22	10x16	120	EHT2DM220G16---T
	33	10x18	145	EHT2DM330G18---T
	33	12.5x16	150	EHT2DM330W16---T
47	12.5x18	165	EHT2DM470W18---T	
56	12.5x20	180	EHT2DM560W20---T	
68	12.5x25	215	EHT2DM680W25---T	
68	16x18	225	EHT2DM680L18---T	
82	16x20	240	EHT2DM820L20---T	
100	16x25	310	EHT2DM101L25---T	
120	18x25	350	EHT2DM121M25---T	
150	16x30	375	EHT2DM151L30---T	
250	4.7	8x9	38	EHT2EM4R7F09---T
	4.7	8x11	40	EHT2EM4R7F11---T
	5.6	8x11	45	EHT2EM5R6F11---T
	5.6	8x12	50	EHT2EM5R6F12---T
	6.8	8x12	52	EHT2EM6R8F12---T
	6.8	8x14	55	EHT2EM6R8F14---T
	8.2	8x14	65	EHT2EM8R2F14---T
	10	8x16	80	EHT2EM100F16---T
	10	10x12	85	EHT2EM100G12---T
	15	10x14	95	EHT2EM150G14---T
	15	10x16	105	EHT2EM150G16---T
	22	10x18	125	EHT2EM220G18---T
	33	12.5x16	145	EHT2EM330W16---T
	33	12.5x18	160	EHT2EM330W18---T
	47	12.5x20	175	EHT2EM470W20---T
56	12.5x25	190	EHT2EM560W25---T	
56	16x18	205	EHT2EM560L18---T	
68	12.5x30	225	EHT2EM680W30---T	
68	16x18	235	EHT2EM680L18---T	
82	12.5x35	260	EHT2EM820W35---T	

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /125°C, 120Hz)	Part Number
250	82	16x25	275	EHT2EM820L25---T
	100	16x30	325	EHT2EM101L30---T
	100	18x25	350	EHT2EM101M25---T
	120	16x30	375	EHT2EM121L30---T
	120	18x25	385	EHT2EM121M25---T
	150	18x30	400	EHT2EM151M30---T
350	4.7	8x11	40	EHT2VM4R7F11---T
	4.7	8x12	42	EHT2VM4R7F12---T
	5.6	8x12	45	EHT2VM5R6F12---T
	5.6	8x14	50	EHT2VM5R6F14---T
	6.8	8x14	52	EHT2VM6R8F14---T
	6.8	8x16	55	EHT2VM6R8F16---T
	8.2	8x16	65	EHT2VM8R2F16---T
	10	10x12	80	EHT2VM100G12---T
	10	10x14	85	EHT2VM100G14---T
	15	10x16	95	EHT2VM150G16---T
	22	10x18	125	EHT2VM220G18---T
	33	12.5x20	145	EHT2VM330W20---T
	33	12.5x22	160	EHT2VM330W22---T
	47	12.5x25	175	EHT2VM470W25---T
	47	16x18	185	EHT2VM470L18---T
56	16x20	190	EHT2VM560L20---T	
56	16x25	205	EHT2VM560L25---T	
68	16x25	225	EHT2VM680L25---T	
68	18x20	235	EHT2VM680M20---T	
82	18x20	260	EHT2VM820M20---T	
82	18x25	275	EHT2VM820M25---T	
100	16x30	325	EHT2VM101L30---T	
100	18x25	350	EHT2VM101M25---T	
120	16x35	375	EHT2VM121L35---T	
120	18x30	385	EHT2VM121M30---T	
150	18x35	400	EHT2VM151M35---T	
400	4.7	8x12	40	EHT2GM4R7F12---T
	5.6	8x14	45	EHT2GM5R6F14---T
	5.6	8x16	50	EHT2GM5R6F16---T
	6.8	8x16	52	EHT2GM6R8F16---T
	6.8	10x12	55	EHT2GM6R8G12---T
	8.2	10x12	65	EHT2GM8R2G12---T
	10	10x14	80	EHT2GM100G14---T
	10	10x16	85	EHT2GM100G16---T
	15	10x18	100	EHT2GM150G18---T
	22	10x18	125	EHT2GM220G18---T
	22	12.5x18	130	EHT2GM220W18---T
	33	12.5x20	150	EHT2GM330W20---T
	33	12.5x22	165	EHT2GM330W22---T
	47	16x20	200	EHT2GM470L20---T
	47	16x25	210	EHT2GM470L25---T
56	16x25	235	EHT2GM560L25---T	
56	18x20	240	EHT2GM560M20---T	
68	16x30	265	EHT2GM680L30---T	
68	18x25	280	EHT2GM680M25---T	
82	18x25	325	EHT2GM820M25---T	
100	18x30	395	EHT2GM101M30---T	
120	18x30	410	EHT2GM121M30---T	
120	18x35	420	EHT2GM121M35---T	
150	18x40	465	EHT2GM151M40---T	
420	4.7	8x12	40	EHT2TM4R7F12---T
	5.6	8x16	45	EHT2TM5R6F16---T
	5.6	10x12	50	EHT2TM5R6G12---T
	6.8	10x12	55	EHT2TM6R8G12---T
	8.2	10x14	65	EHT2TM8R2G14---T
	10	10x14	85	EHT2TM100G14---T
	10	10x16	90	EHT2TM100G16---T
	15	10x18	105	EHT2TM150G18---T
	22	12.5x18	135	EHT2TM220W18---T
	22	12.5x20	140	EHT2TM220W20---T
	33	12.5x22	165	EHT2TM330W22---T

Radial Type

# HT series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /125°C,120Hz)	Part Number	
420	33	12.5x25	175	EHT2TM330W25---T	
	47	16x25	205	EHT2TM470L25---T	
	47	18x20	215	EHT2TM470M20---T	
	56	18x25	240	EHT2TM560M25---T	
	68	16x30	275	EHT2TM680L30---T	
	68	18x25	295	EHT2TM680M25---T	
	82	16x35	345	EHT2TM820L35---T	
	82	18x30	355	EHT2TM820M30---T	
	100	16x40	405	EHT2TM101L40---T	
	100	18x30	415	EHT2TM101M30---T	
	120	16x45	420	EHT2TM121L45---T	
	120	18x35	430	EHT2TM121M35---T	
	150	18x45	465	EHT2TM151M45---T	
	450	4.7	8x16	40	EHT2WM4R7F16---T
		5.6	10x12	45	EHT2WM5R6G12---T
5.6		10x14	50	EHT2WM5R6G14---T	
6.8		10x14	55	EHT2WM6R8G14---T	
8.2		10x16	70	EHT2WM8R2G16---T	
10		10x18	85	EHT2WM100G18---T	
10		12.5x16	90	EHT2WM100W16---T	
15		12.5x16	110	EHT2WM150W16---T	
15		12.5x18	115	EHT2WM150W18---T	
22		13x20	135	EHT2WM220K20---T	
22		12.5x22	140	EHT2WM220W22---T	
33		16x20	175	EHT2WM330L20---T	
33		16x25	185	EHT2WM330L25---T	
47		18x25	215	EHT2WM470M25---T	
47		16x30	225	EHT2WM470L30---T	
56		18x25	255	EHT2WM560M25---T	
68		18x30	285	EHT2WM680M30---T	
68		16x35	305	EHT2WM680L35---T	
82		18x35	355	EHT2WM820M35---T	
100		18x40	415	EHT2WM101M40---T	
120		18x45	420	EHT2WM121M45---T	

Specifications subject to change without notice.

# HL series

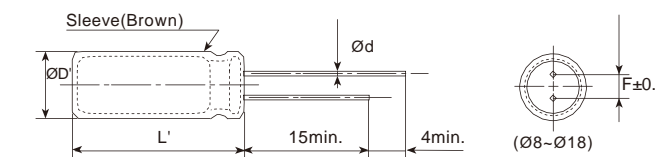
- Long life, downsized, high ripple current; For power supply applications
- Endurance: 8,000~12,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant



SPECIFICATIONS

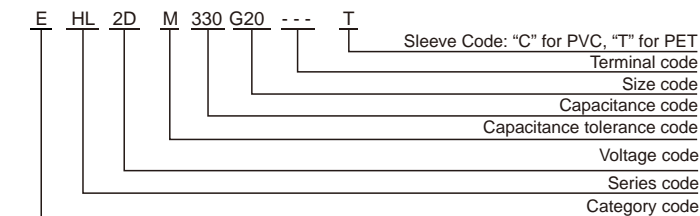
Items	Characteristics										
Category Temperature Range	-40~+105°C(160~450V <sub>dc</sub> )	-25~+105°C(500V <sub>dc</sub> )									
Rated Working Voltage Range	160~500 V <sub>dc</sub>										
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)										
Leakage Current	<table border="1"> <tr> <td></td> <td>After 1 minute</td> <td>After 5 minutes</td> </tr> <tr> <td>CV 1000</td> <td>I 0.1CV+40μA</td> <td>I 0.03CV+15μA</td> </tr> <tr> <td>CV&gt;1000</td> <td>I 0.04CV+100μA</td> <td>I 0.02CV+25μA</td> </tr> </table>			After 1 minute	After 5 minutes	CV 1000	I 0.1CV+40μA	I 0.03CV+15μA	CV>1000	I 0.04CV+100μA	I 0.02CV+25μA
		After 1 minute	After 5 minutes								
CV 1000	I 0.1CV+40μA	I 0.03CV+15μA									
CV>1000	I 0.04CV+100μA	I 0.02CV+25μA									
Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C)											
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160 200 250 350 400 450 500									
	Dissipation Factor(Max.)	0.18 0.18 0.18 0.24 0.24 0.24 0.24 (at 20°C,120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160 200 250 350 400 450 500									
	Z(-25°C)/Z(+20°C)	3 3 3 6 6 6 6									
	Z(-40°C)/Z(+20°C)	8 8 8 10 10 10 -									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.										
	Capacitance Change	±20% of the initial value				Rated Voltage	160 to 450V <sub>dc</sub> 500V <sub>dc</sub>				
	Dissipation Factor	200% of the initial specified value				Life time	L 20: 10,000 hours 10: 8,000 hours				
	Leakage Current	The initial specified value					L>20: 12,000 hours 12.5: 10,000 hours				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.										
	Capacitance Change	±20% of the initial value									
	Dissipation Factor	200% of the initial specified value									
	Leakage Current	200% of the initial specified value									

DIMENSIONS[mm]



∅D	10	12.5	16	18	22
∅d	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	10
∅D'	∅D+0.5max.				
L'	L+2max.				

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV (Vdc)	120	1k	10k	100k
<100	1.0	1.75	2.25	2.50
100	1.0	1.67	2.05	2.25



**HL series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number
160	33	10x16	210	EHL2CM330G16---T
	47	10x20	300	EHL2CM470G20---T
	56	10x20	318	EHL2CM560G20---T
	68	12.5x20	377	EHL2CM680W20---T
	82	10x25	416	EHL2CM820G25---T
	82	10x30	448	EHL2CM820G30---T
	100	12.5x20	575	EHL2CM101W20---T
	120	10x35	572	EHL2CM121G35---T
	150	10x45	696	EHL2CM151G45---T
	150	12.5x25	767	EHL2CM151W25---T
	180	12.5x30	885	EHL2CM181W30---T
	180	16x20	858	EHL2CM181L20---T
	220	12.5x35	1044	EHL2CM221W35---T
	220	16x25	1022	EHL2CM221L25---T
	270	12.5x40	1196	EHL2CM271W40---T
	270	12.5x45	1230	EHL2CM271W45---T
	330	16x30	1355	EHL2CM331L30---T
	330	18x25	1292	EHL2CM331M25---T
	390	16x35	1505	EHL2CM391L35---T
	470	18x30	1665	EHL2CM471M30---T
470	18x35	1722	EHL2CM471M35---T	
560	16x50	1924	EHL2CM561L50---T	
560	18x40	1910	EHL2CM561M40---T	
680	18x45	2135	EHL2CM681M45---T	
680	18x50	2148	EHL2CM681M50---T	
200	33	10x20	255	EHL2DM330G20---T
	39	10x20	268	EHL2DM390G20---T
	47	10x20	302	EHL2DM470G20---T
	56	10x25	346	EHL2DM560G25---T
	68	10x30	406	EHL2DM680G30---T
	82	12.5x20	522	EHL2DM820W20---T
	100	10x35	520	EHL2DM101G35---T
	100	12.5x25	628	EHL2DM101W25---T
	120	12.5x30	728	EHL2DM121W30---T
	120	16x20	698	EHL2DM121L20---T
	150	10x50	720	EHL2DM151G50---T
	150	18x25	823	EHL2DM151M25---T
	180	16x25	928	EHL2DM181L25---T
	180	18x20	895	EHL2DM181M20---T
	220	12.5x45	1116	EHL2DM221W45---T
	220	18x25	1050	EHL2DM221M25---T
	270	12.5x50	1268	EHL2DM271W50---T
	270	16x35	1252	EHL2DM271L35---T
	330	16x40	1428	EHL2DM331L40---T
	330	18x30	1402	EHL2DM331M30---T
390	16x45	1575	EHL2DM391L45---T	
390	18x35	1570	EHL2DM391M35---T	
470	18x40	1748	EHL2DM471M40---T	
470	18x45	1775	EHL2DM471M45---T	
560	18x50	1952	EHL2DM561M50---T	
250	27	10x16	172	EHL2EM270G16---T
	33	10x20	242	EHL2EM330G20---T
	47	10x25	316	EHL2EM470G25---T
	47	12.5x20	321	EHL2EM470W20---T
	56	12.5x20	430	EHL2EM560W20---T
	68	10x35	432	EHL2EM680G35---T
	82	10x45	518	EHL2EM820G45---T
	82	12.5x25	565	EHL2EM820W25---T
	100	12.5x30	662	EHL2EM101W30---T
	100	16x20	638	EHL2EM101L20---T
	120	16x25	758	EHL2EM121L25---T

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number	
250	120	18x20	732	EHL2EM121M20---T	
	150	12.5x40	892	EHL2EM151W40---T	
	150	12.5x45	922	EHL2EM151W45---T	
	180	12.5x50	1040	EHL2EM181W50---T	
	180	16x30	995	EHL2EM181L30---T	
	180	18x25	955	EHL2EM181M25---T	
	220	16x35	1130	EHL2EM221L35---T	
	220	18x30	1138	EHL2EM221M30---T	
	270	16x45	1315	EHL2EM271L45---T	
	270	18x35	1300	EHL2EM271M35---T	
	330	16x50	1480	EHL2EM331L50---T	
	330	18x40	1466	EHL2EM331M40---T	
	390	18x50	1630	EHL2EM391M50---T	
	350	15	10x16	150	EHL2VM150G16---T
		18	10x20	165	EHL2VM180G20---T
		22	10x20	200	EHL2VM220G20---T
		27	10x25	242	EHL2VM270G25---T
		27	10x30	256	EHL2VM270G30---T
33		12.5x20	332	EHL2VM330W20---T	
39		10x35	326	EHL2VM390G35---T	
47		10x40	376	EHL2VM470G40---T	
47		12.5x25	425	EHL2VM470W25---T	
56		10x45	426	EHL2VM560G45---T	
56		12.5x30	498	EHL2VM560W30---T	
56		16x20	476	EHL2VM560L20---T	
68		10x50	486	EHL2VM680G50---T	
68		12.5x35	583	EHL2VM680W35---T	
68		18x20	550	EHL2VM680M20---T	
82		12.5x40	658	EHL2VM820W40---T	
82		16x25	628	EHL2VM820L25---T	
100		12.5x45	752	EHL2VM101W45---T	
100	16x30	744	EHL2VM101L30---T		
100	18x25	710	EHL2VM101M25---T		
120	16x35	832	EHL2VM121L35---T		
150	16x40	964	EHL2VM151L40---T		
150	16x45	978	EHL2VM151L45---T		
150	18x30	944	EHL2VM151M30---T		
180	16x50	1095	EHL2VM181L50---T		
180	18x35	1065	EHL2VM181M35---T		
180	18x40	1086	EHL2VM181M40---T		
220	18x45	1215	EHL2VM221M45---T		
220	18x50	1222	EHL2VM221M50---T		
400	12	10x16	135	EHL2GM120G16---T	
	15	10x20	155	EHL2GM150G20---T	
	18	10x20	180	EHL2GM180G20---T	
	22	10x25	216	EHL2GM220G25---T	
	27	10x30	256	EHL2GM270G30---T	
	27	12.5x20	300	EHL2GM270W20---T	
	33	16x20	336	EHL2GM330L20---T	
	33	12.5x25	320	EHL2GM330W25---T	
	39	12.5x25	390	EHL2GM390W25---T	
	47	12.5x30	456	EHL2GM470W30---T	
	47	16x20	438	EHL2GM470L20---T	
	56	10x50	440	EHL2GM560G50---T	
	56	12.5x35	528	EHL2GM560W35---T	
	56	18x20	502	EHL2GM560M20---T	
	68	12.5x40	600	EHL2GM680W40---T	
	68	16x25	572	EHL2GM680L25---T	
	82	16x30	672	EHL2GM820L30---T	
	82	18x25	644	EHL2GM820M25---T	

**HL series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mArms/105°C,120Hz)	Part Number	
400	100	16x35	760	EHL2GM101L35---T	
	100	16x40	780	EHL2GM101L40---T	
	120	16x40	864	EHL2GM121L40---T	
	120	18x30	842	EHL2GM121M30---T	
	120	18x35	875	EHL2GM121M35---T	
	150	16x50	1000	EHL2GM151L50---T	
	150	18x40	985	EHL2GM151M40---T	
	180	18x45	1098	EHL2GM181M45---T	
	220	18x50	1225	EHL2GM221M50---T	
	450	10	10x16	120	EHL2WM100G16---T
		12	10x20	150	EHL2WM120G20---T
		15	10x25	186	EHL2WM150G25---T
18		10x30	216	EHL2WM180G30---T	
18		12.5x20	256	EHL2WM180W20---T	
22		16x20	282	EHL2WM220L20---T	
27		10x40	292	EHL2WM270G40---T	
27		10x45	306	EHL2WM270G45---T	
27		12.5x25	342	EHL2WM270W25---T	
33		12.5x30	400	EHL2WM330W30---T	
33		16x20	386	EHL2WM330L20---T	
39		10x50	378	EHL2WM390G50---T	
39		12.5x35	462	EHL2WM390W35---T	
39		18x20	440	EHL2WM390M20---T	
47		12.5x40	528	EHL2WM470W40---T	
47		16x25	500	EHL2WM470L25---T	
56		12.5x45	592	EHL2WM560W45---T	
56		16x30	588	EHL2WM560L30---T	
56	18x25	562	EHL2WM560M25---T		
68	12.5x50	672	EHL2WM680W50---T		
68	16x35	664	EHL2WM680L35---T		
82	16x40	750	EHL2WM820L40---T		
82	18x30	734	EHL2WM820M30---T		
100	16x50	858	EHL2WM101L50---T		
100	18x35	836	EHL2WM101M35---T		
120	18x40	935	EHL2WM121M40---T		
120	22x31	901	EHL2WM121O31---T		
150	18x50	1065	EHL2WM151M50---T		
500	6.8	10x20	90	EHL2HM68G20---T	
	10	10x30	130	EHL2HM100G30---T	
	10	12.5x20	125	EHL2HM100W20---T	
	12	12.5x20	135	EHL2HM120W20---T	
	15	10x35	170	EHL2HM150G35---T	
	15	12.5x25	170	EHL2HM150W25---T	
	15	16x20	165	EHL2HM150L20---T	
	18	10x45	190	EHL2HM180G45---T	
	18	12.5x30	190	EHL2HM180W30---T	
	22	10x50	230	EHL2HM220G50---T	
	22	12.5x35	225	EHL2HM220W35---T	
	22	16x20	220	EHL2HM220L20---T	
33	16x25	246	EHL2HM330L25---T		
47	18x30	400	EHL2HM470M30---T		

Specifications subject to change without notice.

# RK series

- Endurance: 2,000 hours at 105°C
- Especially designed for charger
- Miniaturized, high voltage
- RoHS Compliant

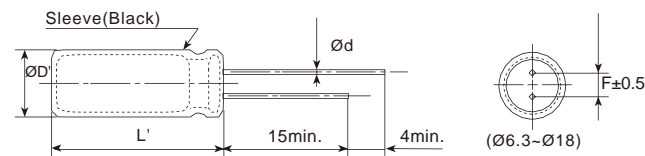
Upgrade



**SPECIFICATIONS**

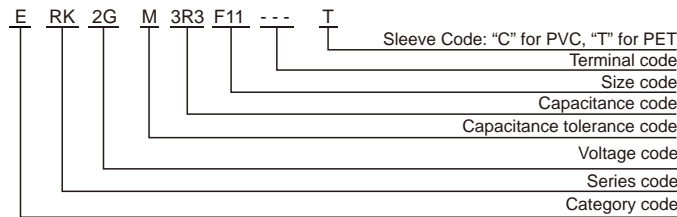
Items	Characteristics										
Category Temperature Range	-40~+105°C(160~450 V <sub>dc</sub> )					-25~+105°C(500~600 V <sub>dc</sub> )					
Rated Voltage Range	160~600 V <sub>dc</sub>										
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)										
Leakage Current	160~450 V <sub>dc</sub>		500~600 V <sub>dc</sub>			Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V)					
	I 0.02CV+10μA		I 0.03CV+40μA			(at 20°C after 2 minutes)					
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450	500	550	600	(at 20°C, 120Hz)
	Dissipation Factor(Max.)	0.15	0.15	0.15	0.15	0.20	0.24	0.24	0.24	0.24	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160	200	250	350	400	450	500	550	600	(at 120Hz)
	Z(-25°C)/Z(+20°C)	3	3	3	6	6	6	8	15	15	
Endurance	The following specification shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for the specified period of time at 105°C.										
	Capacitance Change	±30% of the initial value									
	Dissipation Factor	200% of the initial specified value									
	Leakage Current	The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.										
	Capacitance Change	±20% of the initial value									
	Dissipation Factor	200% of the initial specified value									
	Leakage Current	200% of the initial specified value									

**DIMENSIONS[mm]**



∅D	6.3	8	10	12.5	13	16	18
∅d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5
∅D'	∅D+0.5max.						
L'	L+2max.						

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

WV(V <sub>dc</sub> )	Freq.(Hz)			
	120	1k	10k	100k
160~600	0.50	0.80	0.90	1.00

# RK series

**STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number	
160	3.3	6.3x9	55	ERK2CM3R3E09---T	
	4.7	6.3x9	65	ERK2CM4R7E09---T	
	6.8	6.3x12	85	ERK2CM6R8E12---T	
	8.2	8x9	100	ERK2CM8R2F09---T	
	10	8x9	125	ERK2CM100F09---T	
	15	8x10	175	ERK2CM150F10---T	
	15	8x11	185	ERK2CM150F11---T	
	22	8x12	210	ERK2CM220F12---T	
	33	8x16	255	ERK2CM330F16---T	
	33	10x12	275	ERK2CM330G12---T	
	47	10x14	350	ERK2CM470G14---T	
	47	10x16	365	ERK2CM470G16---T	
	68	10x18	430	ERK2CM680G18---T	
	68	10x20	450	ERK2CM680G20---T	
	200	4.7	6.3x11	60	ERK2DM4R7E11---T
		6.8	6.3x12	75	ERK2DM6R8E12---T
8.2		8x11	90	ERK2DM8R2F11---T	
10		8x11	135	ERK2DM100F11---T	
15		8x12	190	ERK2DM150F12---T	
15		10x10	195	ERK2DM150G10---T	
22		10x11	230	ERK2DM220G11---T	
33		10x14	270	ERK2DM330G14---T	
47		10x16	365	ERK2DM470G16---T	
47		12.5x14	385	ERK2DM470W14---T	
68		12.5x18	455	ERK2DM680W18---T	
250		4.7	8x9	75	ERK2EM4R7F09---T
		6.8	8x10	80	ERK2EM6R8F10---T
		8.2	8x11	100	ERK2EM8R2F11---T
		10	8x12	150	ERK2EM100F12---T
		15	10x10	200	ERK2EM150G10---T
	15	10x12	210	ERK2EM150G12---T	
	22	10x14	255	ERK2EM220G14---T	
	33	10x16	290	ERK2EM330G16---T	
	47	12.5x16	380	ERK2EM470W16---T	
	47	12.5x18	400	ERK2EM470W18---T	
	68	12.5x20	475	ERK2EM680W20---T	
	350	4.7	8x10	80	ERK2VM4R7F10---T
		6.8	8x11	85	ERK2VM6R8F11---T
		8.2	8x11	105	ERK2VM8R2F11---T
		10	8x12	160	ERK2VM100F12---T
		15	10x12	210	ERK2VM150G12---T
18		10x14	240	ERK2VM180G14---T	
22		10x16	265	ERK2VM220G16---T	
33		10x20	315	ERK2VM330G20---T	
47		12.5x20	420	ERK2VM470W20---T	
56		12.5x25	475	ERK2VM56W25---T	
68		16x20	520	ERK2VM680L20---T	
82		16x25	580	ERK2VM820L25---T	
400		1	6.3x9	46	ERK2GM010E09---T
		1	6.3x11	52	ERK2GM010E11---T
		1.8	6.3x9	56	ERK2GM1R8E09---T
		1.8	6.3x12	60	ERK2GM1R8E12---T
	2.2	6.3x11	64	ERK2GM2R2E11---T	
	2.2	8x9	66	ERK2GM2R2F09---T	
	3.3	6.3x11	74	ERK2GM3R3E11---T	
	3.3	8x9	76	ERK2GM3R3F09---T	

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/105°C, 100kHz)	Part Number
400	3.3	8x11	80	ERK2GM3R3F11---T
	4.7	6.3x11	90	ERK2GM4R7E11---T
	4.7	8x9	94	ERK2GM4R7F09---T
	4.7	8x11	98	ERK2GM4R7F11---T
	4.7	10x9	102	ERK2GM4R7G09---T
	6.8	8x11	126	ERK2GM6R8F11---T
	6.8	10x9	132	ERK2GM6R8G09---T
	8.2	8x12	145	ERK2GM8R2F12---T
	8.2	10x9	150	ERK2GM8R2G09---T
	8.2	10x11	158	ERK2GM8R2G11---T
	10	8x12	165	ERK2GM100F12---T
	10	8x14	180	ERK2GM100F14---T
	10	10x9	172	ERK2GM100G09---T
	15	10x12	200	ERK2GM150G12---T
	15	10x14	210	ERK2GM150G14---T
	450	1	6.3x9	46
1		8x9	54	ERK2WM010F09---T
1.8		6.3x11	62	ERK2WM1R8E11---T
1.8		8x9	70	ERK2WM1R8F09---T
2.2		8x9	72	ERK2WM2R2F09---T
2.2		8x11	75	ERK2WM2R2F11---T
3.3		8x11	82	ERK2WM3R3F11---T
4.7		8x12	100	ERK2WM4R7F12---T
4.7		10x10	100	ERK2WM4R7G10---T
6.8		8x14	125	ERK2WM6R8F14---T
6.8		10x11	130	ERK2WM6R8G11---T
6.8		10x12	134	ERK2WM6R8G12---T
8.2		10x11	160	ERK2WM8R2G11---T
8.2		10x12	180	ERK2WM8R2G12---T
10		10x14	200	ERK2WM100G14---T
10		10x16	220	ERK2WM100G16---T
15	10x16	230	ERK2WM150G16---T	
15	12.5x16	250	ERK2WM150W16---T	
22	10x18	260	ERK2WM220G18---T	
22	12.5x16	295	ERK2WM220W16---T	
33	12.5x20	495	ERK2WM330W20---T	
33	16x16	495	ERK2WM330L16---T	
33	16x20	550	ERK2WM330L20---T	
47	16x20	620	ERK2WM470L20---T	
47	16x25	640	ERK2WM470L25---T	
47	18x20	640	ERK2WM470M20---T	
68	18x20	870	ERK2WM680M20---T	

Radial Type

**RK series**

- Compliant to AEC-Q200

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C,100kHz)	Part Number
450	68	18x25	970	ERK2WM680M25---T
	82	18x25	1065	ERK2WM820M25---T
	100	18x30	1120	ERK2WM101M30---T
	100	18x35	1240	ERK2WM101M35---T
	120	18x35	1300	ERK2WM121M35---T
	120	18x40	1400	ERK2WM121M40---T
150	18x45	1800	ERK2WM151M45---T	
500	3.3	8x12	65	ERK2HM3R3F12---T
	4.7	8x14	110	ERK2HM4R7F14---T
	5.6	10x12	130	ERK2HM5R6G12---T
	6.8	10x12	150	ERK2HM6R8G12---T
	8.2	10x12	160	ERK2HM8R2G12---T
	8.2	10x16	190	ERK2HM8R2G16---T
	10	10x16	215	ERK2HM100G16---T
	15	10x18	235	ERK2HM150G18---T
	15	12.5x16	250	ERK2HM150W16---T
	22	12.5x20	310	ERK2HM220W20---T
550	3.3	8x12	65	ERK2JM3R3F12---T
	4.7	8x14	100	ERK2JM4R7F14---T
	5.6	10x12	135	ERK2JM5R6G12---T
	6.8	10x14	145	ERK2JM6R8G14---T
	8.2	10x16	190	ERK2JM8R2G16---T
	10	10x16	215	ERK2JM100G16---T
	10	13x14	220	ERK2JM100K14---T
	15	13x16	245	ERK2JM150K16---T
22	12.5x25	330	ERK2JM220W25---T	
600	4.7	10x12	105	ERK2KM4R7G12---T
	6.8	10x16	110	ERK2KM6R8G16---T
	8.2	10x18	130	ERK2KM8R2G18---T
	10	12.5x16	150	ERK2KM100W16---T
	15	13x20	190	ERK2KM150K20---T
22	13x25	260	ERK2KM220K25---T	

Specifications subject to change without notice.

**RG series**

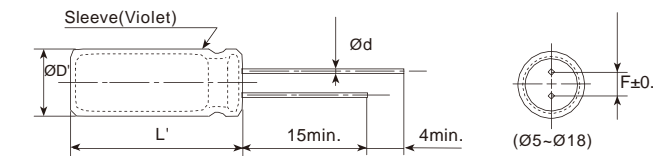
- "GBL" system, high reliability
- Low impedance and high ripple current
- Endurance: 2,000 ~ 8,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant



SPECIFICATIONS

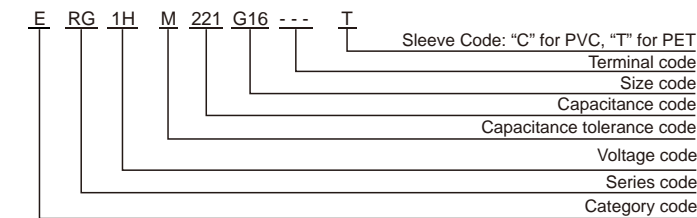
Items	Characteristics
Category Temperature Range	-55~+105°C
Rated Voltage Range	6.3~100 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 100 Dissipation Factor (Max.) 0.22 0.19 0.16 0.14 0.12 0.10 0.08 0.08 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 100 Z(-25°C)/Z(+20°C) 4 3 2 Z(-55°C)/Z(+20°C) 8 6 4 3 (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105°C. Capacitance Change ±25% of the initial value Dissipation Factor 200% of the initial specified value Leakage Current The initial specified value Dia. Load life (hours) ØD=6.3 2,000 ØD=8 3,000 ØD=10 5,000 ØD=12.5 7,000 ØD=16 8,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours. Capacitance Change ±25% of the initial value Dissipation Factor 200% of the initial specified value Leakage Current 200% of the initial specified value

DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.						
L'	L+2max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF) \ Freq.(Hz)	120	1k	10k	100k
Cap.<220	0.40	0.75	0.90	1.00
220 Cap.<680	0.50	0.85	0.94	1.00
680 Cap.<2200	0.60	0.87	0.95	1.00
2200 Cap.<4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00



RG series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
6.3	100	5x11	0.650	155	ERG0JM101D11---T	
	330	6.3x11	0.420	290	ERG0JM331E11---T	
	470	8x11	0.180	400	ERG0JM471F11---T	
	560	8x11	0.170	460	ERG0JM561F11---T	
	680	8x12	0.170	550	ERG0JM681F12---T	
	820	8x16	0.095	730	ERG0JM821F16---T	
	1000	8x16	0.090	730	ERG0JM102F16---T	
	1200	8x20	0.080	810	ERG0JM122F20---T	
	1500	10x20	0.052	1220	ERG0JM152G20---T	
	2200	10x20	0.045	1440	ERG0JM222G20---T	
	2700	10x30	0.037	1690	ERG0JM272G30---T	
	3300	12.5x20	0.038	1660	ERG0JM332W20---T	
	3900	12.5x25	0.030	1950	ERG0JM392W25---T	
	4700	12.5x30	0.025	2310	ERG0JM472W30---T	
	5600	12.5x35	0.022	2510	ERG0JM562W35---T	
	6800	12.5x40	0.017	2870	ERG0JM682W40---T	
	8200	16x30	0.019	3010	ERG0JM822L30---T	
	10000	16x35	0.017	3150	ERG0JM103L35---T	
	10	100	5x11	0.580	175	ERG1AM101D11---T
		220	6.3x11	0.280	290	ERG1AM221E11---T
330		8x11	0.280	410	ERG1AM331F11---T	
470		8x12	0.130	555	ERG1AM471F12---T	
560		8x16	0.120	675	ERG1AM561F16---T	
680		8x16	0.120	750	ERG1AM681F16---T	
820		8x20	0.085	875	ERG1AM821F20---T	
1000		10x16	0.100	1050	ERG1AM102G16---T	
1500		10x20	0.080	1440	ERG1AM152G20---T	
2200		12.5x20	0.038	1660	ERG1AM222W20---T	
3300		12.5x25	0.038	1950	ERG1AM332W25---T	
3900		12.5x30	0.034	2310	ERG1AM392W30---T	
4700		12.5x35	0.022	2510	ERG1AM472W35---T	
5600		12.5x40	0.017	2870	ERG1AM562W40---T	
6800		16x30	0.019	3010	ERG1AM682L30---T	
8200		16x35	0.017	3150	ERG1AM822L35---T	
10000		16x40	0.015	3710	ERG1AM103L40---T	
16		47	5x11	0.950	120	ERG1CM470D11---T
		68	6.3x11	0.560	220	ERG1CM680E11---T
		100	6.3x11	0.520	255	ERG1CM101E11---T
	150	8x11	0.350	350	ERG1CM151F11---T	
	220	8x11	0.280	405	ERG1CM221F11---T	
	330	8x12	0.180	555	ERG1CM331F12---T	
	470	8x16	0.120	730	ERG1CM471F16---T	
	560	8x20	0.085	810	ERG1CM561F20---T	
	680	8x20	0.080	1050	ERG1CM681F20---T	
	1000	10x16	0.069	1220	ERG1CM102G16---T	
	2200	12.5x25	0.055	1950	ERG1CM222W25---T	
	3300	12.5x35	0.028	2510	ERG1CM332W35---T	
	3900	12.5x40	0.017	2870	ERG1CM392W40---T	
	4700	16x30	0.019	3010	ERG1CM472L30---T	
	5600	16x35	0.017	3150	ERG1CM562L35---T	
	6800	16x40	0.015	3710	ERG1CM682L40---T	
	25	47	5x11	0.950	175	ERG1EM470D11---T
		68	6.3x11	0.650	230	ERG1EM680E11---T
		100	6.3x11	0.370	290	ERG1EM101E11---T
		150	6.3x11	0.370	290	ERG1EM151E11---T
220		8x12	0.240	640	ERG1EM221F12---T	
330		8x16	0.120	730	ERG1EM331F16---T	
470		10x16	0.080	1050	ERG1EM471G16---T	
560		10x20	0.065	1220	ERG1EM561G20---T	
680		10x20	0.064	1220	ERG1EM681G20---T	
820		10x25	0.060	1440	ERG1EM821G25---T	
1000		12.5x20	0.058	1660	ERG1EM102W20---T	
1500		12.5x25	0.048	1950	ERG1EM152W25---T	
2200		12.5x35	0.030	2510	ERG1EM222W35---T	
3300		16x30	0.036	3010	ERG1EM332L30---T	
4700		16x40	0.018	3710	ERG1EM472L40---T	

RG series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxDL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz)	Part Number	
35	10	5x11	1.500	100	ERG1VM100D11---T	
	22	5x11	1.300	160	ERG1VM220D11---T	
	33	5x11	1.000	210	ERG1VM330D11---T	
	47	6.3x11	0.580	215	ERG1VM470E11---T	
	100	6.3x12	0.400	280	ERG1VM101E12---T	
	150	8x12	0.240	640	ERG1VM151F12---T	
	220	8x16	0.120	730	ERG1VM221F16---T	
	330	10x16	0.100	1050	ERG1VM331G16---T	
	470	10x20	0.065	1220	ERG1VM471G20---T	
	560	10x25	0.060	1440	ERG1VM561G25---T	
	680	10x30	0.058	1690	ERG1VM681G30---T	
	820	12.5x25	0.035	1938	ERG1VM821W25---T	
	1000	12.5x25	0.030	1950	ERG1VM102W25---T	
	1200	12.5x30	0.028	2310	ERG1VM122W30---T	
	1500	12.5x35	0.022	2510	ERG1VM152W35---T	
	2200	16x30	0.028	3010	ERG1VM222L30---T	
	3300	16x40	0.024	3710	ERG1VM332L40---T	
	3900	18x40	0.023	3800	ERG1VM392M40---T	
	50	10	5x11	2.000	105	ERG1HM100D11---T
		22	5x11	1.600	155	ERG1HM220D11---T
33		6.3x11	0.720	215	ERG1HM330E11---T	
47		6.3x11	0.570	220	ERG1HM470E11---T	
68		8x11	0.350	355	ERG1HM680F11---T	
100		8x12	0.350	485	ERG1HM101F12---T	
150		8x16	0.160	635	ERG1HM151F16---T	
220		10x16	0.130	1050	ERG1HM221G16---T	
330		10x25	0.110	1250	ERG1HM331G25---T	
470		12.5x20	0.090	1480	ERG1HM471W20---T	
560		12.5x25	0.080	1840	ERG1HM561W25---T	
680		12.5x30	0.039	2220	ERG1HM681W30---T	
820		12.5x35	0.033	2290	ERG1HM821W35---T	
1000		16x25	0.034	2240	ERG1HM102L25---T	
1200		16x30	0.028	2700	ERG1HM122L30---T	
1500		16x35	0.025	2800	ERG1HM152L35---T	
2200		18x35	0.023	3100	ERG1HM222M35---T	
2700		18x40	0.020	3400	ERG1HM272M40---T	
63		10	5x11	2.500	110	ERG1JM100D11---T
		22	6.3x11	1.250	240	ERG1JM220E11---T
	47	8x12	0.490	375	ERG1JM470F12---T	
	68	8x12	0.480	405	ERG1JM680F12---T	
	100	8x16	0.550	535	ERG1JM101F16---T	
	100	10x13	0.550	540	ERG1JM101G13---T	
	150	8x20	0.550	690	ERG1JM151F20---T	
	180	10x20	0.180	890	ERG1JM181G20---T	
	220	10x25	0.130	1050	ERG1JM221G25---T	
	330	12.5x20	0.110	1290	ERG1JM331W20---T	
	390	12.5x25	0.100	1720	ERG1JM391W25---T	
	470	12.5x30	0.055	2090	ERG1JM471W30---T	
	470	16x20	0.059	1770	ERG1JM471L20---T	
	680	12.5x35	0.053	2350	ERG1JM681W35---T	
	680	16x25	0.060	2290	ERG1JM681L25---T	
	680	18x20	0.060	2290	ERG1JM681M20---T	
	820	12.5x40	0.056	2560	ERG1JM821W40---T	
	1000	16x30	0.050	2680	ERG1JM102L30---T	
	1200	16x40	0.046	2850	ERG1JM122L40---T	
	100	10	6.3x11	3.680	110	ERG1KM100E11---T
22		6.3x12	3.500	180	ERG1KM220E12---T	
47		10x13	1.500	395	ERG1KM470G13---T	
100		10x16	1.250	550	ERG1KM101G16---T	
220		12.5x25	0.650	900	ERG1KM221W25---T	
330		16x25	0.400	1360	ERG1KM331L25---T	
470		16x30	0.290	1650	ERG1KM471L30---T	
680		18x35	0.280	2350	ERG1KM681M35---T	

Specifications subject to change without notice.

Radial Type

**ML series**

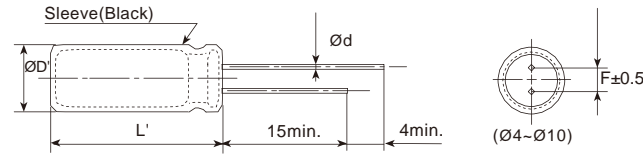
- Long life with 5mm to 9mm height.
- Endurance 3,000~5,000 hours at 105°C
- RoHS Compliant



**SPECIFICATIONS**

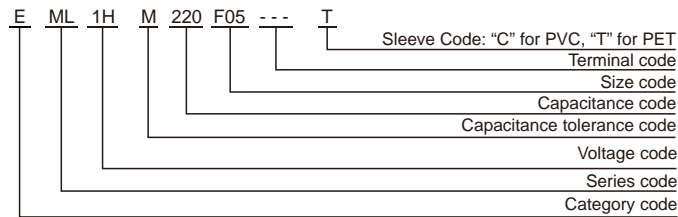
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Working Voltage Range	6.3~50 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	I 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 Dissipation Factor (max.) 0.40 0.35 0.30 0.25 0.20 0.20
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 Z(-25°C)/Z(+20°C) 6 4 4 3 2 2
	Z(-40°C)/Z(+20°C) 12 10 8 6 4 4 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.
	Capacitance Change ±30% of the initial value
	Dissipation Factor 300% of the initial specified value
	Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.
	Capacitance Change ±30% of the initial value
	Dissipation Factor 300% of the initial specified value
	Leakage Current 200% of the initial specified value

**DIMENSIONS[mm]**



ØD	4	5	6.3		8			10x9
			6.3x5	6.3x7	8x5	8x7	8x9	
Ød	0.45	0.45	0.45	0.5	0.5	0.5	0.5	0.6
F	1.5	2.0	2.5	2.5	3.5	3.5	3.5	5.0
ØD'	ØD+0.5max.							
L'	L+2max.							

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Freq.(Hz)	60(50)	120	500	1k	10k
Cap.<2.2	0.50	1.00	1.20	1.30	1.50
2.2 Cap.<10	0.65	1.00	1.20	1.30	1.50
10 Cap.<100	0.80	1.00	1.20	1.30	1.50
Cap. 100	0.80	1.00	1.10	1.15	1.20

**ML series**

**STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
6.3	27	4x5	25	EML0JM270C05---T
	47	4x7	47	EML0JM470C07---T
	56	5x5	50	EML0JM560D05---T
	82	5x7	75	EML0JM820D07---T
	120	6.3x5	80	EML0JM121E05---T
	180	6.3x7	110	EML0JM181E07---T
	220	8x5	125	EML0JM221F05---T
	270	8x7	165	EML0JM271F07---T
	470	8x7	190	EML0JM471F07---T
	560	8x9	230	EML0JM561F09---T
1000	10x9	480	EML0JM102G09---T	
10	22	4x5	22	EML1AM220C05---T
	33	4x7	43	EML1AM330C07---T
	47	5x5	48	EML1AM470D05---T
	56	5x7	68	EML1AM560D07---T
	100	6.3x5	75	EML1AM101E05---T
	120	6.3x7	100	EML1AM121E07---T
	180	8x5	120	EML1AM181F05---T
	220	8x7	160	EML1AM221F07---T
	330	8x7	180	EML1AM331F07---T
	470	8x9	210	EML1AM471F09---T
680	10x9	470	EML1AM681G09---T	
16	22	4x7	40	EML1CM220C07---T
	33	5x5	45	EML1CM330D05---T
	39	5x7	65	EML1CM390D07---T
	68	6.3x5	70	EML1CM680E05---T
	100	6.3x7	95	EML1CM101E07---T
	120	8x5	110	EML1CM121F05---T
	150	8x7	125	EML1CM151F07---T
	220	8x7	170	EML1CM221F07---T
	330	8x9	195	EML1CM331F09---T
	470	10x9	460	EML1CM471G09---T
25	10	4x5	18	EML1EM100C05---T
	15	4x7	35	EML1EM150C07---T
	22	5x5	42	EML1EM220D05---T
	27	5x7	57	EML1EM270D07---T
	47	6.3x5	65	EML1EM470E05---T
	56	6.3x7	85	EML1EM560E07---T
	82	8x5	100	EML1EM820F05---T
	100	8x7	112	EML1EM101F07---T
	150	8x7	140	EML1EM151F07---T
	220	8x9	190	EML1EM221F09---T
330	10x9	450	EML1EM331G09---T	
35	10	4x7	28	EML1VM100C07---T
	12	5x5	34	EML1VM120D05---T
	18	5x7	48	EML1VM180D07---T
	27	6.3x5	58	EML1VM270E05---T
	39	6.3x7	76	EML1VM390E07---T
	47	8x5	80	EML1VM470F05---T
	56	8x7	105	EML1VM560F07---T
	100	8x7	125	EML1VM101F07---T
	150	8x9	180	EML1VM151F09---T
	220	10x9	360	EML1VM221G09---T
50	1	4x5	8	EML1HM010C05---T
	2.2	4x5	11	EML1HM2R2C05---T
	3.3	4x5	14	EML1HM3R3C05---T
	4.7	4x7	23	EML1HM4R7C07---T
	6.8	5x5	25	EML1HM6R8D05---T
	10	5x7	30	EML1HM100D07---T
	12	6.3x5	37	EML1HM120E05---T
	18	6.3x7	50	EML1HM180E07---T
	22	8x5	62	EML1HM220F05---T
	33	8x7	75	EML1HM330F07---T
56	8x7	115	EML1HM560F07---T	

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part Number
50	82	8x9	160	EML1HM820F09---T
	120	10x9	315	EML1HM121G09---T

Specifications subject to change without notice.

# RM series

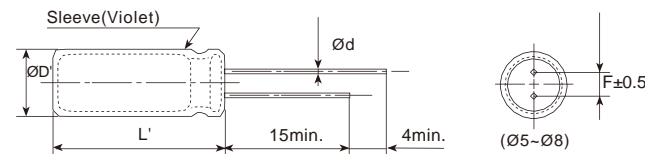
- Endurance: 10,000 hours at 105°C
- Miniaturized, long life
- RoHS Compliant



■ SPECIFICATIONS

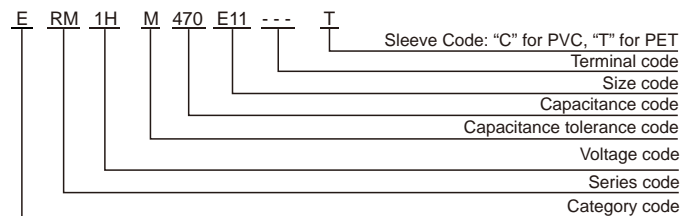
Items	Characteristics																								
Category Temperature Range	-40~+105°C																								
Rated Voltage Range	10~100 V <sub>dc</sub>																								
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																								
Leakage Current	1 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)																								
Dissipation Factor (tan δ)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Dissipation Factor (Max.)</td> <td>0.45</td> <td>0.35</td> <td>0.30</td> <td>0.22</td> <td>0.19</td> <td>0.17</td> <td>0.15</td> </tr> </table>	Rated Voltage(V <sub>dc</sub> )	10	16	25	35	50	63	100	Dissipation Factor (Max.)	0.45	0.35	0.30	0.22	0.19	0.17	0.15								
	Rated Voltage(V <sub>dc</sub> )	10	16	25	35	50	63	100																	
Dissipation Factor (Max.)	0.45	0.35	0.30	0.22	0.19	0.17	0.15																		
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)																									
Low Temperature Characteristics (Max. Impedance Ratio)	<table border="1"> <tr> <td>Rated Voltage(V<sub>dc</sub>)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>8</td> <td>6</td> <td>4</td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>13</td> <td>10</td> <td>8</td> <td></td> <td>7</td> <td></td> <td></td> </tr> </table>	Rated Voltage(V <sub>dc</sub> )	10	16	25	35	50	63	100	Z(-25°C)/Z(+20°C)	8	6	4		3			Z(-40°C)/Z(+20°C)	13	10	8		7		
	Rated Voltage(V <sub>dc</sub> )	10	16	25	35	50	63	100																	
	Z(-25°C)/Z(+20°C)	8	6	4		3																			
Z(-40°C)/Z(+20°C)	13	10	8		7																				
(at 120Hz)																									
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 10,000 hours at 105°C.																								
	Capacitance Change	±25% of the initial value																							
	Dissipation Factor	300% of the initial specified value																							
	Leakage Current	The initial specified value																							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.																								
	Capacitance Change	±20% of the initial value(6.3V, 10V: ±30%)																							
	Dissipation Factor	200% of the initial specified value																							
	Leakage Current	200% of the initial specified value																							

■ DIMENSIONS[mm]



ØD	5	6.3	8
Ød	0.5	0.5	0.5
F	2.0	2.5	3.5
ØD'	ØD+0.5max.		
L'	L+2max.		

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	Freq.(Hz)			
	120	1k	10k	100k
Cap.<22	0.42	0.60	0.80	1.00
22 Cap.<47	0.55	0.75	0.90	1.00
Cap. 47	0.70	0.85	0.95	1.00

# RM series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
10	100	5x11	130	ERM1AM101D11---T
	220	6.3x11	210	ERM1AM221E11---T
	330	6.3x12	220	ERM1AM331E12---T
	330	8x11	330	ERM1AM331F11---T
16	47	5x11	130	ERM1CM470D11---T
	100	6.3x11	210	ERM1CM101E11---T
	220	6.3x11	250	ERM1CM221E11---T
	220	8x11	330	ERM1CM221F11---T
25	33	5x11	130	ERM1EM330D11---T
	47	5x11	130	ERM1EM470D11---T
	68	5x12	140	ERM1EM680D12---T
35	100	6.3x11	210	ERM1EM101E11---T
	100	6.3x12	260	ERM1VM101E12---T
	220	8x11	330	ERM1VM101F11---T
50	0.47	5x11	12	ERM1HMR47D11---T
	1	5x11	25	ERM1HM010D11---T
	2.2	5x11	35	ERM1HM2R2D11---T
	3.3	5x11	70	ERM1HM3R3D11---T
	4.7	5x11	80	ERM1HM4R7D11---T
	10	5x11	90	ERM1HM100D11---T
	22	5x12	110	ERM1HM220D12---T
	33	6.3x11	190	ERM1HM330E11---T
63	47	6.3x11	190	ERM1HM470E11---T
	100	8x12	270	ERM1HM101F12---T
	10	5x11	80	ERM1JM100D11---T
	22	6.3x11	170	ERM1JM220E11---T
	33	6.3x12	170	ERM1JM330E12---T
100	47	8x12	240	ERM1JM470F12---T
	100	8x12	270	ERM1JM101F12---T
	0.47	5x11	20	ERM1KMR47D11---T
	1	5x11	40	ERM1KM010D11---T
	2.2	5x11	50	ERM1KM2R2D11---T
	3.3	5x11	60	ERM1KM3R3D11---T
	4.7	5x11	70	ERM1KM4R7D11---T
	10	6.3x12	150	ERM1KM100E12---T
22	8x12	230	ERM1KM220F12---T	

Specifications subject to change without notice.



# NB series

- High reliability, withstand high temperature
- Endurance: 2,000-5,000 hours at 130°C
- RoHS Compliant

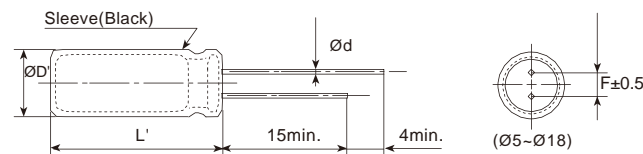
Upgrade



## SPECIFICATIONS

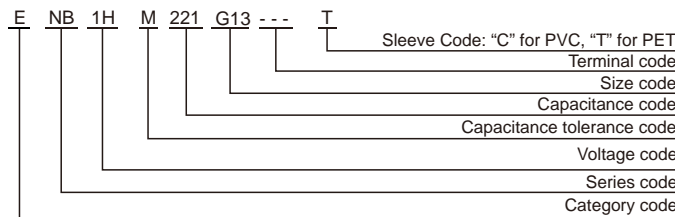
Items	Characteristics
Category Temperature Range	-40~+130°C
Rated Voltage Range	10~120 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	I 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 10 16 25 35 50 63 80 100 120
	Dissipation Factor (Max.) 0.24 0.20 0.18 0.16 0.14 0.12 0.12 0.10 0.12 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 10 16 25 35 50 63 80 100 120
	Z(-25°C)/Z(+20°C) 3 2 3 Z(-40°C)/Z(+20°C) 6 4 3 (at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 130°C.
	Capacitance Change ±30% of the initial value
	Dissipation Factor 300% of the initial specified value
	Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 130°C for 1,000 hours.
	Capacitance Change ±30% of the initial value
	Dissipation Factor 300% of the initial specified value
	Leakage Current 500% of the initial specified value

## DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	13	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.							
L'	L+2max.							

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF)	50/60	120	1k	10k	100k
Cap.<10	0.35	0.42	0.60	0.80	1.00
10 Cap.<47	0.45	0.55	0.75	0.90	1.00
47 Cap.<470	0.60	0.70	0.85	0.95	1.00
470 Cap.<2200	0.65	0.75	0.90	0.98	1.00
Cap. 2200	0.75	0.80	0.95	1.00	1.00

# NB series

## STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/130°C, 100kHz)	Part Number	
10	100	5x11	80	ENB1AM101D11---T	
	330	6.3x12	180	ENB1AM331E12---T	
	330	8x11	360	ENB1AM331F11---T	
	470	8x12	360	ENB1AM471F12---T	
	470	10x13	620	ENB1AM471G13---T	
	680	8x12	400	ENB1AM681F12---T	
	680	10x13	620	ENB1AM681G13---T	
	1000	10x16	660	ENB1AM102G16---T	
	1000	10x20	960	ENB1AM102G20---T	
	2200	12.5x25	1430	ENB1AM222W25---T	
	3300	16x25	1900	ENB1AM332L25---T	
	4700	16x30	2300	ENB1AM472L30---T	
	16	100	5x11	90	ENB1CM101D11---T
		220	6.3x11	125	ENB1CM221E11---T
330		8x12	360	ENB1CM331F12---T	
470		8x12	360	ENB1CM471F12---T	
470		10x13	620	ENB1CM471G13---T	
1000		10x20	960	ENB1CM102G20---T	
2200		10x25	980	ENB1CM222G25---T	
2200		12.5x25	1430	ENB1CM222W25---T	
3300		16x30	2300	ENB1CM332L30---T	
4700		16x35	2550	ENB1CM472L35---T	
25		47	5x11	60	ENB1EM470D11---T
		68	5x12	90	ENB1EM680D12---T
		100	6.3x11	145	ENB1EM101E11---T
		220	8x12	360	ENB1EM221F12---T
	330	8x12	360	ENB1EM331F12---T	
	330	10x13	620	ENB1EM331G13---T	
	470	8x16	610	ENB1EM471F16---T	
	470	10x13	640	ENB1EM471G13---T	
	1000	10x20	960	ENB1EM102G20---T	
	1000	12.5x20	1100	ENB1EM102W20---T	
	2200	16x30	2300	ENB1EM222L30---T	
	3300	16x35	2550	ENB1EM332L35---T	
	35	47	6.3x11	110	ENB1VM470E11---T
		100	6.3x12	210	ENB1VM101E12---T
100		8x11	360	ENB1VM101F11---T	
220		8x12	375	ENB1VM221F12---T	
220		10x13	620	ENB1VM221G13---T	
330		8x16	550	ENB1VM331F16---T	
330		10x13	620	ENB1VM331G13---T	
330		10x16	800	ENB1VM331G16---T	
470		10x16	705	ENB1VM471G16---T	
470		10x20	960	ENB1VM471G20---T	
680		12.5x20	990	ENB1VM681W20---T	
1000		12.5x20	1180	ENB1VM102W20---T	
1000		12.5x25	1430	ENB1VM102W25---T	
2200		16x35	2550	ENB1VM222L35---T	
3300	18x35	2800	ENB1VM332M35---T		
50	1	5x11	26	ENB1HM010D11---T	
	2.2	5x11	35	ENB1HM2R2D11---T	
	2.2	8x11	50	ENB1HM2R2F11---T	
	3.3	5x11	40	ENB1HM3R3D11---T	
	3.3	8x11	70	ENB1HM3R3F11---T	
	4.7	5x11	42	ENB1HM4R7D11---T	
	4.7	8x11	100	ENB1HM4R7F11---T	
	10	5x11	90	ENB1HM100D11---T	
	10	8x11	200	ENB1HM100F11---T	
	22	5x12	110	ENB1HM220D12---T	
	22	8x11	260	ENB1HM220F11---T	
	33	6.3x11	150	ENB1HM330E11---T	
	33	8x11	300	ENB1HM330F11---T	
	47	6.3x11	180	ENB1HM470E11---T	
47	8x11	300	ENB1HM470F11---T		

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/130°C, 100kHz)	Part Number	
50	100	8x12	340	ENB1HM101F12---T	
	100	10x13	520	ENB1HM101G13---T	
	220	8x16	520	ENB1HM221F16---T	
	220	10x13	520	ENB1HM221G13---T	
	330	10x16	530	ENB1HM331G16---T	
	330	12.5x20	1000	ENB1HM331W20---T	
	470	10x20	950	ENB1HM471G20---T	
	470	12.5x25	1200	ENB1HM471W25---T	
	680	12.5x20	1060	ENB1HM681W20---T	
	680	16x20	1250	ENB1HM681L20---T	
	1000	12.5x25	1500	ENB1HM102W25---T	
	1000	16x30	2180	ENB1HM102L30---T	
	2200	18x40	2800	ENB1HM222M40---T	
	63	33	6.3x12	150	ENB1JM330E12---T
33		8x11	250	ENB1JM330F11---T	
47		8x12	250	ENB1JM470F12---T	
47		10x13	400	ENB1JM470G13---T	
100		8x12	340	ENB1JM101F12---T	
100		10x16	450	ENB1JM101G16---T	
220		10x16	450	ENB1JM221G16---T	
220		12.5x20	820	ENB1JM221W20---T	
330		12.5x20	850	ENB1JM331W20---T	
330		12.5x25	1000	ENB1JM331W25---T	
470		13x25	1000	ENB1JM471K25---T	
470		16x25	1500	ENB1JM471L25---T	
1000		16x30	1850	ENB1JM102L30---T	
80		4.7	5x11	26	ENB1BM4R7D11---T
	10	5x11	68	ENB1BM100D11---T	
	22	6.3x11	105	ENB1BM220E11---T	
	33	6.3x12	135	ENB1BM330E12---T	
	33	8x12	250	ENB1BM330F12---T	
	68	8x12	250	ENB1BM680F12---T	
	100	8x16	400	ENB1BM101F16---T	
	150	10x16	450	ENB1BM151G16---T	
	220	10x20	750	ENB1BM221G20---T	
	330	12.5x20	850	ENB1BM331W20---T	
	470	16x20	1200	ENB1BM471L20---T	
	100	4.7	5x11	40	ENB1KM4R7D11---T
		4.7	8x11	100	ENB1KM4R7F11---T
		10	6.3x11	130	ENB1KM100E11---T
10		8x11	200	ENB1KM100F11---T	
22		6.3x12	150	ENB1KM220E12---T	
22		8x12	220	ENB1KM220F12---T	
33		8x12	220	ENB1KM330F12---T	
33		10x13	260	ENB1KM330G13---T	
47		8x16	240	ENB1KM470F16---T	
47		10x16	330	ENB1KM470G16---T	
100		10x16	350	ENB1KM101G16---T	
100		12.5x20	670	ENB1KM101W20---T	
220		13x20	720	ENB1KM221K20---T	
220		16x25	1100	ENB1KM221L25---T	
330	16x25	1300	ENB1KM331L25---T		
330	16x30	1300	ENB1KM331L30---T		
470	18x30	1600	ENB1KM471M30---T		
120	22	8x12	115	ENB2BM220F12---T	
	33	8x16	200	ENB2BM330F16---T	
	33	10x13	200	ENB2BM330G13---T	
	47	8x20	240	ENB2BM470F20---T	
	47	10x16	240	ENB2BM470G16---T	
	56	10x16	255	ENB2BM560G16---T	
	68	10x16	255	ENB2BM680G16---T	
	82	10x20	270	ENB2BM820G20---T	
	100	10x25	340	ENB2BM101G25---T	
	120	12.5x20	465	ENB2BM121W20---T	

Radial Type

## NB series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/130°C, 100kHz)	Part Number
120	150	12.5x25	515	ENB2BM151W25---T
	220	12.5x30	630	ENB2BM221W30---T
	220	16x20	630	ENB2BM221L20---T
	270	16x25	720	ENB2BM271L25---T
	270	18x20	720	ENB2BM271M20---T
	330	16x30	775	ENB2BM331L30---T
	330	18x25	775	ENB2BM331M25---T
	470	16x40	865	ENB2BM471L40---T
	470	18x30	865	ENB2BM471M30---T

Specifications subject to change without notice.

## RD series

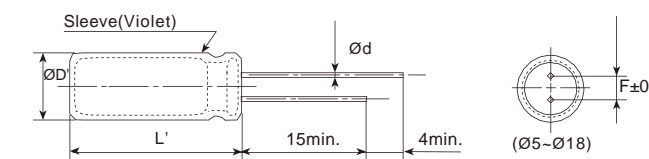
- Endurance: 2,000~5,000 hours at 105°C
- High frequency and low impedance; moisture content: under 40%
- RoHS Compliant



■ SPECIFICATIONS

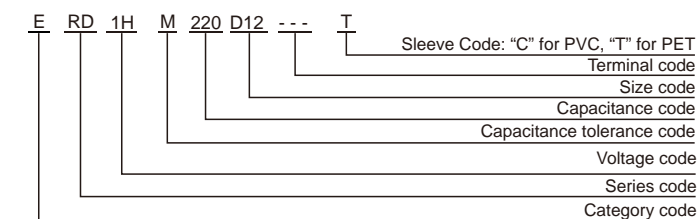
Items	Characteristics		
Category Temperature Range	-40~+105°C		
Rated Working Voltage Range	6.3~100 V <sub>dc</sub>		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)		
Leakage Current	I 0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 100	
	Dissipation Factor (max.)	0.22 0.19 0.16 0.14 0.12 0.10 0.09 0.08	
When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)			
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 100	
	Z(-25°C)/Z(+20°C)	4 3 2 2 2 2 2	
	Z(-40°C)/Z(+20°C)	8 6 4 3 3 3	
(at 120Hz)			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105 °C.		
	Capacitance Change	±25% of the initial value	Case size Load life (hours)
	Dissipation Factor	200% of the initial specified value	ØD 6.3 2,000
	Leakage Current	The initial specified value	ØD=8 3,000
			ØD 10 5,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.		
	Capacitance Change	±25% of the initial value	
	Dissipation Factor	200% of the initial specified value	
	Leakage Current	200% of the initial specified value	

■ DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.						
L'	L+2max.						

■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF) \ Freq.(Hz)	120	1k	10k	100k
Cap.<220	0.40	0.75	0.90	1.00
220 Cap.<680	0.50	0.85	0.94	1.00
680 Cap.<2200	0.60	0.87	0.95	1.00
2200 Cap.<4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00



RD series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
6.3	100	5x11	1.00	170	ERD0JM101D11---T
	120	5x11	0.92	175	ERD0JM121D11---T
	150	6.3x11	0.81	220	ERD0JM151E11---T
	180	6.3x11	0.76	210	ERD0JM181E11---T
	220	6.3x11	0.65	310	ERD0JM221E11---T
	270	6.3x11	0.54	320	ERD0JM271E11---T
	330	8x11	0.42	390	ERD0JM331F11---T
	470	8x11	0.25	450	ERD0JM471F11---T
	560	8x11	0.23	490	ERD0JM561F11---T
	680	8x11	0.21	520	ERD0JM681F11---T
	820	8x16	0.20	620	ERD0JM821F16---T
	1000	10x13	0.17	750	ERD0JM102G13---T
	1200	10x16	0.16	860	ERD0JM122G16---T
	1500	10x16	0.14	1100	ERD0JM152G16---T
	1800	10x20	0.11	1250	ERD0JM182G20---T
2200	10x25	0.095	1470	ERD0JM222G25---T	
2700	12.5x20	0.075	1500	ERD0JM272W20---T	
3300	12.5x20	0.036	1650	ERD0JM332W20---T	
4700	12.5x30	0.036	2100	ERD0JM472W30---T	
5600	12.5x30	0.034	2340	ERD0JM562W30---T	
6800	16x25	0.032	2450	ERD0JM682L25---T	
8200	16x30	0.027	2650	ERD0JM822L30---T	
10000	16x35	0.024	2700	ERD0JM103L35---T	
15000	18x35	0.023	2950	ERD0JM153M35---T	
10	22	5x11	2.70	98	ERD1AM220D11---T
	33	5x11	2.60	100	ERD1AM330D11---T
	47	5x11	1.34	150	ERD1AM470D11---T
	56	5x11	1.23	160	ERD1AM560D11---T
	68	5x11	1.05	170	ERD1AM680D11---T
	100	5x11	0.80	210	ERD1AM101D11---T
	120	6.3x11	0.75	250	ERD1AM121E11---T
	150	6.3x11	0.61	290	ERD1AM151E11---T
	180	6.3x11	0.46	320	ERD1AM181E11---T
	220	6.3x11	0.35	340	ERD1AM221E11---T
	270	8x11	0.30	400	ERD1AM271F11---T
	330	8x11	0.27	460	ERD1AM331F11---T
	470	8x11	0.25	580	ERD1AM471F11---T
	560	10x13	0.16	635	ERD1AM561G13---T
	680	10x13	0.11	765	ERD1AM681G13---T
820	10x16	0.10	890	ERD1AM821G16---T	
1000	10x16	0.076	1040	ERD1AM102G16---T	
1200	10x16	0.067	1200	ERD1AM122G16---T	
1500	10x20	0.062	1400	ERD1AM152G20---T	
1800	10x25	0.058	1550	ERD1AM182G25---T	
2200	12.5x20	0.041	1750	ERD1AM222W20---T	
2700	12.5x20	0.035	1900	ERD1AM272W20---T	
3300	12.5x25	0.031	2000	ERD1AM332W25---T	
4700	16x25	0.030	2100	ERD1AM472L25---T	
5600	16x25	0.028	2290	ERD1AM562L25---T	
6800	16x30	0.026	2650	ERD1AM682L30---T	
8200	16x35	0.026	2770	ERD1AM822L35---T	
10000	18x35	0.024	2580	ERD1AM103M35---T	
16	10	5x11	4.7	74	ERD1CM100D11---T
	22	5x11	2.6	100	ERD1CM220D11---T
	33	5x11	2.0	114	ERD1CM330D11---T
	47	5x11	1.1	155	ERD1CM470D11---T
	56	5x11	0.82	180	ERD1CM560D11---T
	68	5x11	0.69	195	ERD1CM680D11---T
	100	6.3x11	0.50	265	ERD1CM101E11---T
	120	6.3x11	0.47	270	ERD1CM121E11---T
	150	6.3x11	0.41	290	ERD1CM151E11---T
	180	8x11	0.34	370	ERD1CM181F11---T
	220	8x11	0.25	480	ERD1CM221F11---T
	270	8x11	0.21	520	ERD1CM271F11---T
	330	8x12	0.156	290	ERD1CM331F12---T
	470	10x13	0.124	750	ERD1CM471G13---T
	560	10x13	0.105	785	ERD1CM561G13---T
680	10x16	0.092	1100	ERD1CM681G16---T	

WV (Vdc)	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
16	820	10x16	0.078	1140	ERD1CM821G16---T	
	1000	10x20	0.065	1350	ERD1CM102G20---T	
	1200	10x25	0.061	1500	ERD1CM122G25---T	
	1500	12.5x20	0.060	1380	ERD1CM152W20---T	
	1800	12.5x20	0.047	1800	ERD1CM182W20---T	
	2200	12.5x25	0.038	2000	ERD1CM222W25---T	
	2700	12.5x25	0.033	2450	ERD1CM272W25---T	
	3300	16x25	0.030	2790	ERD1CM332L25---T	
	4700	16x30	0.026	2880	ERD1CM472L30---T	
	5600	16x35	0.030	2990	ERD1CM562L35---T	
	6800	18x35	0.024	3200	ERD1CM682M35---T	
	8200	18x35	0.024	3320	ERD1CM822M35---T	
	10000	18x40	0.024	3550	ERD1CM103M40---T	
	25	10	5x11	2.56	85	ERD1EM100D11---T
		22	5x11	1.95	125	ERD1EM220D11---T
33		5x11	1.42	155	ERD1EM330D11---T	
47		6.3x11	1.00	220	ERD1EM470E11---T	
56		6.3x11	0.79	250	ERD1EM560E11---T	
68		6.3x11	0.65	280	ERD1EM680E11---T	
100		6.3x11	0.35	370	ERD1EM101E11---T	
120		6.3x11	0.33	380	ERD1EM121E11---T	
150		8x11	0.31	410	ERD1EM151F11---T	
180		8x11	0.25	455	ERD1EM181F11---T	
220		8x11	0.15	550	ERD1EM221F11---T	
270		10x13	0.125	720	ERD1EM271G13---T	
330		10x13	0.114	820	ERD1EM331G13---T	
470		10x16	0.076	1200	ERD1EM471G16---T	
560		10x16	0.072	1250	ERD1EM561G16---T	
680	10x20	0.065	1320	ERD1EM681G20---T		
820	10x25	0.052	1530	ERD1EM821G25---T		
1000	12.5x20	0.045	1650	ERD1EM102W20---T		
1200	12.5x25	0.041	1980	ERD1EM122W25---T		
1500	12.5x25	0.038	2210	ERD1EM152W25---T		
1800	16x25	0.032	2510	ERD1EM182L25---T		
2200	16x25	0.036	2650	ERD1EM222L25---T		
2700	16x25	0.031	2820	ERD1EM272L25---T		
3300	16x30	0.026	3240	ERD1EM332L30---T		
4700	16x35	0.024	3650	ERD1EM472L35---T		
5600	18x35	0.024	3720	ERD1EM562M35---T		
6800	18x40	0.024	3850	ERD1EM682M40---T		
35	10	5x11	2.37	105	ERD1VM100D11---T	
	22	5x11	1.50	150	ERD1VM220D11---T	
	33	5x11	1.21	180	ERD1VM330D11---T	
	47	6.3x11	0.80	280	ERD1VM470E11---T	
	56	6.3x11	0.64	310	ERD1VM560E11---T	
	68	8x11	0.52	350	ERD1VM680F11---T	
	100	8x11	0.25	450	ERD1VM101F11---T	
	120	8x11	0.22	510	ERD1VM121F11---T	
	150	8x12	0.191	540	ERD1VM151F12---T	
	180	10x13	0.172	650	ERD1VM181G13---T	
	220	10x13	0.114	750	ERD1VM221G13---T	
	270	10x16	0.095	910	ERD1VM271G16---T	
	330	10x16	0.079	1050	ERD1VM331G16---T	
	470	10x20	0.065	1200	ERD1VM471G20---T	
	560	10x25	0.061	1500	ERD1VM561G25---T	
680	12.5x20	0.056	1570	ERD1VM681W20---T		
820	12.5x20	0.048	1700	ERD1VM821W20---T		
1000	12.5x25	0.042	1900	ERD1VM102W25---T		
1200	12.5x30	0.039	2130	ERD1VM122W30---T		
1500	16x25	0.036	2270	ERD1VM152L25---T		
1800	16x30	0.035	2700	ERD1VM182L30---T		
2200	16x30	0.034	2780	ERD1VM222L30---T		
2700	16x35	0.029	2850	ERD1VM272L35---T		
3300	18x35	0.026	3100	ERD1VM332M35---T		
4700	18x40	0.024	3500	ERD1VM472M40---T		

RD series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
50	0.47	5x11	5.40	25	ERD1HMR47D11---T
	1	5x11	4.00	40	ERD1HM010D11---T
	2.2	5x11	2.80	55	ERD1HM2R2D11---T
	3.3	5x11	2.20	60	ERD1HM3R3D11---T
	4.7	5x11	2.00	90	ERD1HM4R7D11---T
	5.6	5x11	1.93	105	ERD1HM5R6D11---T
	6.8	5x11	1.89	110	ERD1HM6R8D11---T
	10	5x11	1.82	120	ERD1HM100D11---T
	22	6.3x11	1.25	150	ERD1HM220E11---T
	33	6.3x11	0.80	250	ERD1HM330E11---T
	47	6.3x11	0.65	290	ERD1HM470E11---T
	56	8x11	0.49	310	ERD1HM560F11---T
	68	8x11	0.33	375	ERD1HM680F11---T
	100	10x13	0.17	480	ERD1HM101G13---T
	120	10x13	0.156	530	ERD1HM121G13---T
150	10x13	0.132	590	ERD1HM151G13---T	
180	10x16	0.114	860	ERD1HM181G16---T	
220	10x16	0.096	830	ERD1HM221G16---T	
270	10x20	0.078	960	ERD1HM271G20---T	
330	10x25	0.065	1150	ERD1HM331G25---T	
470	12.5x20	0.055	1590	ERD1HM471W20---T	
560	12.5x20	0.050	1660	ERD1HM561W20---T	
680	12.5x25	0.044	1930	ERD1HM681W25---T	
820	12.5x30	0.039	2100	ERD1HM821W30---T	
1000	16x25	0.036	2300	ERD1HM102L25---T	
1200	16x30	0.036	2650	ERD1HM122L30---T	
1500	16x35	0.034	2750	ERD1HM152L35---T	
1800	16x35	0.034	2850	ERD1HM182L35---T	
2200	18x35	0.032	3040	ERD1HM222M35---T	
2700	18x40	0.027	3070	ERD1HM272M40---T	
3300	18x40	0.025	3100	ERD1HM332M40---T	
63	0.47	5x11	5.4	25	ERD1JMR47D11---T
	1	5x11	4.0	33	ERD1JM010D11---T
	2.2	5x11	2.8	45	ERD1JM2R2D11---T
	3.3	5x11	2.2	58	ERD1JM3R3D11---T
	4.7	5x11	2.0	65	ERD1JM4R7D11---T
	5.6	5x11	1.9	95	ERD1JM5R6D11---T
	6.8	5x11	1.82	100	ERD1JM6R8D11---T
	10	5x11	1.75	110	ERD1JM100D11---T
	22	6.3x11	0.80	240	ERD1JM220E11---T
	33	8x11	0.61	270	ERD1JM330F11---T
	47	8x12	0.56	300	ERD1JM470F12---T
	56	8x12	0.38	330	ERD1JM560F12---T
	68	10x13	0.21	480	ERD1JM680G13---T
	100	10x16	0.14	610	ERD1JM101G16---T
	120	10x16	0.13	620	ERD1JM121G16---T
150	10x16	0.11	700	ERD1JM151G16---T	
180	10x20	0.10	800	ERD1JM181G20---T	
220	10x20	0.08	1100	ERD1JM221G20---T	
270	12.5x20	0.065	1150	ERD1JM271W20---T	
330	12.5x20	0.055	1250	ERD1JM331W20---T	
470	12.5x25	0.053	1620	ERD1JM471W25---T	
560	12.5x25	0.049	1630	ERD1JM561W25---T	
680	12.5x30	0.043	1950	ERD1JM681W30---T	
820	16x25	0.038	2150	ERD1JM821L25---T	
1000	16x30	0.034	2350	ERD1JM102L30---T	
1200	16x35	0.032	2550	ERD1JM122L35---T	
1500	18x35	0.031	2710	ERD1JM152M35---T	
1800	18x40	0.027	3000	ERD1JM182M40---T	
100	0.47	5x11	5.9	20	ERD1KMR47D11---T
	1	5x11	4.4	30	ERD1KM010D11---T
	2.2	5x11	3.3	42	ERD1KM2R2D11---T
	3.3	5x11	2.8	55	ERD1KM3R3D11---T
	4.7	5x11	2.6	72	ERD1KM4R7D11---T

WV (Vdc)	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA
----------	----------	--------------	------------------------------	--------------------------



# GH series

- Endurance: 5,000~10,000 hours at 105°C
- Especially designed for electronic ballast, intelligent instrument, etc.
- RoHS Compliant

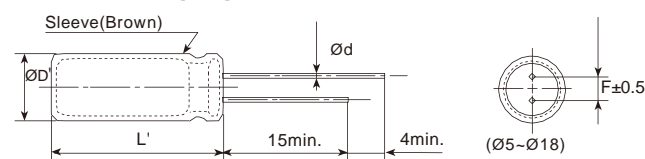
Upgrade



## SPECIFICATIONS

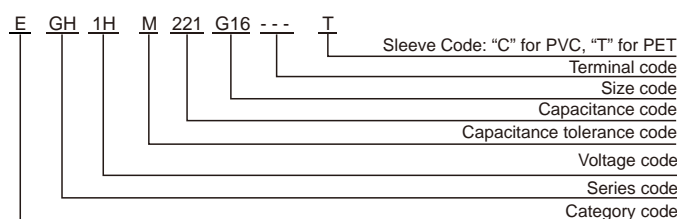
Items	Characteristics	
Category Temperature Range	-40~+105°C	
Rated Voltage Range	6.3~450 V <sub>dc</sub>	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
Leakage Current	6.3~100V <sub>dc</sub>	160~450V <sub>dc</sub>
	CV After 2 minutes I 0.01CV or 3μA Whichever is greater	I 0.01CV + 10μA (2 minutes)
	CV 1,000 CV > 1,000	I 0.006CV + 4μA
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 100 160~250 350~450
	Dissipation Factor (Max.)	0.30 0.24 0.20 0.18 0.16 0.14 0.12 0.10 0.15 0.20
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	6.3 10 16 25 35 50 63 100 160~250 350~450
	Z(-25°C)/Z(+20°C)	5 4 3 2 3 6
	Z(-40°C)/Z(+20°C)	12 10 8 5 4 3 7 7
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105°C.	
	Capacitance Change	±20% of the initial value(6.3V, 10V: ±30%)
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1000 hours.	
	Capacitance Change	±20% of the initial value(6.3V, 10V: ±30%)
	Dissipation Factor	200% of the initial specified value
	Leakage Current	200% of the initial specified value

## DIMENSIONS [mm]



∅D	5	6.3	8	10	12.5	16	18
∅d	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
∅D'	∅D+0.5max.						
L'	L+2max.						

## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap. (μF)	50/60	100/120	1k	10k	100k
Cap. 330	0.35	0.50	0.75	0.85	1.00
330 < Cap. 1500	0.45	0.65	0.85	0.90	1.00
Cap. > 1500	0.53	0.75	0.90	0.95	1.00

# GH series

## STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D x L (mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
6.3	150	5x11	91	EGH0JM151D11---T	
	330	6.3x11	151	EGH0JM331E11---T	
	680	8x12	228	EGH0JM681F12---T	
	820	10x13	256	EGH0JM821G13---T	
	1000	8x16	272	EGH0JM102F16---T	
	1200	8x20	386	EGH0JM122F20---T	
	1200	10x16	386	EGH0JM122G16---T	
	1500	10x20	513	EGH0JM152G20---T	
	1800	12.5x16	513	EGH0JM182W16---T	
	2200	10x25	580	EGH0JM222G25---T	
	2700	10x30	630	EGH0JM272G30---T	
	3300	12.5x20	665	EGH0JM332W20---T	
	3900	12.5x25	807	EGH0JM392W25---T	
	4700	12.5x30	902	EGH0JM472W30---T	
	5600	12.5x35	1034	EGH0JM562W35---T	
	5600	16x20	1034	EGH0JM562L20---T	
	6800	12.5x40	1190	EGH0JM682W40---T	
	6800	16x25	1190	EGH0JM682L25---T	
	6800	18x20	1190	EGH0JM682M20---T	
	8200	16x30	1400	EGH0JM822L30---T	
10000	16x35	1600	EGH0JM103L35---T		
10000	18x25	1600	EGH0JM103M25---T		
12000	16x40	1850	EGH0JM123L40---T		
12000	18x30	1850	EGH0JM123M30---T		
15000	18x35	1850	EGH0JM153M35---T		
18000	18x40	2000	EGH0JM183M40---T		
10	100	5x11	91	EGH1AM101D11---T	
	220	6.3x11	151	EGH1AM221E11---T	
	470	8x12	228	EGH1AM471F12---T	
	680	8x16	256	EGH1AM681F16---T	
	680	10x13	272	EGH1AM681G13---T	
	1000	8x20	400	EGH1AM102F20---T	
	1000	10x16	430	EGH1AM102G16---T	
	1200	10x20	513	EGH1AM122G20---T	
	1500	10x25	580	EGH1AM152G25---T	
	1500	12.5x16	580	EGH1AM152W16---T	
	2200	10x30	630	EGH1AM222G30---T	
	2200	12.5x20	681	EGH1AM222W20---T	
	3300	12.5x25	807	EGH1AM332W25---T	
	3900	12.5x30	902	EGH1AM392W30---T	
	3900	16x20	902	EGH1AM392L20---T	
	4700	16x25	1116	EGH1AM472L25---T	
	5600	12.5x40	1190	EGH1AM562W40---T	
	5600	16x25	1190	EGH1AM562L25---T	
	5600	18x20	1190	EGH1AM562M20---T	
	6800	16x30	1400	EGH1AM682L30---T	
6800	18x25	1400	EGH1AM682M25---T		
8200	16x35	1600	EGH1AM822L35---T		
8200	18x30	1600	EGH1AM822M30---T		
10000	16x40	1850	EGH1AM103L40---T		
10000	18x35	1850	EGH1AM103M35---T		
12000	18x40	2000	EGH1AM123M40---T		
16	56	5x11	100	EGH1CM560D11---T	
	120	6.3x11	118	EGH1CM121E11---T	
	330	8x12	205	EGH1CM331F12---T	
	470	8x16	256	EGH1CM471F16---T	
	470	10x13	272	EGH1CM471G13---T	
	680	8x20	386	EGH1CM681F20---T	
	680	10x16	386	EGH1CM681G16---T	
	1000	10x20	513	EGH1CM102G20---T	
	1000	12.5x16	513	EGH1CM102W16---T	
	1200	10x25	580	EGH1CM122G25---T	
	1500	10x30	630	EGH1CM152G30---T	
	1500	12.5x20	665	EGH1CM152W20---T	
	2200	12.5x25	807	EGH1CM222W25---T	
	25	47	5x11	124	EGH1EM470D11---T
		100	6.3x11	138	EGH1EM101E11---T
		220	8x12	205	EGH1EM221F12---T
		330	8x16	225	EGH1EM331F16---T
		330	10x13	245	EGH1EM331G13---T
		470	8x20	320	EGH1EM471F20---T
		470	10x16	340	EGH1EM471G16---T
680		10x20	345	EGH1EM681G20---T	
680		12.5x16	345	EGH1EM681W16---T	
820		10x25	450	EGH1EM821G25---T	
1000		10x30	540	EGH1EM102G30---T	
1000		12.5x20	540	EGH1EM102W20---T	
1500		12.5x25	665	EGH1EM152W25---T	
1800		12.5x30	790	EGH1EM182W30---T	
1800		16x20	800	EGH1EM182L20---T	
2200		12.5x35	860	EGH1EM222W35---T	
2200		18x20	880	EGH1EM222M20---T	
2700		12.5x40	960	EGH1EM272W40---T	
2700		16x25	980	EGH1EM272L25---T	
3300		16x30	1190	EGH1EM332L30---T	
3300	18x25	1190	EGH1EM332M25---T		
3900	16x35	1400	EGH1EM392L35---T		
3900	18x30	1400	EGH1EM392M30---T		
4700	16x40	1600	EGH1EM472L40---T		
4700	18x35	1600	EGH1EM472M35---T		
5600	18x40	1850	EGH1EM562M40---T		
35	33	5x11	90	EGH1VM330D11---T	
	56	6.3x11	110	EGH1VM560E11---T	
	150	8x12	180	EGH1VM151F12---T	
	220	8x16	240	EGH1VM221F16---T	
	220	10x13	252	EGH1VM221G13---T	
	270	8x20	280	EGH1VM271F20---T	
	330	10x16	312	EGH1VM331G16---T	
	470	10x20	386	EGH1VM471G20---T	
	470	12.5x16	394	EGH1VM471W16---T	
	560	10x25	450	EGH1VM561G25---T	
	680	10x30	496	EGH1VM681G30---T	
	680	12.5x20	520	EGH1VM681W20---T	
	1000	12.5x25	810	EGH1VM102W25---T	
	1200	12.5x30	860	EGH1VM122W30---T	
	1200	16x25	880	EGH1VM122L25---T	
	1500	12.5x35	880	EGH1VM152W35---T	
	1800	12.5x40	960	EGH1VM182W40---T	
	1800	16x20	900	EGH1VM182L20---T	
	1800	18x20	960	EGH1VM182M20---T	
	2200	16x30	1190	EGH1VM222L30---T	
2200	18x25	1190	EGH1VM222M25---T		
2700	16x35	1400	EGH1VM272L35---T		
2700	18x30	1400	EGH1VM272M30---T		
3300	16x40	1600	EGH1VM332L40---T		
3300	18x35	1600	EGH1VM332M35---T		
3900	18x40	1850	EGH1VM392M40---T		

Radial Type

**GH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number
50	22	5x11	84	EGH1HM220D11---T
	56	6.3x11	146	EGH1HM560E11---T
	100	8x12	152	EGH1HM101F12---T
	120	8x16	180	EGH1HM121F16---T
	150	10x13	215	EGH1HM151G13---T
	180	8x20	246	EGH1HM181F20---T
	220	10x16	291	EGH1HM221G16---T
	270	10x20	330	EGH1HM271G20---T
	270	12.5x16	330	EGH1HM271W16---T
	330	10x25	386	EGH1HM331G25---T
	470	10x30	460	EGH1HM471G30---T
	470	12.5x20	475	EGH1HM471W20---T
	560	12.5x25	520	EGH1HM561W25---T
	680	12.5x30	665	EGH1HM681W30---T
	820	12.5x35	800	EGH1HM821W35---T
	820	16x20	800	EGH1HM821L20---T
	1000	12.5x40	880	EGH1HM102W40---T
	1000	16x25	880	EGH1HM102L25---T
	1000	18x20	880	EGH1HM102M20---T
	1200	16x30	1190	EGH1HM122L30---T
1200	18x25	1190	EGH1HM122M25---T	
1500	16x35	1400	EGH1HM152L35---T	
1800	16x40	1600	EGH1HM182L40---T	
1800	18x30	1600	EGH1HM182M30---T	
2200	18x35	1800	EGH1HM222M35---T	
2700	18x40	1850	EGH1HM272M40---T	
63	15	5x11	62	EGH1JM150D11---T
	33	6.3x11	126	EGH1JM330E11---T
	56	8x12	198	EGH1JM560F12---T
	82	8x16	246	EGH1JM820F16---T
	82	10x13	252	EGH1JM820G13---T
	120	8x20	300	EGH1JM121F20---T
	120	10x16	310	EGH1JM121G16---T
	180	10x20	386	EGH1JM181G20---T
	180	12.5x16	394	EGH1JM181W16---T
	220	10x25	450	EGH1JM221G25---T
	270	12.5x20	520	EGH1JM271W20---T
	330	12.5x25	665	EGH1JM331W25---T
	470	12.5x30	790	EGH1JM471W30---T
	470	16x20	800	EGH1JM471L20---T
	560	12.5x35	860	EGH1JM561W35---T
	560	16x25	880	EGH1JM561L25---T
	680	12.5x40	960	EGH1JM681W40---T
	680	18x20	980	EGH1JM681M20---T
	820	16x30	1190	EGH1JM821L30---T
	820	18x25	1190	EGH1JM821M25---T
1000	16x35	1400	EGH1JM102L35---T	
1000	18x30	1400	EGH1JM102M30---T	
1200	16x40	1600	EGH1JM122L40---T	
1200	18x35	1600	EGH1JM122M35---T	
1500	18x40	1850	EGH1JM152M40---T	
100	6.8	5x11	62	EGH1KM6R8D11---T
	15	6.3x11	126	EGH1KM150E11---T
	27	8x12	198	EGH1KM270F12---T
	39	8x16	246	EGH1KM390F16---T
	47	10x13	252	EGH1KM470G13---T
	56	8x20	300	EGH1KM560F20---T
	68	10x16	330	EGH1KM680G16---T
	82	10x20	386	EGH1KM820G20---T
	82	12.5x16	394	EGH1KM820W16---T
	100	10x25	450	EGH1KM101G25---T
	120	12.5x20	520	EGH1KM121W20---T
	180	12.5x25	665	EGH1KM181W25---T
220	16x20	800	EGH1KM221L20---T	
220	12.5x30	790	EGH1KM221W30---T	

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
100	270	12.5x35	860	EGH1KM271W35---T	
	270	16x25	880	EGH1KM271L25---T	
	330	18x20	980	EGH1KM331M20---T	
	330	12.5x40	960	EGH1KM331W40---T	
	390	16x30	1190	EGH1KM391L30---T	
	390	18x25	1190	EGH1KM391M25---T	
	470	16x35	1400	EGH1KM471L35---T	
	470	18x30	1400	EGH1KM471M30---T	
	560	16x40	1600	EGH1KM561L40---T	
	680	18x35	1600	EGH1KM681M35---T	
	820	18x40	1850	EGH1KM821M40---T	
	160	4.7	8x9	90	EGH2CM4R7F09---T
		4.7	8x11	100	EGH2CM4R7F11---T
		5.6	8x12	115	EGH2CM5R6F12---T
		6.8	8x12	125	EGH2CM6R8F12---T
		8.2	8x12	135	EGH2CM8R2F12---T
		10	8x12	150	EGH2CM100F12---T
		12	10x12	180	EGH2CM120G12---T
		15	10x16	230	EGH2CM150G16---T
		22	10x16	280	EGH2CM220G16---T
33		10x20	350	EGH2CM330G20---T	
39		10x20	390	EGH2CM390G20---T	
47		10x20	440	EGH2CM470G20---T	
47		12.5x16	480	EGH2CM470W16---T	
56		12.5x18	600	EGH2CM560W18---T	
68		12.5x20	740	EGH2CM680W20---T	
82		12.5x20	780	EGH2CM820W20---T	
82		16x20	800	EGH2CM820L20---T	
100		12.5x25	850	EGH2CM101W25---T	
100		16x20	860	EGH2CM101L20---T	
150		16x20	1000	EGH2CM151L20---T	
150	16x25	1040	EGH2CM151L25---T		
220	16x25	1560	EGH2CM221L25---T		
220	18x25	1600	EGH2CM221M25---T		
330	18x30	1880	EGH2CM331M30---T		
200	10	10x12	170	EGH2DM100G12---T	
	12	10x16	200	EGH2DM120G16---T	
	15	10x16	236	EGH2DM150G16---T	
	22	10x20	280	EGH2DM220G20---T	
	33	10x20	320	EGH2DM330G20---T	
	33	12.5x20	340	EGH2DM330W20---T	
	39	12.5x20	400	EGH2DM390W20---T	
	47	12.5x20	500	EGH2DM470W20---T	
	68	12.5x20	620	EGH2DM680W20---T	
	68	12.5x25	660	EGH2DM680W25---T	
	82	16x20	760	EGH2DM820L20---T	
	100	16x20	840	EGH2DM101L20---T	
	100	16x25	880	EGH2DM101L25---T	
	150	16x25	1160	EGH2DM151L25---T	
	150	16x30	1200	EGH2DM151L30---T	
	150	18x25	1200	EGH2DM151M25---T	
	220	18x25	1400	EGH2DM221M25---T	
	220	18x30	1440	EGH2DM221M30---T	
	330	18x35	1800	EGH2DM331M35---T	
	330	18x40	1840	EGH2DM331M40---T	
250	4.7	8x12	116	EGH2EM4R7F12---T	
	5.6	10x12	130	EGH2EM5R6G12---T	
	6.8	10x12	144	EGH2EM6R8G12---T	
	10	10x20	200	EGH2EM100G20---T	
	22	10x20	336	EGH2EM220G20---T	
	33	12.5x20	420	EGH2EM330W20---T	
	39	12.5x20	496	EGH2EM390W20---T	
	47	12.5x20	600	EGH2EM470W20---T	
	47	12.5x25	640	EGH2EM470W25---T	
	68	16x20	800	EGH2EM680L20---T	

**GH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part Number	
250	82	16x20	880	EGH2EM820L20---T	
	82	16x30	920	EGH2EM820L30---T	
	100	16x25	1020	EGH2EM101L25---T	
	100	18x25	1060	EGH2EM101M25---T	
	150	18x25	1200	EGH2EM151M25---T	
	220	18x31	1440	EGH2EM221M31---T	
	220	18x40	1480	EGH2EM221M40---T	
	350	4.7	8x12	110	EGH2VM4R7F12---T
		5.6	10x12	130	EGH2VM5R6G12---T
		6.8	10x12	160	EGH2VM6R8G12---T
10		10x16	200	EGH2VM100G16---T	
22		12.5x20	364	EGH2VM220W20---T	
33		16x20	480	EGH2VM330L20---T	
39		16x20	530	EGH2VM390L20---T	
47		16x20	580	EGH2VM470L20---T	
47		16x25	610	EGH2VM470L25---T	
68		16x25	740	EGH2VM680L25---T	
68	18x20	740	EGH2VM680M20---T		
68	18x25	780	EGH2VM680M25---T		
82	18x25	860	EGH2VM820M25---T		
100	18x25	960	EGH2VM101M25---T		
100	18x30	1000	EGH2VM101M30---T		
120	18x30	1100	EGH2VM121M30---T		
150	18x35	1200	EGH2VM151M35---T		
400	1	8x12	50	EGH2GM010F12---T	
	2.2	8x12	70	EGH2GM2R2F12---T	
	3.3	8x12	110	EGH2GM3R3F12---T	
	4.7	10x12	130	EGH2GM4R7G12---T	
	6.8	10x12	150	EGH2GM6R8G12---T	
	10	10x16	200	EGH2GM100G16---T	
	15	12.5x16	270	EGH2GM150W16---T	
	22	12.5x20	350	EGH2GM220W20---T	
	22	12.5x25	370	EGH2GM220W25---T	
	33	16x20	510	EGH2GM330L20---T	
	39	16x25	580	EGH2GM390L25---T	
	47	16x25	660	EGH2GM470L25---T	
	47	18x20	660	EGH2GM470M20---T	
	47	16x30	700	EGH2GM470L30---T	
	56	10x50	780	EGH2GM560G50---T	
	68	12.5x40	880	EGH2GM680W40---T	
	68	18x25	880	EGH2GM680M25---T	
	82	12.5x45	900	EGH2GM820W45---T	
	82	18x25	960	EGH2GM820M25---T	
	82	18x30	1000	EGH2GM820M30---T	
100	12.5x50	1100	EGH2GM101W50---T		
100	18x31	1100	EGH2GM101M31---T		
100	18x35	1140	EGH2GM101M35---T		
120	18x35	1260	EGH2GM121M35---T		
150	18x40	1400	EGH2GM151M40---T		
450	6.8	10x16	150	EGH2WM6R8G16---T	
	10	10x20	200	EGH2WM100G20---T	
	15	12.5x20	270	EGH2WM150W20---T	
	22	16x20	380	EGH2WM220L20---T	
	33	10x40	510	EGH2WM330G40---T	
	33	16x25	520	EGH2WM330L25---T	
	33	18x20	550	EGH2WM330M20---T	
	39	10x45	620	EGH2WM390G45---T	
	39	18x25	620	EGH2WM390M25---T	
	47	12.5x40	700	EGH2WM470W40---T	
	47	18x25	700	EGH2WM470M25---T	
	56	12.5x40	780	EGH2WM560W40---T	
68	18x30	880	EGH2WM680M30---T		
82	12.5x50	1000	EGH2WM820W50---T		
82	18x35	1000	EGH2WM820M35---T		
100	18x40	1120	EGH2WM101M40---T		

Specifications subject to change without notice.



**LL series**

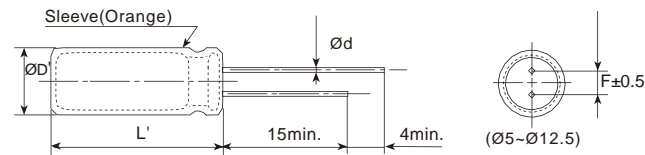
- Stable and extremely low leakage current characteristics
- Endurance: 2,000 hours at 105°C
- Wide temperature range of -40°C~+ 105°C
- RoHS Compliant



**SPECIFICATIONS**

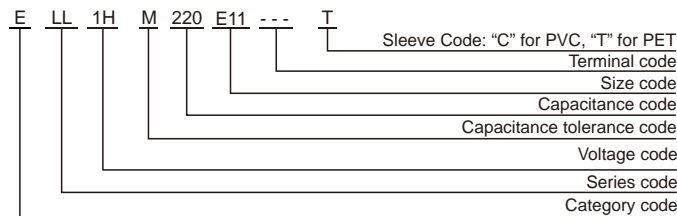
Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Working Voltage Range	6.3~100 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	I 0.002CV or 0.4μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 100 Dissipation Factor (max.) 0.22 0.19 0.16 0.14 0.12 0.10 0.10 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 6.3 10 16 25 35 50 63 100 Z(-25°C)/Z(+20°C) 4 3 3 2 2 2 2 2 Z(-40°C)/Z(+20°C) 8 6 6 4 4 3 3 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20 °C after DC voltage plus the rated ripple current is applied for 2,000 hours at 105 °C. Capacitance Change ±20% of the initial value Dissipation Factor 200% of the initial specified value Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied. Capacitance Change ±20% of the initial value Dissipation Factor 200% of the initial specified value Leakage Current 200% of the initial specified value

**DIMENSIONS[mm]**



ØD	5	6.3	8	10	12.5
Ød	0.45	0.5	0.5	0.6	0.6
F	2.0	2.5	3.5	5.0	5.0
ØD'	ØD+0.5max.				
L'	L+2max.				

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

WV (Vdc) \ Freq.(Hz)	50(60)	120	1k	10k	100k
Cap.<100	0.80	1.00	1.45	1.65	1.70
100 Cap.<1000	0.80	1.00	1.36	1.48	1.53
Cap. 1000	0.85	1.00	1.25	1.35	1.38

**LL series**

**STANDARD RATINGS**

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/105°C, 120Hz)	Part Number
6.3	22	5x11	36	ELL0JM220D11---T
	33	5x11	44	ELL0JM330D11---T
	47	5x11	53	ELL0JM470D11---T
	100	5x11	74	ELL0JM101D11---T
	220	6.3x11	131	ELL0JM221E11---T
	330	6.3x11	161	ELL0JM331E11---T
	470	8x11	242	ELL0JM471F11---T
	1000	10x13	390	ELL0JM102G13---T
	2200	12.5x20	665	ELL0JM222W20---T
	10	22	5x11	50
33		5x11	66	ELL1AM330D11---T
47		5x11	75	ELL1AM470D11---T
100		5x11	104	ELL1AM101D11---T
220		8x11	193	ELL1AM221F11---T
330		8x11	256	ELL1AM331F11---T
470		8x11	319	ELL1AM471F11---T
1000		10x16	605	ELL1AM102G16---T
2200		12.5x20	860	ELL1AM222W20---T
16		10	5x11	39
	22	5x11	62	ELL1CM220D11---T
	33	5x11	68	ELL1CM330D11---T
	47	5x11	105	ELL1CM470D11---T
	100	6.3x11	138	ELL1CM101E11---T
	220	8x11	220	ELL1CM221F11---T
	330	8x11	268	ELL1CM331F11---T
	470	10x13	407	ELL1CM471G13---T
	1000	10x20	704	ELL1CM102G20---T
	2200	12.5x25	890	ELL1CM222W25---T
25	10	5x11	43	ELL1EM100D11---T
	22	5x11	65	ELL1EM220D11---T
	33	5x11	76	ELL1EM330D11---T
	47	6.3x11	116	ELL1EM470E11---T
	100	8x11	149	ELL1EM101F11---T
	220	10x13	246	ELL1EM221G13---T
	330	10x13	352	ELL1EM331G13---T
	470	10x16	484	ELL1EM471G16---T
	1000	12.5x20	847	ELL1EM102W20---T
	35	10	5x11	48
22		6.3x11	71	ELL1VM220E11---T
33		6.3x11	83	ELL1VM330E11---T
47		6.3x11	125	ELL1VM470E11---T
100		8x11	187	ELL1VM101F11---T
220		10x13	330	ELL1VM221G13---T
330		10x16	440	ELL1VM331G16---T
470		12.5x20	590	ELL1VM471W20---T
1000		12.5x25	1012	ELL1VM102W25---T
50		0.47	5x11	12
	1	5x11	17	ELL1HM010D11---T
	2.2	5x11	24	ELL1HM2R2D11---T
	3.3	5x11	29	ELL1HM3R3D11---T
	4.7	5x11	36	ELL1HM4R7D11---T
	10	5x11	52	ELL1HM100D11---T
	22	6.3x11	77	ELL1HM220E11---T
	33	6.3x11	99	ELL1HM330E11---T
	47	8x11	138	ELL1HM470F11---T
	100	10x13	217	ELL1HM101G13---T
63	0.47	5x11	12	ELL1JMR47D11---T
	1	5x11	17	ELL1JM010D11---T
	2.2	5x11	24	ELL1JM2R2D11---T
	3.3	5x11	32	ELL1JM3R3D11---T
	4.7	5x11	39	ELL1JM4R7D11---T

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mA rms/105°C, 120Hz)	Part Number
63	10	6.3x11	58	ELL1JM100E11---T
	22	6.3x11	94	ELL1JM220E11---T
	33	8x11	110	ELL1JM330F11---T
	47	8x11	152	ELL1JM470F11---T
	100	10x16	260	ELL1JM101G16---T
	220	10x20	440	ELL1JM221G20---T
100	0.47	5x11	12	ELL1KMR47D11---T
	1	5x11	17	ELL1KM010D11---T
	2.2	5x11	24	ELL1KM2R2D11---T
	3.3	5x11	32	ELL1KM3R3D11---T
	4.7	6.3x11	39	ELL1KM4R7E11---T
	10	8x11	61	ELL1KM100F11---T
	22	8x11	106	ELL1KM220F11---T
	33	10x13	142	ELL1KM330G13---T
	47	10x16	184	ELL1KM470G16---T
	100	12.5x20	300	ELL1KM101W20---T
220	12.5x30	533	ELL1KM221W30---T	

Specifications subject to change without notice.



**BG series**

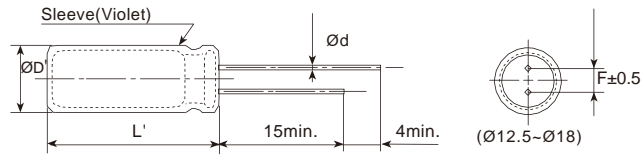
- SRS car assembly, high capacitance
- Low impedance, low temperature characteristics
- Endurance: 5,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant



**SPECIFICATIONS**

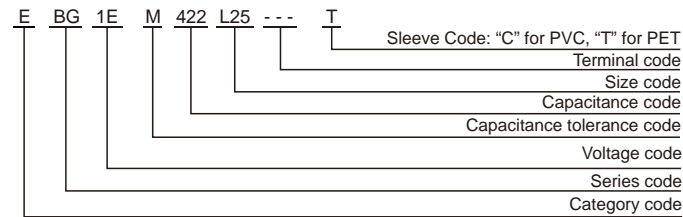
Items	Characteristics
Category Temperature Range	-55~+105°C
Rated Working Voltage Range	25 ~ 35 V <sub>dc</sub>
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage (V <sub>dc</sub> ) 25 35 Dissipation Factor(max.) : 0.20 0.16 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (V <sub>dc</sub> ) 25 35 Z(-55°C)/Z(+20°C) 3 3
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 5,000 hours at 105°C. Capacitance Change ±20% of the initial value Dissipation Factor 200% of the initial specified value Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. Capacitance Change ±20% of the initial value Dissipation Factor 200% of the initial specified value Leakage Current 200% of the initial specified value

**DIMENSIONS [mm]**



∅D	12.5	14.5	16	18
∅d	0.6	0.8	0.8	0.8
F	5.0	7.5	7.5	7.5
∅D'	∅D+0.5max.			
L'	L+2.0max.			

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current

Freq.(Hz)	120	1k	10k	100k
Cap.<2100	0.60	0.87	0.95	1.00
2100 Cap.<4000	0.75	0.90	0.95	1.00
Cap. 4000	0.85	0.95	0.98	1.00

**BG series**

**STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	Impedance ( max/20°C,100kHz)	Rated ripple current (mArms/105°C,100kHz)	Part Number	
25	1700	12.5x20	0.057	1700	EBG1EM172W20---T	
	2400	12.5x25	0.045	2000	EBG1EM242W25---T	
	2400	14.5x20	0.051	2000	EBG1EM242X20---T	
	2800	12.5x30	0.039	2300	EBG1EM282W30---T	
	3000	16x20	0.044	2250	EBG1EM302L20---T	
	3400	14.5x25	0.041	2400	EBG1EM342X25---T	
	3500	12.5x35	0.033	2700	EBG1EM352W35---T	
	4200	16x25	0.033	2600	EBG1EM422L25---T	
	4200	18x20	0.042	2500	EBG1EM422M20---T	
	4500	12.5x40	0.027	3100	EBG1EM452W40---T	
	4600	14.5x30	0.032	2700	EBG1EM462X30---T	
	5400	14.5x35	0.028	3100	EBG1EM542X35---T	
	5600	16x30	0.026	3200	EBG1EM562L30---T	
	6000	18x25	0.030	2800	EBG1EM602M25---T	
	6400	14.5x40	0.025	3400	EBG1EM642X40---T	
	6600	16x35	0.023	3500	EBG1EM662L35---T	
	7800	16x40	0.021	3800	EBG1EM782L40---T	
	35	7900	18x30	0.024	3500	EBG1EM792M30---T
9200		18x35	0.022	3700	EBG1EM922M35---T	
11000		18x40	0.020	4000	EBG1EM113M40---T	
35		1000	12.5x20	0.057	1700	EBG1VM102W20---T
		1400	12.5x25	0.045	2000	EBG1VM142W25---T
		1400	14.5x20	0.051	2000	EBG1VM142X20---T
		1600	12.5x30	0.039	2300	EBG1VM162W30---T
		1800	16x20	0.044	2250	EBG1VM182L20---T
		2000	14.5x25	0.041	2400	EBG1VM202X25---T
		2100	12.5x35	0.033	2700	EBG1VM212W35---T
		2500	16x25	0.033	2600	EBG1VM252L25---T
		2500	18x20	0.042	2500	EBG1VM252M20---T
		2700	12.5x40	0.027	3100	EBG1VM272W40---T
		2800	14.5x30	0.032	2700	EBG1VM282X30---T
		3200	14.5x35	0.028	3100	EBG1VM322X35---T
		3400	16x30	0.026	3200	EBG1VM342L30---T
		3600	18x25	0.030	2800	EBG1VM362M25---T
		3800	14.5x40	0.025	3400	EBG1VM382X40---T
	4000	16x35	0.023	3500	EBG1VM402L35---T	
	4700	16x40	0.021	3800	EBG1VM472L40---T	
	4800	18x30	0.024	3500	EBG1VM482M30---T	
	5600	18x35	0.022	3700	EBG1VM562M35---T	
	6700	18x40	0.020	4000	EBG1VM672M40---T	

Specifications subject to change without notice.

# BH series

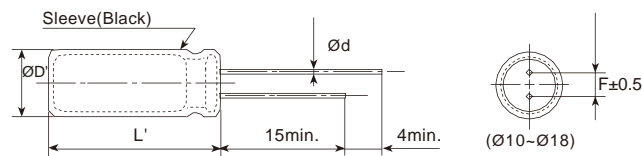
- Endurance: 3,000 hours at 125°C
- High reliability, suited for automobile electronics
- Miniaturized, long life, low impedance
- Compliant to AEC-Q200
- RoHS Compliant



**SPECIFICATIONS**

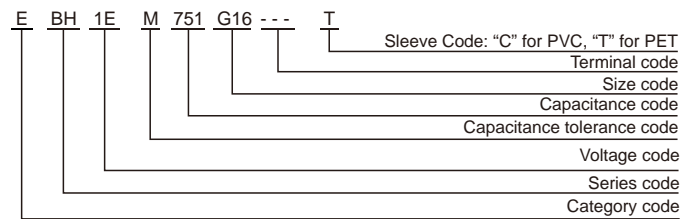
Items	Characteristics									
Category Temperature Range	-40~+125°C									
Rated Working Voltage Range	25~400 V <sub>dc</sub>									
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)									
Leakage Current	25~100 V <sub>dc</sub>					160~400 V <sub>dc</sub>				
	I 0.03CV or 4μA. (after 2 minutes) whichever is greater.					I 0.1CV+40μA. (after 1 minute)				
Dissipation Factor (tan δ)	CV 1,000					CV >1,000				
	I 0.04CV+100μA. (after 1 minute)									
Low Temperature Characteristics (Max. Impedance Ratio)	Where, I: Max.leakage current (μA), C :nominal capacitance (μF), V : Rated voltage (V) (at 20°C)									
	Rated Voltage (V <sub>dc</sub> )									
	Z(-25°C)/Z(+20°C)									
Endurance	25~100 V <sub>dc</sub>					160~400 V <sub>dc</sub>				
	Capacitance Change ±30% of the initial value					±20% of the initial value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 3,000 hours at 125°C.									
	Capacitance Change ±20% of the initial value									

**DIMENSIONS [mm]**



∅D	10	12.5	14.5	16	18
∅d	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
∅D'	∅D+0.5max.				
L'	L+2max.				

**PART NUMBERING SYSTEM**



**RATED RIPPLE CURRENT MULTIPLIERS**

Frequency correction factor for ripple current  
6.3 to 100 V<sub>dc</sub>

Cap.(μF)	Freq.(Hz)			
	120	1k	10k	100k
130 to 240	0.40	0.82	0.93	1.00
270 to 560	0.50	0.85	0.94	1.00
620 to 2,000	0.60	0.87	0.95	1.00
2,200 to 4,300	0.75	0.90	0.95	1.00
4,700 to 11,000	0.85	0.95	0.98	1.00

160 to 400 V<sub>dc</sub>

Cap.(μF)	Freq.(Hz)					
	50	120	300	1k	10k	100k
10 to 33	0.15	0.30	0.45	0.65	0.95	1.00
36 to 220	0.25	0.35	0.50	0.70	0.96	1.00

# BH series

**STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /125°C, 100kHz)	Part Number	
25	510	10x13	0.182	720	EBH1EM511G13---T	
	750	10x16	0.122	1040	EBH1EM751G16---T	
	910	12.5x16	0.107	980	EBH1EM911W16---T	
	1200	10x20	0.095	1230	EBH1EM122G20---T	
	1200	14.5x15	0.087	1060	EBH1EM122X15---T	
	1500	10x25	0.055	1500	EBH1EM152G25---T	
	1600	16x15	0.082	1140	EBH1EM162L15---T	
	1800	12.5x20	0.049	1270	EBH1EM182W20---T	
	2000	10x30	0.043	1720	EBH1EM202G30---T	
	2200	14.5x20	0.039	1420	EBH1EM222X20---T	
	2400	18x15	0.069	1300	EBH1EM242M15---T	
	2700	12.5x25	0.039	1820	EBH1EM272W25---T	
	3000	16x20	0.038	1510	EBH1EM302L20---T	
	3300	12.5x30	0.033	2210	EBH1EM332W30---T	
	3600	14.5x25	0.033	2200	EBH1EM362X25---T	
	4300	12.5x35	0.029	2490	EBH1EM432W35---T	
	4300	16x25	0.029	2420	EBH1EM432L25---T	
	4300	18x20	0.036	1540	EBH1EM432M20---T	
	4700	14.5x30	0.026	2470	EBH1EM472X30---T	
	5100	12.5x40	0.025	2890	EBH1EM512W40---T	
	5100	14.5x35	0.023	2740	EBH1EM512X35---T	
	5100	16x30	0.023	2660	EBH1EM512L30---T	
	5600	18x25	0.026	2560	EBH1EM562M25---T	
	6800	14.5x40	0.021	3060	EBH1EM682X40---T	
	6800	16x35	0.021	2900	EBH1EM682L35---T	
7500	18x30	0.021	2780	EBH1EM752M30---T		
8200	16x40	0.020	3150	EBH1EM822L40---T		
9100	18x35	0.020	3000	EBH1EM912M35---T		
11000	18x40	0.018	3230	EBH1EM113M40---T		
35	300	10x13	0.182	720	EBH1VM301G13---T	
	510	10x16	0.122	1040	EBH1VM511G16---T	
	560	12.5x16	0.107	980	EBH1VM561W16---T	
	680	10x20	0.095	1230	EBH1VM681G20---T	
	750	14.5x15	0.087	1060	EBH1VM751X15---T	
	820	10x25	0.055	1500	EBH1VM821G25---T	
	1100	12.5x20	0.049	1270	EBH1VM112W20---T	
	1100	16x15	0.082	1140	EBH1VM112L15---T	
	1200	10x30	0.043	1720	EBH1VM122G30---T	
	1500	12.5x25	0.039	1820	EBH1VM152W25---T	
	1500	14.5x20	0.039	1420	EBH1VM152X20---T	
	1500	18x15	0.069	1300	EBH1VM152M15---T	
	2000	12.5x30	0.033	2210	EBH1VM202W30---T	
	2000	16x20	0.038	1510	EBH1VM202L20---T	
	2200	14.5x25	0.033	2200	EBH1VM222X25---T	
	2400	12.5x35	0.029	2490	EBH1VM242W35---T	
	2400	16x25	0.029	2420	EBH1VM242L25---T	
	2400	18x20	0.036	1540	EBH1VM242M20---T	
	2700	12.5x40	0.025	2890	EBH1VM272W40---T	
	2700	14.5x30	0.026	2470	EBH1VM272X30---T	
	3000	14.5x35	0.023	2740	EBH1VM302X35---T	
	3300	16x30	0.023	2660	EBH1VM332L30---T	
	3300	18x25	0.026	2560	EBH1VM332M25---T	
	3900	14.5x40	0.021	3060	EBH1VM392X40---T	
	4300	16x35	0.021	2900	EBH1VM432L35---T	
4300	18x30	0.021	2780	EBH1VM432M30---T		
4700	16x40	0.020	3150	EBH1VM472L40---T		
5100	18x35	0.020	3000	EBH1VM512M35---T		
6200	18x40	0.018	3230	EBH1VM622M40---T		
50	160	10x13	0.312	580	EBH1HM161G13---T	
	240	10x16	0.208	860	EBH1HM241G16---T	
	270	12.5x16	0.182	820	EBH1HM271W16---T	
	330	10x20	0.156	1030	EBH1HM331G20---T	
	390	14.5x15	0.156	870	EBH1HM391X15---T	
	430	10x25	0.072	1390	EBH1HM431G25---T	
	510	12.5x20	0.064	1130	EBH1HM511W20---T	
	63	390	12.5x20	0.126	1050	EBH1JM391W20---T
		510	12.5x25	0.094	1500	EBH1JM511W25---T
		510	14.5x20	0.094	1210	EBH1JM511X20---T
		620	16x20	0.081	1300	EBH1JM621L20---T
		680	12.5x30	0.068	1920	EBH1JM681W30---T
		680	14.5x25	0.070	1700	EBH1JM681X25---T
		820	12.5x35	0.057	2210	EBH1JM821W35---T
		820	18x20	0.072	1400	EBH1JM821M20---T
910		14.5x30	0.055	2160	EBH1JM911X30---T	
910		16x25	0.061	1840	EBH1JM911L25---T	
1000		12.5x40	0.049	2460	EBH1JM102W40---T	
1100		14.5x35	0.048	2350	EBH1JM112X35---T	
1100		16x30	0.048	2350	EBH1JM112L30---T	
1200		18x25	0.057	1950	EBH1JM122M25---T	
1300		14.5x40	0.042	2680	EBH1JM132X40---T	
1300		16x35	0.040	2570	EBH1JM132L35---T	
1500		18x30	0.048	2480	EBH1JM152M30---T	
1800		16x40	0.036	2870	EBH1JM182L40---T	
2000		18x35	0.036	2760	EBH1JM202M35---T	
2400		18x40	0.030	2950	EBH1JM242M40---T	
80		240	12.5x20	0.126	1050	EBH1BM241W20---T
		330	12.5x25	0.094	1500	EBH1BM331W25---T
		330	14.5x20	0.094	1210	EBH1BM331X20---T
		390	16x20	0.081	1300	EBH1BM391L20---T
		430	12.5x30	0.068	1920	EBH1BM431W30---T
	470	14.5x25	0.070	1700	EBH1BM471X25---T	
	560	12.5x35	0.057	2210	EBH1BM561W35---T	
	560	16x25	0.061	1840	EBH1BM561L25---T	
	560	18x20	0.072	1400	EBH1BM561M20---T	
	620	12.5x40	0.049	2460	EBH1BM621W40---T	
	620	14.5x30	0.055	2160	EBH1BM621X30---T	
	680	14.5x35	0.048	2350	EBH1BM681X35---T	
	680	16x30	0.048	2350	EBH1BM681L30---T	
	750	18x25	0.057	1950	EBH1BM751M25---T	
	820	14.5x40	0.042	2680	EBH1BM821X40---T	
910	16x35	0.040	2570	EBH1BM911L35---T		
910	18x30	0.048	2480	EBH1BM911M30---T		
1100	16x40	0.036	2870	EBH1BM112L40---T		
1300	18x35	0.036	2760	EBH1BM132M35---T		
1500	18x40	0.030	2950	EBH1BM152M40---T		

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL (mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA <sub>RMS</sub> /125°C, 100kHz)	Part Number	
50	560	10x30	0.053	1610	EBH1HM561G30---T	
	560	16x15	0.143	950	EBH1HM561L15---T	
	680	14.5x20	0.049	1280	EBH1HM681X20---T	
	750	12.5x25	0.049	1620	EBH1HM751W25---T	
	750	18x15	0.111	1090	EBH1HM751M15---T	
	910	16x20	0.048	1390	EBH1HM911L20---T	
	1000	12.5x30	0.040	2010	EBH1HM102W30---T	
	1000	14.5x25	0.040	1980	EBH1HM102X25---T	
	1200	12.5x35	0.035	2320	EBH1HM122W35---T	
	1200	18x20	0.047	1460	EBH1HM122M20---T	
	1300	14.5x30	0.034	2290	EBH1HM132X30---T	
	1300	16x35	0.035	2150	EBH1HM132L35---T	
	1500	12.5x40	0.030	2610	EBH1HM152W40---T	
	1500	14.5x35	0.030	2520	EBH1HM152X35---T	
	1600	16x30	0.030	2520	EBH1HM162L30---T	
	1800	18x25	0.033	2320	EBH1HM182M25---T	
	2000	14.5x40	0.026	2840	EBH1HM202X40---T	
	2000	16x35	0.026	2780	EBH1HM202L35---T	
	2200	18x30	0.027	2660	EBH1HM222M30---T	
	2400	16x40	0.023	3040	EBH1HM242L40---T	
	2700	18x35	0.025	2870	EBH1HM272M35---T	
	3300	18x40	0.022	3080	EBH1HM332M40---T	
	63	390	12.5x20	0.126	1050	EBH1JM391W20---T
		510	12.5x25	0.094	1500	EBH1JM511W25---T
		510	14.5x20	0.094	1210	EBH1JM511X20---T
620		16x20	0.081	1300	EBH1JM621L20---T	
680		12.5x30	0.068	1920	EBH1JM681W30---T	
680		14.5x25	0.070	1700	EBH1JM681X25---T	
820		12.5x35	0.057	2210	EBH1JM821W35---T	
820		18x20	0.072	1400	EBH1JM821M20---T	
910		14.5x30	0.055	2160	EBH1JM911X30---T	
910		16x25	0.061	1840	EBH1JM911L25---T	
1000		12.5x40	0.049	2460	EBH1JM102W40---T	
1100		14.5x35	0.048	2350	EBH1JM112X35---T	
1100		16x30	0.048	2350	EBH1JM112L30---T	
1200		18x25	0.057	1950	EBH1JM122M25---T	
1300		14.5x40	0.042	2680	EBH1JM132X40---T	
1300		16x35	0.040	2570	EBH1JM132L35---T	
1500		18x30	0.048	2480	EBH1JM152M30---T	
1800		16x40	0.036	2870	EBH1JM182L40---T	
2000		18x35	0.036	2760	EBH1JM202M35---T	
2400		18x40	0.030	2950	EBH1JM242M40---T	
80		240	12.5x20	0.126	1050	EBH1BM241W20---T
		330	12.5x25	0.094	1500	EBH1BM331W25---T
		330	14.5x20	0.094	1210	EBH1BM331X20---T
		390	16x20	0.081	1300	EBH1BM391L20---T
		430	12.5x30	0.068	1920	EBH1BM431W30---T
	470	14.5x25	0.070	1700	EBH1BM471X25---T	
	560	12.5x35	0.05			

BH series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Impedance (max/20°C, 100kHz)	Rated ripple current (mA rms/125°C, 100kHz)	Part Number
100	130	12.5x20	0.156	970	EBH1KM131W20---T
	180	14.5x20	0.107	1160	EBH1KM181X20---T
	200	12.5x25	0.107	1440	EBH1KM201W25---T
	240	12.5x30	0.081	1830	EBH1KM241W30---T
	240	16x20	0.092	1260	EBH1KM241L20---T
	270	14.5x25	0.083	1640	EBH1KM271X25---T
	330	12.5x35	0.066	2140	EBH1KM331W35---T
	330	16x25	0.074	1750	EBH1KM331L25---T
	330	18x20	0.090	1350	EBH1KM331M20---T
	360	14.5x30	0.065	2090	EBH1KM361X30---T
	390	12.5x40	0.057	2370	EBH1KM391W40---T
	390	14.5x35	0.057	2280	EBH1KM391X35---T
	390	16x30	0.057	2210	EBH1KM391L30---T
	430	18x25	0.070	1850	EBH1KM431M25---T
	510	14.5x40	0.049	2580	EBH1KM511X40---T
	510	16x35	0.048	2410	EBH1KM511L35---T
	560	18x30	0.056	2260	EBH1KM561M30---T
	620	16x40	0.042	2650	EBH1KM621L40---T
	680	18x35	0.044	2560	EBH1KM681M35---T
	820	18x40	0.038	2730	EBH1KM821M40---T
160	47	10x20	-	378	EBH2CM470G20---T
	68	12.5x20	-	426	EBH2CM680W20---T
	82	12.5x20	-	513	EBH2CM820W20---T
	100	12.5x25	-	710	EBH2CM101W25---T
	100	16x20	-	824	EBH2CM101L20---T
	150	16x25	-	790	EBH2CM151L25---T
	220	18x30	-	1330	EBH2CM221M30---T
200	33	10x20	-	381	EBH2DM330G20---T
	47	10x25	-	500	EBH2DM470G25---T
	47	12.5x20	-	476	EBH2DM470W20---T
	68	16x20	-	637	EBH2DM680L20---T
	82	16x25	-	782	EBH2DM820L25---T
	82	18x20	-	768	EBH2DM820M20---T
	100	16x25	-	955	EBH2DM101L25---T
100	18x20	-	938	EBH2DM101M20---T	
150	18x25	-	980	EBH2DM151M25---T	
250	22	10x20	-	328	EBH2EM220G20---T
	33	10x25	-	407	EBH2EM330G25---T
	33	12.5x20	-	388	EBH2EM330W20---T
	47	10x30	-	457	EBH2EM470G30---T
	47	12.5x25	-	516	EBH2EM470W25---T
	68	16x25	-	677	EBH2EM680L25---T
	68	18x20	-	665	EBH2EM680M20---T
82	18x20	-	768	EBH2EM820M20---T	
100	18x25	-	846	EBH2EM101M25---T	
350	15	10x18	-	197	EBH2VM150G18---T
	15	12.5x16	-	208	EBH2VM150W16---T
	22	12.5x20	-	280	EBH2VM220W20---T
	33	12.5x25	-	344	EBH2VM330W25---T
	33	16x20	-	361	EBH2VM330L20---T
	47	16x25	-	526	EBH2VM470L25---T
	47	18x20	-	494	EBH2VM470M20---T
68	18x25	-	624	EBH2VM680M25---T	
400	10	10x20	-	151	EBH2GM100G20---T
	12	10x20	-	165	EBH2GM120G20---T
	15	10x25	-	214	EBH2GM150G25---T
	15	12.5x20	-	245	EBH2GM150W20---T
	22	12.5x25	-	355	EBH2GM220W25---T
	22	16x18	-	342	EBH2GM220L18---T
	33	16x20	-	405	EBH2GM330L20---T
47	18x25	-	500	EBH2GM470M25---T	
68	18x30	-	716	EBH2GM680M30---T	

Specifications subject to change without notice.

LK series

- Standard series for general purpose
- Endurance: 2,000 hours at 85°C
- RoHS Compliant

Upgrade

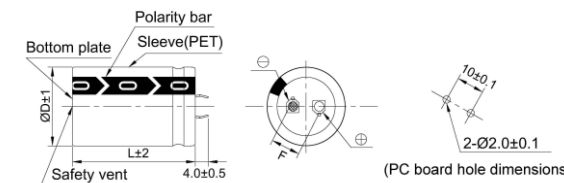


SPECIFICATIONS

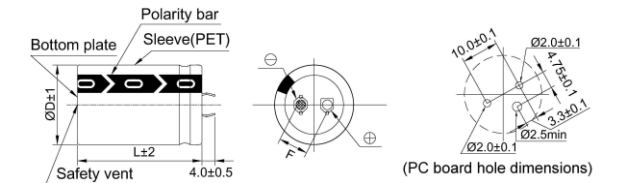
Items	Characteristics	
Category Temperature Range	-40~+85°C	-25~+85°C
Rated Voltage Range	10~100V.DC	160~600V.DC
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I 3√CV Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	Rated Voltage (Vdc)	10 16 25 35 50 63 80 100 160 to 250 315 to 500 550 600 (at 20°C, 120Hz)
	Dissipation Factor(Max.)	0.55 0.50 0.45:0.40 0.35:0.30 0.25 0.20 0.15 0.15 0.20 0.30
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	10 16 25 35 50 63 80 100 160 to 250 315 to 500 550 600 (at 120Hz)
	Z(-25°C)/Z(+20°C)	4 4 3 3 2 2 2 2 4 8 8 10
Endurance	Z(-40°C)/Z(+20°C)	15 15 10 8 6 6 5 5 - - - -
	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 2,000 hours at 85°C.	
	Capacitance Change	±20% of the initial value
Shelf Life	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.	
Capacitance Change	±20% of the initial value	
Dissipation Factor	150% of the initial specified value	
Leakage Current	200% of the initial specified value	

DIMENSIONS [mm]

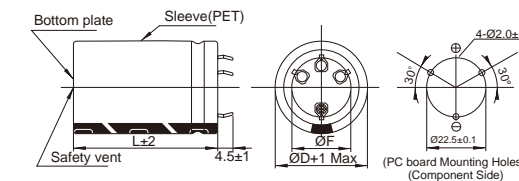
- Terminal Code : K ( 22 to 35) : Standard



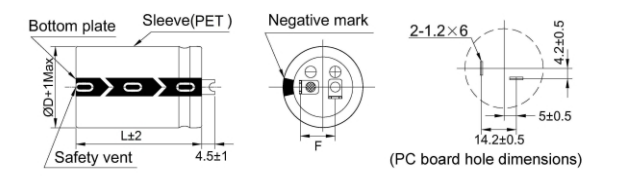
- Terminal Code : T ( 22 to 35) : Standard



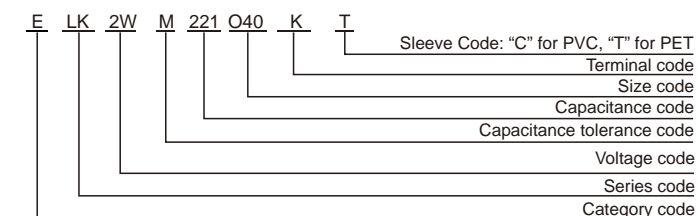
- Terminal Code : P ( 35 to 45) : Standard



- Terminal Code : L ( 35) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS  
Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
10~50	1.00	1.03	1.05	1.08
63~100	1.00	1.07	1.13	1.19
160~250	1.00	1.32	1.45	1.50
315~600	1.00	1.30	1.41	1.43



**LK series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number	
10	12000	22x25	0.55	2.41	ELK1AM123O25KT	
	15000	22x30	0.55	2.88	ELK1AM153O30KT	
	15000	25x25	0.55	2.88	ELK1AM153P25KT	
	18000	22x35	0.55	3.22	ELK1AM183O35KT	
	18000	25x30	0.55	3.08	ELK1AM183P30KT	
	22000	22x40	0.55	3.79	ELK1AM223O40KT	
	22000	25x30	0.55	3.66	ELK1AM223P30KT	
	22000	30x25	0.55	3.53	ELK1AM223Q25KT	
	27000	22x45	0.55	4.04	ELK1AM273O45KT	
	27000	25x35	0.55	4.04	ELK1AM273P35KT	
	27000	30x30	0.55	3.99	ELK1AM273Q30KT	
	33000	22x50	0.55	4.58	ELK1AM333O50KT	
	33000	25x40	0.55	4.56	ELK1AM333P40KT	
	33000	30x30	0.55	4.58	ELK1AM333Q30KT	
	39000	25x45	0.55	5.29	ELK1AM393P45KT	
	39000	30x35	0.55	5.21	ELK1AM393Q35KT	
	39000	35x30	0.55	5.05	ELK1AM393R30KT	
	47000	25x50	0.55	5.78	ELK1AM473P50KT	
	47000	30x40	0.55	5.78	ELK1AM473Q40KT	
	47000	35x35	0.55	5.55	ELK1AM473R35KT	
56000	30x45	0.55	6.59	ELK1AM563Q45KT		
56000	35x35	0.55	6.40	ELK1AM563R35KT		
68000	30x50	0.55	7.50	ELK1AM683Q50KT		
68000	35x40	0.55	7.48	ELK1AM683R40KT		
82000	35x50	0.55	8.50	ELK1AM823R50KT		
16	8200	22x25	0.50	2.56	ELK1CM822O25KT	
	10000	22x30	0.50	2.81	ELK1CM103O30KT	
	12000	22x30	0.50	3.31	ELK1CM123O30KT	
	12000	25x25	0.50	2.96	ELK1CM123P25KT	
	15000	22x35	0.50	3.69	ELK1CM153O35KT	
	15000	25x30	0.50	3.64	ELK1CM153P30KT	
	15000	30x25	0.50	3.73	ELK1CM153Q25KT	
	18000	22x40	0.50	3.98	ELK1CM183O40KT	
	18000	25x35	0.50	3.98	ELK1CM183P35KT	
	18000	30x30	0.50	3.88	ELK1CM183Q30KT	
	22000	22x50	0.50	4.52	ELK1CM223O50KT	
	22000	25x40	0.50	4.44	ELK1CM223P40KT	
	22000	30x30	0.50	4.38	ELK1CM223Q30KT	
	27000	25x45	0.50	4.98	ELK1CM273P45KT	
	27000	30x35	0.50	4.82	ELK1CM273Q35KT	
	27000	35x30	0.50	4.82	ELK1CM273R30KT	
	33000	25x50	0.50	5.49	ELK1CM333P50KT	
	33000	30x40	0.50	5.38	ELK1CM333Q40KT	
	33000	35x35	0.50	5.33	ELK1CM333R35KT	
	39000	30x45	0.50	6.11	ELK1CM393Q45KT	
39000	35x35	0.50	6.01	ELK1CM393R35KT		
47000	30x50	0.50	6.80	ELK1CM473Q50KT		
47000	35x40	0.50	6.80	ELK1CM473R40KT		
56000	35x45	0.50	7.62	ELK1CM563R45KT		
25	5600	22x25	0.45	2.31	ELK1EM562O25KT	
	6800	22x30	0.45	2.56	ELK1EM682O30KT	
	8200	22x35	0.45	2.81	ELK1EM822O35KT	
	8200	25x25	0.45	2.78	ELK1EM822P25KT	
	10000	22x35	0.45	3.18	ELK1EM103O35KT	
	10000	25x30	0.45	3.16	ELK1EM103P30KT	
	12000	22x45	0.45	3.53	ELK1EM123O45KT	
	12000	25x35	0.45	3.48	ELK1EM123P35KT	
	12000	30x25	0.45	3.53	ELK1EM123Q25KT	
	15000	22x50	0.45	4.08	ELK1EM153O50KT	
	15000	25x40	0.45	4.00	ELK1EM153P40KT	
	15000	30x30	0.45	4.00	ELK1EM153Q30KT	
	25	18000	25x45	0.45	4.68	ELK1EM183P45KT
		18000	30x35	0.45	4.66	ELK1EM183Q35KT
		18000	35x30	0.45	4.68	ELK1EM183R30KT
		22000	30x40	0.45	5.19	ELK1EM223Q40KT
		22000	35x35	0.45	5.20	ELK1EM223R35KT
		27000	30x45	0.45	6.02	ELK1EM273Q45KT
		27000	35x40	0.45	6.02	ELK1EM273R40KT
		33000	35x45	0.45	6.75	ELK1EM333R45KT
39000		35x50	0.45	7.56	ELK1EM393R50KT	
3900		22x25	0.40	2.22	ELK1VM392O25KT	
4700		22x30	0.40	2.46	ELK1VM472O30KT	
4700		25x25	0.40	2.43	ELK1VM472P25KT	
5600		22x35	0.40	2.79	ELK1VM562O35KT	
5600		25x30	0.40	2.75	ELK1VM562P30KT	
6800		22x40	0.40	2.89	ELK1VM682O40KT	
6800		25x30	0.40	2.89	ELK1VM682P30KT	
6800		30x25	0.40	3.09	ELK1VM682Q25KT	
8200		22x45	0.40	3.47	ELK1VM822O45KT	
8200		25x35	0.40	3.33	ELK1VM822P35KT	
8200		30x30	0.40	3.29	ELK1VM822Q30KT	
10000	22x50	0.40	3.59	ELK1VM103O50KT		
10000	25x40	0.40	3.59	ELK1VM103P40KT		
10000	30x30	0.40	3.61	ELK1VM103Q30KT		
10000	35x25	0.4	3.61	ELK1VM103R25KT		
12000	25x45	0.40	4.01	ELK1VM123P45KT		
12000	30x35	0.40	4.01	ELK1VM123Q35KT		
12000	35x30	0.40	4.02	ELK1VM123R30KT		
15000	30x40	0.40	4.80	ELK1VM153Q40KT		
15000	35x35	0.40	4.80	ELK1VM153R35KT		
18000	30x45	0.40	5.18	ELK1VM183Q45KT		
18000	35x40	0.40	5.71	ELK1VM183R40KT		
22000	35x45	0.40	6.38	ELK1VM223R45KT		
27000	35x50	0.40	6.90	ELK1VM273R50KT		
2200	22x25	0.35	1.93	ELK1HM222O25KT		
2700	22x30	0.35	2.21	ELK1HM272O30KT		
3300	22x30	0.35	2.41	ELK1HM332O30KT		
3300	25x25	0.35	2.38	ELK1HM332P25KT		
3900	22x35	0.35	2.72	ELK1HM392O35KT		
3900	25x30	0.35	2.68	ELK1HM392P30KT		
4700	22x40	0.35	3.01	ELK1HM472O40KT		
4700	25x30	0.35	3.03	ELK1HM472P30KT		
4700	30x25	0.35	3.01	ELK1HM472Q25KT		
5600	22x45	0.35	3.43	ELK1HM562O45KT		
5600	25x35	0.35	3.37	ELK1HM562P35KT		
5600	30x30	0.35	3.43	ELK1HM562Q30KT		
6800	22x50	0.35	3.94	ELK1HM682O50KT		
6800	25x40	0.35	3.87	ELK1HM682P40KT		
6800	30x35	0.35	3.87	ELK1HM682Q35KT		
8200	25x45	0.35	4.37	ELK1HM822P45KT		
8200	30x35	0.35	4.42	ELK1HM822Q35KT		
8200	35x30	0.35	4.41	ELK1HM822R30KT		
10000	30x40	0.35	5.02	ELK1HM103Q40KT		
10000	35x35	0.35	4.92	ELK1HM103R35KT		
12000	30x50	0.35	5.60	ELK1HM123O50KT		
12000	35x40	0.35	5.60	ELK1HM123R40KT		
15000	35x45	0.35	6.44	ELK1HM153R45KT		
18000	35x50	0.35	6.71	ELK1HM183R50KT		
1800	22x25	0.30	1.90	ELK1JM182O25KT		
2200	22x30	0.30	2.35	ELK1JM222O30KT		
2200	25x25	0.30	2.30	ELK1JM222P25KT		
2700	22x35	0.30	2.50	ELK1JM272O35KT		
2700	25x30	0.30	2.49	ELK1JM272P30KT		

**LK series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
63	3300	22x40	0.30	2.69	ELK1JM332O40KT
	3300	25x30	0.30	2.69	ELK1JM332P30KT
	3300	30x25	0.30	2.78	ELK1JM332Q25KT
	3900	22x45	0.30	3.10	ELK1JM392O45KT
	3900	25x35	0.30	3.09	ELK1JM392P35KT
	3900	30x30	0.30	3.09	ELK1JM392Q30KT
	4700	22x50	0.30	3.49	ELK1JM472O50KT
	4700	25x40	0.30	3.37	ELK1JM472P40KT
	4700	30x30	0.30	3.37	ELK1JM472Q30KT
	5600	25x45	0.30	3.80	ELK1JM562P45KT
	5600	30x35	0.30	3.81	ELK1JM562Q35KT
	5600	35x30	0.30	3.75	ELK1JM562R30KT
	6800	25x50	0.30	4.41	ELK1JM682P50KT
	6800	30x40	0.30	4.41	ELK1JM682Q40KT
	6800	35x35	0.30	4.33	ELK1JM682R35KT
	8200	30x45	0.30	4.90	ELK1JM822Q45KT
	8200	35x35	0.30	4.80	ELK1JM822R35KT
	10000	30x50	0.30	5.49	ELK1JM103Q50KT
	10000	35x40	0.30	5.47	ELK1JM103R40KT
	12000	35x50	0.30	6.30	ELK1JM123R50KT
80	1200	22x25	0.25	1.77	ELK1BM122O25KT
	1500	22x30	0.25	2.01	ELK1BM152O30KT
	1800	22x35	0.25	2.25	ELK1BM182O35KT
	1800	25x25	0.25	2.26	ELK1BM182P25KT
	2200	22x40	0.25	2.53	ELK1BM222O40KT
	2200	25x30	0.25	2.53	ELK1BM222P30KT
	2200	30x25	0.25	2.50	ELK1BM222Q25KT
	2700	22x45	0.25	2.93	ELK1BM272O45KT
	2700	25x35	0.25	2.93	ELK1BM272P35KT
	2700	30x30	0.25	2.91	ELK1BM272Q30KT
	3300	22x50	0.25	3.25	ELK1BM332O50KT
	3300	25x40	0.25	3.25	ELK1BM332P40KT
	3300	30x30	0.25	3.23	ELK1BM332Q30KT
	3900	25x45	0.25	3.62	ELK1BM392P45KT
	3900	30x35	0.25	3.62	ELK1BM392Q35KT
	4700	25x50	0.25	4.28	ELK1BM472P50KT
	4700	30x40	0.25	4.15	ELK1BM472Q40KT
	4700	35x30	0.25	4.10	ELK1BM472R30KT
	5600	30x45	0.25	4.55	ELK1BM562Q45KT
	5600	35x35	0.25	4.51	ELK1BM562R35KT
6800	30x50	0.25	5.18	ELK1BM682Q50KT	
6800	35x40	0.25	5.14	ELK1BM682R40KT	
8200	35x45	0.25	5.83	ELK1BM822R45KT	
820	22x25	0.20	1.86	ELK1KM821O25KT	
1000	22x30	0.20	2.02	ELK1KM102O30KT	
1200	22x30	0.20	2.12	ELK1KM122O30KT	
1200	25x25	0.20	2.10	ELK1KM122P25KT	
1500	22x35	0.20	2.45	ELK1KM152O35KT	
1500	25x30	0.20	2.43	ELK1KM152P30KT	
1800	22x40	0.20	2.77	ELK1KM182O40KT	
1800	25x35	0.20	2.77	ELK1KM182P35KT	
1800	30x25	0.20	2.65	ELK1KM182Q25KT	
2200	22x45	0.20	3.12	ELK1KM222O45KT	
2200	25x40	0.20	3.20	ELK1KM222P40KT	
2200	30x30	0.20	3.10	ELK1KM222Q30KT	
2700	25x45	0.20	3.61	ELK1KM272P45KT	
2700	30x35	0.20	3.60	ELK1KM272Q35KT	
2700	35x30	0.20	3.71	ELK1KM272R30KT	
3300	25x50	0.20	4.06	ELK1KM182P35KT	
3300	30x40	0.20	4.05	ELK1KM332Q40KT	
3300	35x35	0.20	4.07	ELK1KM332R35KT	
3900	30x45	0.20	4.60	ELK1KM392Q45KT	
3900	35x35	0.20	4.50	ELK1KM392R35KT	
4700	30x50	0.20	5.13	ELK1KM472Q50KT	
4700	35x40	0.20	5.12	ELK1KM472R40KT	

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
100	5600	35x45	0.20	5.75	ELK1KM562R45KT
	6800	35x55	0.20	6.01	ELK1KM682R55KT
160	390	22x25	0.15	1.55	ELK2CM391O25KT
	470	22x30	0.15	1.77	ELK2CM471O30KT
	470	25x25	0.15	1.77	ELK2CM471P25KT
	560	22x35	0.15	2.05	ELK2CM561O35KT
	560	25x30	0.15	2.05	ELK2CM561P30KT
	680	22x40	0.15	2.24	ELK2CM681O40KT
	680	25x30	0.15	2.22	ELK2CM681P30KT
	680	30x25	0.15	2.22	ELK2CM681Q25KT
	820	22x45	0.15		



**LK series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
200	820	22x50	0.15	2.68	ELK2DM821O50KT
	820	25x40	0.15	2.66	ELK2DM821P40KT
	820	30x30	0.15	2.62	ELK2DM821Q30KT
	1000	22x50	0.15	3.00	ELK2DM102O50KT
	1000	25x45	0.15	3.12	ELK2DM102P45KT
	1000	30x35	0.15	3.00	ELK2DM102Q35KT
	1000	35x30	0.15	2.96	ELK2DM102R30KT
	1200	25x50	0.15	3.44	ELK2DM122P50KT
	1200	30x40	0.15	3.44	ELK2DM122Q40KT
	1200	35x35	0.15	3.40	ELK2DM122R35KT
	1500	30x50	0.15	3.93	ELK2DM152Q50KT
	1500	35x40	0.15	3.87	ELK2DM152R40KT
	1800	35x45	0.15	4.37	ELK2DM182R45KT
	2200	35x50	0.15	5.00	ELK2DM222R50KT
220	220	22x25	0.15	1.18	ELK2NM221O25KT
	270	22x25	0.15	1.31	ELK2NM271O25KT
	330	22x30	0.15	1.58	ELK2NM331O30KT
	330	25x25	0.15	1.49	ELK2NM331P25KT
	390	22x35	0.15	1.69	ELK2NM391O35KT
	390	25x30	0.15	1.71	ELK2NM391P30KT
	470	22x40	0.15	1.99	ELK2NM471O40KT
	470	25x30	0.15	1.95	ELK2NM471P30KT
	470	25x35	0.15	2.00	ELK2NM471P35KT
	470	30x25	0.15	1.89	ELK2NM471Q25KT
	560	22x45	0.15	2.28	ELK2NM561O45KT
	560	25x35	0.15	2.22	ELK2NM561P35KT
	560	30x30	0.15	2.19	ELK2NM561Q30KT
	680	22x50	0.15	2.46	ELK2NM681O50KT
680	25x40	0.15	2.40	ELK2NM681P40KT	
680	30x30	0.15	2.39	ELK2NM681Q30KT	
820	25x45	0.15	2.81	ELK2NM821P45KT	
820	30x35	0.15	2.70	ELK2NM821Q35KT	
820	35x30	0.15	2.62	ELK2NM821R30KT	
1000	25x50	0.15	3.13	ELK2NM102P50KT	
1000	30x40	0.15	3.08	ELK2NM102Q40KT	
1000	35x35	0.15	3.05	ELK2NM102R35KT	
1200	30x45	0.15	3.60	ELK2NM122Q45KT	
1200	35x40	0.15	3.51	ELK2NM122R40KT	
1500	35x45	0.15	3.92	ELK2NM152R45KT	
250	220	22x25	0.15	1.18	ELK2EM221O25KT
	270	22x30	0.15	1.43	ELK2EM271O30KT
	330	22x30	0.15	1.58	ELK2EM331O30KT
	330	25x25	0.15	1.53	ELK2EM331P25KT
	390	22x40	0.15	1.79	ELK2EM391O40KT
	390	25x30	0.15	1.79	ELK2EM391P30KT
	470	22x40	0.15	2.05	ELK2EM471O40KT
	470	25x35	0.15	2.05	ELK2EM471P35KT
	470	30x25	0.15	1.94	ELK2EM471Q25KT
	560	22x45	0.15	2.36	ELK2EM561O45KT
	560	25x35	0.15	2.24	ELK2EM561P35KT
	560	30x30	0.15	2.24	ELK2EM561Q30KT
	680	25x40	0.15	2.54	ELK2EM681P40KT
	680	30x35	0.15	2.58	ELK2EM681Q35KT
820	25x50	0.15	2.87	ELK2EM821P50KT	
820	30x35	0.15	2.84	ELK2EM821Q35KT	
820	35x30	0.15	2.82	ELK2EM821R30KT	
1000	30x45	0.15	3.39	ELK2EM102Q45KT	
1000	35x35	0.15	3.31	ELK2EM102R35KT	
1200	30x50	0.15	3.80	ELK2EM122Q50KT	
1200	35x40	0.15	3.66	ELK2EM122R40KT	
1500	35x45	0.15	4.12	ELK2EM152R45KT	
1800	35x50	0.15	4.31	ELK2EM182R50KT	

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
315	180	22x30	0.15	1.23	ELK2FM181O30KT
	180	25x25	0.15	1.31	ELK2FM181P25KT
	220	22x35	0.15	1.34	ELK2FM221O35KT
	220	25x30	0.15	1.40	ELK2FM221P30KT
	270	22x40	0.15	1.60	ELK2FM271O40KT
	270	25x30	0.15	1.62	ELK2FM271P30KT
	330	22x45	0.15	1.82	ELK2FM331O45KT
	330	25x35	0.15	1.85	ELK2FM331P35KT
	330	30x30	0.15	1.89	ELK2FM331Q30KT
	390	22x50	0.15	1.97	ELK2FM391O50KT
	390	25x40	0.15	2.01	ELK2FM391P40KT
	390	30x30	0.15	2.05	ELK2FM391Q30KT
	470	25x45	0.15	2.20	ELK2FM471P45KT
	470	30x35	0.15	2.27	ELK2FM471Q35KT
470	35x30	0.15	2.25	ELK2FM471R30KT	
560	30x40	0.15	2.50	ELK2FM561Q40KT	
560	35x35	0.15	2.56	ELK2FM561R35KT	
680	30x45	0.15	2.67	ELK2FM681Q45KT	
680	35x40	0.15	2.90	ELK2FM681R40KT	
820	30x50	0.15	3.12	ELK2FM821Q50KT	
820	35x45	0.15	3.29	ELK2FM821R45KT	
1000	35x50	0.15	3.40	ELK2FM102R50KT	
350	120	22x25	0.15	0.99	ELK2VM121O25KT
	150	22x30	0.15	1.44	ELK2VM151O30KT
	150	25x25	0.15	1.16	ELK2VM151P25KT
	180	22x35	0.15	1.28	ELK2VM181O35KT
	180	25x30	0.15	1.30	ELK2VM181P30KT
	220	22x40	0.15	1.40	ELK2VM221O40KT
	220	25x35	0.15	1.46	ELK2VM221P35KT
	220	30x25	0.15	1.47	ELK2VM221Q25KT
	270	22x45	0.15	1.62	ELK2VM271O45KT
	270	25x35	0.15	1.65	ELK2VM271P35KT
	270	30x30	0.15	1.71	ELK2VM271Q30KT
	330	22x50	0.15	1.78	ELK2VM331O50KT
	330	25x40	0.15	1.88	ELK2VM331P40KT
	330	30x35	0.15	1.93	ELK2VM331Q35KT
390	25x45	0.15	2.04	ELK2VM391P45KT	
390	30x35	0.15	2.12	ELK2VM391Q35KT	
390	35x30	0.15	2.19	ELK2VM391R30KT	
470	30x40	0.15	2.41	ELK2VM471Q40KT	
470	35x35	0.15	2.43	ELK2VM471R35KT	
560	30x45	0.15	2.60	ELK2VM561Q45KT	
560	35x35	0.15	2.62	ELK2VM561R35KT	
680	35x40	0.15	3.00	ELK2VM681R40KT	
820	35x50	0.15	3.30	ELK2VM821R50KT	
385	82	22x25	0.15	0.70	ELK3BM820O25KT
	100	22x30	0.15	0.82	ELK3BM101O30KT
	120	22x30	0.15	0.91	ELK3BM121O30KT
	120	25x25	0.15	0.95	ELK3BM121P25KT
	150	22x35	0.15	1.04	ELK3BM151O35KT
	150	25x30	0.15	1.08	ELK3BM151P30KT
	180	22x40	0.15	1.18	ELK3BM181O40KT
	180	25x35	0.15	1.20	ELK3BM181P35KT
	180	30x25	0.15	1.28	ELK3BM181Q25KT
	220	22x45	0.15	1.33	ELK3BM221O45KT
	220	25x35	0.15	1.44	ELK3BM221P35KT
	220	30x30	0.15	1.40	ELK3BM221Q30KT
	270	25x40	0.15	1.56	ELK3BM271P40KT
	270	30x35	0.15	1.62	ELK3BM271Q35KT

**LK series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number	
385	330	25x50	0.15	1.80	ELK3BM331P50KT	
	330	30x40	0.15	1.85	ELK3BM331Q40KT	
	330	35x30	0.15	1.85	ELK3BM331R30KT	
	390	30x40	0.15	2.04	ELK3BM391Q40KT	
	390	35x35	0.15	2.06	ELK3BM391R35KT	
	470	30x50	0.15	2.27	ELK3BM471Q50KT	
	470	35x40	0.15	2.30	ELK3BM471R40KT	
	560	35x45	0.15	2.57	ELK3BM561R45KT	
	680	35x50	0.15	2.80	ELK3BM681R50KT	
	400	82	22x25	0.15	0.80	ELK2GM820O25KT
		100	22x30	0.15	0.94	ELK2GM101O30KT
		120	22x30	0.15	1.04	ELK2GM121O30KT
		120	25x25	0.15	1.08	ELK2GM121P25KT
		150	22x35	0.15	1.18	ELK2GM151O35KT
150		25x30	0.15	1.21	ELK2GM151P30KT	
180		22x40	0.15	1.34	ELK2GM181O40KT	
180		25x35	0.15	1.37	ELK2GM181P35KT	
180		30x25	0.15	1.45	ELK2GM181Q25KT	
220		22x45	0.15	1.50	ELK2GM221O45KT	
220		25x35	0.15	1.56	ELK2GM221P35KT	
220		30x30	0.15	1.58	ELK2GM221Q30KT	
270		25x40	0.15	1.70	ELK2GM271P40KT	
270		30x35	0.15	1.73	ELK2GM271Q35KT	
330	25x50	0.15	1.90	ELK2GM331P50KT		
330	30x40	0.15	1.95	ELK2GM331Q40KT		
330	35x30	0.15	1.95	ELK2GM331R30KT		
390	25x50	0.15	2.15	ELK2GM391P50KT		
390	30x35	0.15	2.10	ELK2GM391Q35KT		
390	30x40	0.15	2.15	ELK2GM391Q40KT		
390	35x30	0.15	2.15	ELK2GM391R30KT		
390	35x35	0.15	2.17	ELK2GM391R35KT		
470	30x50	0.15	2.39	ELK2GM471Q50KT		
470	35x40	0.15	2.42	ELK2GM471R40KT		
560	35x40	0.15	2.55	ELK2GM561R40KT		
560	35x45	0.15	2.71	ELK2GM561R45KT		
680	30x60	0.15	2.92	ELK2GM681Q60KT		
680	35x45	0.15	2.92	ELK2GM681R45KT		
680	35x50	0.15	2.95	ELK2GM681R50KT		
820	30x50	0.15	2.80	ELK2GM821Q50KT		
820	30x55	0.15	2.95	ELK2GM821Q55KT		
820	30x60	0.15	3.00	ELK2GM821Q60KT		
820	35x60	0.15	3.25	ELK2GM821R60KT		
820	40x50	0.15	3.20	ELK2GM821Y50PT		
1000	30x80	0.15	3.65	ELK2GM102Q80KT		
1000	35x50	0.15	3.20	ELK2GM102R50KT		
1000	35x60	0.15	3.65	ELK2GM102R60KT		
1000	35x70	0.15	3.80	ELK2GM102R70KT		
1000	40x55	0.15	3.55	ELK2GM102Y55PT		
1200	35x65	0.15	3.80	ELK2GM122R65KT		
1200	35x70	0.15	4.20	ELK2GM122R70KT		
1200	40x60	0.15	4.20	ELK2GM122Y60PT		
1500	35x85	0.15	4.50	ELK2GM152R85PT		
1500	40x80	0.15	4.90	ELK2GM152Y80PT		
1800	40x90	0.15	5.75	ELK2GM182Y90PT		
2200	40x100	0.15	6.66	ELK2GM222YA0PT		
420	82	22x25	0.15	0.75	ELK2TM820O25KT	
	100	22x30	0.15	0.87	ELK2TM101O30KT	
	100	25x25	0.15	0.92	ELK2TM101P25KT	
	120	22x30	0.15	1.01	ELK2TM121O30KT	
	120	25x25	0.15	1.03	ELK2TM121P25KT	
	150	22x35	0.15	1.19	ELK2TM151Q35KT	

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
420	150	25x30	0.15	1.19	ELK2TM151P30KT
	150	30x25	0.15	1.14	ELK2TM151Q25KT
	180	22x45	0.15	1.36	ELK2TM181O45KT
	180	25x35	0.15	1.37	ELK2TM181P35KT
	180	30x25	0.15	1.35	ELK2TM181Q25KT
	220	22x50	0.15	1.69	ELK2TM221O50KT
	220	25x35	0.15	1.58	ELK2TM221P35KT
	220	30x30	0.15	1.56	ELK2TM221Q30KT
	270	25x40	0.15	1.83	ELK2TM271P40KT
	270	30x35	0.15	1.72	ELK2TM271Q35KT
	270	35x30	0.15	1.76	ELK2TM271R30KT
	330	25x45	0.15	2.18	ELK2TM331P45KT
	330	30x40	0.15	1.98	ELK2TM331Q40KT
	330	35x35	0.15	2.04	ELK2TM331R35KT
450	390	30x45	0.15	2.34	ELK2TM391Q45KT
	390	35x35	0.15	2.26	ELK2TM391R35KT
	470	30x50	0.15	2.67	ELK2TM471Q50KT
	470	35x40	0.15	2.60	EL

LK series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
450	820	40x50	0.15	3.69	ELK2WM821Y50PT
	1000	35x65	0.15	4.30	ELK2WM102R65KT
	1000	40x60	0.15	4.42	ELK2WM102Y60PT
	1200	35x80	0.15	4.80	ELK2WM122R80PT
	1200	40x70	0.15	4.80	ELK2WM122Y70PT
	1500	40x85	0.15	5.40	ELK2WM152Y85PT
	1800	40x100	0.15	5.90	ELK2WM182YA0PT
2200	45x100	0.15	7.00	ELK2WM222IA0PT	
500	68	22x25	0.15	0.68	ELK2HM680Q25KT
	82	22x25	0.15	0.88	ELK2HM820Q25KT
	100	22x30	0.15	0.94	ELK2HM101Q30KT
	100	25x25	0.15	0.96	ELK2HM101P25KT
	120	22x35	0.15	1.06	ELK2HM121Q35KT
	120	25x30	0.15	1.09	ELK2HM121P30KT
	120	30x25	0.15	1.13	ELK2HM121Q25KT
	150	22x40	0.15	1.19	ELK2HM151Q40KT
	150	25x35	0.15	1.23	ELK2HM151P35KT
	150	30x25	0.15	1.26	ELK2HM151Q25KT
	180	25x40	0.15	1.39	ELK2HM181P40KT
	180	30x30	0.15	1.43	ELK2HM181Q30KT
	220	30x35	0.15	1.60	ELK2HM221Q35KT
	220	35x30	0.15	1.62	ELK2HM221R30KT
	270	35x35	0.15	1.85	ELK2HM271R35KT
	330	35x40	0.15	2.08	ELK2HM331R40KT
	390	35x45	0.15	2.31	ELK2HM391R45KT
470	35x50	0.15	2.61	ELK2HM471R50KT	
550	47	22x25	0.20	0.59	ELK2JM470Q25KT
	56	22x30	0.20	0.63	ELK2JM560Q30KT
	68	22x30	0.20	0.76	ELK2JM680Q30KT
	68	25x25	0.20	0.72	ELK2JM680P25KT
	82	22x35	0.20	0.91	ELK2JM820Q35KT
	82	25x30	0.20	0.89	ELK2JM820P30KT
	82	30x25	0.20	0.88	ELK2JM820Q25KT
	100	22x40	0.20	0.97	ELK2JM101Q40KT
	100	25x35	0.20	0.97	ELK2JM101P35KT
	100	30x25	0.20	0.92	ELK2JM101Q25KT
	120	22x45	0.20	1.07	ELK2JM121Q45KT
	120	25x40	0.20	1.16	ELK2JM121P40KT
	120	30x30	0.20	1.12	ELK2JM121Q30KT
	150	25x45	0.20	1.25	ELK2JM151P45KT
	150	30x35	0.20	1.29	ELK2JM151Q35KT
	150	35x30	0.20	1.29	ELK2JM151R30KT
	180	25x50	0.20	1.40	ELK2JM181P50KT
180	30x40	0.20	1.45	ELK2JM181Q40KT	
180	35x30	0.20	1.36	ELK2JM181R30KT	
220	30x45	0.20	1.61	ELK2JM221Q45KT	
220	35x35	0.20	1.60	ELK2JM221R35KT	
270	35x40	0.20	2.00	ELK2JM271R40KT	
330	35x45	0.20	2.26	ELK2JM331R45KT	
390	35x50	0.20	2.45	ELK2JM391R50KT	
470	35x60	0.20	2.80	ELK2JM471R60KT	
600	47	22x30	0.30	0.59	ELK2KM470Q30KT
	56	22x35	0.30	0.63	ELK2KM560Q35KT
	56	25x30	0.30	0.62	ELK2KM560P30KT
	68	22x40	0.30	0.76	ELK2KM680Q40KT
	68	25x35	0.30	0.76	ELK2KM680P35KT
	82	22x45	0.30	0.92	ELK2KM820Q45KT
	82	25x40	0.30	0.90	ELK2KM820P40KT
	100	25x45	0.30	1.01	ELK2KM101P45KT
	100	30x35	0.30	1.01	ELK2KM101Q35KT
	120	25x50	0.30	1.16	ELK2KM121P50KT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
600	120	30x40	0.30	1.16	ELK2KM121Q40KT
	150	30x45	0.30	1.29	ELK2KM151Q45KT
	180	30x50	0.30	1.45	ELK2KM181Q50KT
	180	35x40	0.30	1.45	ELK2KM181R40KT
	220	35x45	0.30	1.61	ELK2KM221R45KT
600	270	35x50	0.30	2.02	ELK2KM271R50KT
	330	35x60	0.30	2.27	ELK2KM331R60KT

Specifications subject to change without notice.

LH series

- Withstand high temperature, for general purpose
- Endurance: 2,000 hours at 105°C
- RoHS Compliant

Upgrade

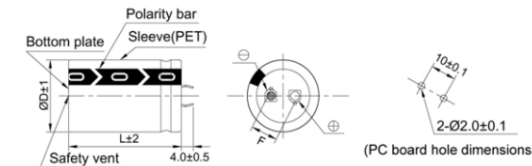


SPECIFICATIONS

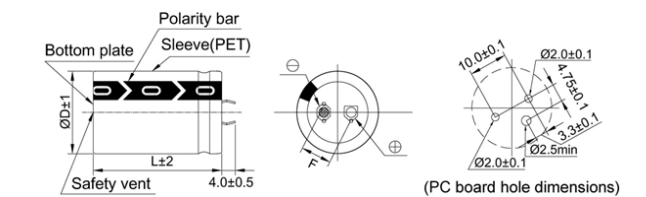
Items	Characteristics	
Category Temperature Range	-40~+105°C	-25~+105°C
Rated Voltage Range	10~100V.DC	160~550V.DC
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I 3√CV Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	Rated Voltage (Vdc)	10 16 25 35 50 63 80 100 160 to 250 315 to 450 500 to 550
	Dissipation Factor(Max.)	0.55 0.50 0.45 0.40 0.35 0.30 0.25 0.20 0.15 0.15 0.20 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	10 16 25 35 50 63 80 100 160 to 250 315 to 450 500 to 550
	Z(-25°C)/Z(+20°C)	4 4 3 3 2 2 2 2 4 8 8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 2,000 hours at 105°C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	Leakage Current	200% of the initial specified value

DIMENSIONS [mm]

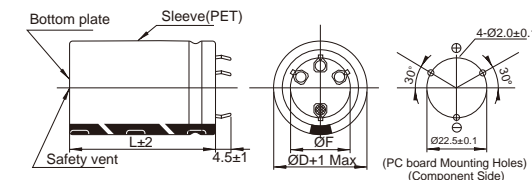
Terminal Code : K ( 22 to 35 ) : Standard



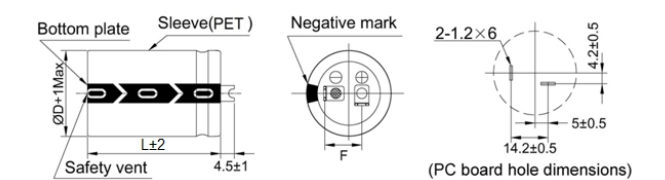
Terminal Code : T ( 22 to 35 ) : Standard



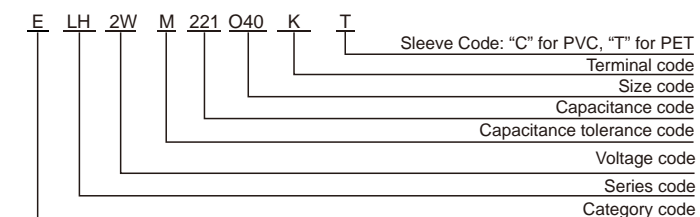
Terminal Code : P ( 35 to 45 ) : Standard



Terminal Code : L ( 35 ) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

W.V	Frequency correction factor for ripple current (Hz)			
	120	1k	10k	100k
10-50	1.00	1.03	1.05	1.08
63-100	1.00	1.07	1.13	1.19
160-250	1.00	1.32	1.45	1.50
315-550	1.00	1.30	1.41	1.43

Snap-in&Lug Terminal Type



**LH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
10	10000	22x25	0.55	1.77	ELH1AM103O25KT	
	12000	22x30	0.55	2.10	ELH1AM123O30KT	
	12000	25x25	0.55	1.94	ELH1AM123P25KT	
	15000	22x35	0.55	2.23	ELH1AM153O35KT	
	15000	25x30	0.55	2.10	ELH1AM153P30KT	
	18000	22x40	0.55	2.41	ELH1AM183O40KT	
	18000	25x30	0.55	2.34	ELH1AM183P30KT	
	18000	30x25	0.55	2.25	ELH1AM183Q25KT	
	22000	22x45	0.55	2.58	ELH1AM223O45KT	
	22000	25x35	0.55	2.54	ELH1AM223P35KT	
	22000	30x30	0.55	2.50	ELH1AM223Q30KT	
	27000	22x50	0.55	3.17	ELH1AM273O50KT	
	27000	25x40	0.55	3.07	ELH1AM273P40KT	
	27000	30x30	0.55	2.95	ELH1AM273Q30KT	
	33000	25x45	0.55	3.39	ELH1AM333P45KT	
	33000	30x35	0.55	3.33	ELH1AM333Q35KT	
	33000	35x30	0.55	3.21	ELH1AM333R30KT	
	39000	30x40	0.55	3.70	ELH1AM393Q40KT	
	39000	35x35	0.55	3.68	ELH1AM393R35KT	
	47000	30x45	0.55	4.22	ELH1AM473Q45KT	
47000	35x40	0.55	4.16	ELH1AM473R40KT		
56000	35x45	0.55	5.00	ELH1AM563R45KT		
16	6800	22x25	0.50	1.75	ELH1CM682O25KT	
	8200	22x30	0.50	2.00	ELH1CM822O30KT	
	10000	22x30	0.50	2.10	ELH1CM103O30KT	
	10000	25x25	0.50	2.05	ELH1CM103P25KT	
	12000	22x35	0.50	2.31	ELH1CM123O35KT	
	12000	25x30	0.50	2.30	ELH1CM123P30KT	
	12000	30x25	0.50	2.30	ELH1CM123Q25KT	
	15000	22x40	0.50	2.68	ELH1CM153O40KT	
	15000	25x35	0.50	2.58	ELH1CM153P35KT	
	15000	30x30	0.50	2.57	ELH1CM153Q30KT	
	18000	22x50	0.50	3.20	ELH1CM183O50KT	
	18000	25x40	0.50	3.16	ELH1CM183P40KT	
	18000	30x30	0.50	2.98	ELH1CM183Q30KT	
	22000	25x45	0.50	3.36	ELH1CM223P45KT	
	22000	30x35	0.50	3.30	ELH1CM223Q35KT	
	22000	35x30	0.50	3.25	ELH1CM223R30KT	
	27000	25x50	0.50	3.85	ELH1CM273P50KT	
	27000	30x40	0.50	3.80	ELH1CM273Q40KT	
	27000	35x35	0.50	3.93	ELH1CM273R35KT	
	33000	30x45	0.50	4.30	ELH1CM333Q45KT	
33000	35x35	0.50	4.27	ELH1CM333R35KT		
39000	30x50	0.50	4.81	ELH1CM393Q50KT		
39000	35x40	0.50	4.80	ELH1CM393R40KT		
47000	35x45	0.50	5.53	ELH1CM473R45KT		
25	4700	22x25	0.45	1.61	ELH1EM472O25KT	
	5600	22x30	0.45	1.80	ELH1EM562O30KT	
	6800	22x35	0.45	2.09	ELH1EM682O35KT	
	6800	25x25	0.45	1.87	ELH1EM682P25KT	
	8200	22x40	0.45	2.31	ELH1EM822O40KT	
	8200	25x30	0.45	2.34	ELH1EM822P30KT	
	8200	30x25	0.45	2.16	ELH1EM822Q25KT	
	10000	22x45	0.45	2.65	ELH1EM103O45KT	
	10000	25x35	0.45	2.61	ELH1EM103P35KT	
	10000	30x30	0.45	2.61	ELH1EM103Q30KT	
	12000	22x50	0.45	2.80	ELH1EM123O50KT	
	12000	25x40	0.45	2.81	ELH1EM123P40KT	
	12000	30x30	0.45	2.74	ELH1EM123Q30KT	
	25	15000	25x45	0.45	3.27	ELH1EM153P45KT
		15000	30x35	0.45	3.13	ELH1EM153Q35KT
		15000	35x30	0.45	3.26	ELH1EM153R30KT
		18000	30x40	0.45	3.56	ELH1EM183Q40KT
		18000	35x35	0.45	3.84	ELH1EM183R35KT
		22000	30x45	0.45	4.04	ELH1EM223Q45KT
		22000	35x35	0.45	3.75	ELH1EM223R35KT
27000		35x45	0.45	4.74	ELH1EM273R45KT	
33000		35x50	0.45	5.50	ELH1EM333R50KT	
35		3300	22x25	0.40	1.45	ELH1VM332O25KT
		3900	22x30	0.40	1.69	ELH1VM392O30KT
		4700	22x35	0.40	2.02	ELH1VM472O35KT
		4700	25x25	0.40	1.62	ELH1VM472P25KT
		5600	22x35	0.40	2.13	ELH1VM562O35KT
		5600	25x30	0.40	2.00	ELH1VM562P30KT
		6800	22x40	0.40	2.41	ELH1VM682O40KT
		6800	25x35	0.40	2.31	ELH1VM682P35KT
		6800	30x25	0.40	2.31	ELH1VM682Q25KT
		8200	22x50	0.40	2.85	ELH1VM822O50KT
		8200	25x40	0.40	2.73	ELH1VM822P40KT
	8200	30x30	0.40	2.75	ELH1VM822Q30KT	
	10000	25x45	0.40	3.05	ELH1VM103P45KT	
	10000	30x35	0.40	3.05	ELH1VM103Q35KT	
	12000	25x50	0.40	3.37	ELH1VM123P50KT	
	12000	30x40	0.40	3.23	ELH1VM123Q40KT	
	12000	35x30	0.40	3.19	ELH1VM123R30KT	
	15000	30x45	0.40	3.72	ELH1VM153Q45KT	
	15000	35x35	0.40	3.67	ELH1VM153R35KT	
	18000	35x40	0.40	4.37	ELH1VM183R40KT	
22000	35x45	0.40	4.92	ELH1VM223R45KT		
50	1800	22x25	0.35	1.34	ELH1HM182O25KT	
	2200	22x30	0.35	1.60	ELH1HM222O30KT	
	2700	22x30	0.35	1.70	ELH1HM272O30KT	
	2700	25x25	0.35	1.70	ELH1HM272P25KT	
	3300	22x35	0.35	1.97	ELH1HM332O35KT	
	3300	25x30	0.35	1.88	ELH1HM332P30KT	
	3900	22x40	0.35	2.22	ELH1HM392O40KT	
	3900	25x30	0.35	2.20	ELH1HM392P30KT	
	3900	30x25	0.35	1.95	ELH1HM392Q25KT	
	4700	22x45	0.35	2.43	ELH1HM472O45KT	
	4700	25x35	0.35	2.43	ELH1HM472P35KT	
	4700	30x30	0.35	2.25	ELH1HM472Q30KT	
	5600	22x50	0.35	2.75	ELH1HM562O50KT	
	5600	25x40	0.35	2.72	ELH1HM562P40KT	
	5600	30x30	0.35	2.64	ELH1HM562Q30KT	
	6800	25x45	0.35	3.30	ELH1HM682P45KT	
	6800	30x35	0.35	3.30	ELH1HM682Q35KT	
	6800	35x30	0.35	3.25	ELH1HM682R30KT	
	8200	30x40	0.35	3.60	ELH1HM822Q40KT	
	8200	35x35	0.35	3.60	ELH1HM822R35KT	
10000	30x50	0.35	4.05	ELH1HM103Q50KT		
10000	35x40	0.35	4.04	ELH1HM103R40KT		
12000	35x45	0.35	4.56	ELH1HM123R45KT		
15000	35x50	0.35	4.77	ELH1HM153R50KT		
63	1200	22x25	0.30	1.20	ELH1JM122O25KT	
	1500	22x30	0.30	1.47	ELH1JM152O30KT	
	1800	22x30	0.30	1.58	ELH1JM182O30KT	
	1800	25x25	0.30	1.52	ELH1JM182P25KT	
	2200	22x35	0.30	1.82	ELH1JM222O35KT	
	2200	25x30	0.30	1.75	ELH1JM222P30KT	
	63	2700	22x40	0.30	2.07	ELH1JM272O40KT
		2700	25x35	0.30	2.11	ELH1JM272P35KT
2700		30x25	0.30	1.72	ELH1JM272Q25KT	
3300		22x45	0.30	2.33	ELH1JM332O45KT	
3300		25x35	0.30	2.27	ELH1JM332P35KT	
3300		30x30	0.30	2.24	ELH1JM332Q30KT	
3900		25x40	0.30	2.51	ELH1JM392P40KT	
3900		30x35	0.30	2.55	ELH1JM392Q35KT	
4700		25x45	0.30	2.80	ELH1JM472P45KT	
4700		25x50	0.30	2.97	ELH1JM472P50KT	
4700		30x40	0.30	2.86	ELH1JM472Q40KT	
4700		35x30	0.30	2.80	ELH1JM472R30KT	
5600		30x40	0.30	3.22	ELH1JM562Q40KT	
5600		35x35	0.30	3.20	ELH1JM562R35KT	
6800		25x55	0.30	3.40	ELH1JM682P55KT	
6800		30x50	0.30	3.65	ELH1JM682Q50KT	
6800		35x40	0.30	3.65	ELH1JM682R40KT	
8200		35x45	0.30	4.04	ELH1JM822R45KT	
10000		35x50	0.30	4.48	ELH1JM103R50KT	
80		1000	22x25	0.25	1.19	ELH1BM102O25KT
	1200	22x30	0.25	1.44	ELH1BM122O30KT	
	1500	22x30	0.25	1.59	ELH1BM152O30KT	
	1500	25x25	0.25	1.59	ELH1BM152P25KT	
	1800	22x30	0.25	1.65	ELH1BM182O30KT	
	1800	22x35	0.25	1.79	ELH1BM182O35KT	
	1800	25x30	0.25	1.71	ELH1BM182P30KT	
	2200	22x40	0.25	2.03	ELH1BM222O40KT	
	2200	25x35	0.25	1.98	ELH1BM222P35KT	
	2200	30x25	0.25	1.98	ELH1BM222Q25KT	
	2700	22x45	0.25	2.39	ELH1BM272O45KT	
	2700	25x40	0.25	2.35	ELH1BM272P40KT	
	2700	30x30	0.25	2.35	ELH1BM272Q30KT	
	3300	25x45	0.25	2.64	ELH1BM332P45KT	
	3300	30x35	0.25	2.61	ELH1BM332Q35KT	
	3300	35x30	0.25	2.74	ELH1BM332R30KT	
	3900	25x50	0.25	2.92	ELH1BM392P50KT	
	3900	30x40	0.25	2.82	ELH1BM392Q40KT	
	3900	35x30	0.25	2.97	ELH1BM392R30KT	
	4700	30x45	0.25	3.34	ELH1BM472Q45KT	
4700	35x35	0.25	3.38	ELH1BM472R35KT		
5600	30x50	0.25	3.80	ELH1BM562Q50KT		
5600	35x40	0.25	3.80	ELH1BM562R40KT		
6800	35x45	0.25	3.90	ELH1BM682R45KT		
8200	35x50	0.25	4.20	ELH1BM822R50KT		
100	680	22x25	0.20	1.09	ELH1KM681O25KT	
	820	22x30	0.20	1.32	ELH1KM821O30KT	
	1000	22x30	0.20	1.47	ELH1KM102O30KT	
	1000	25x35	0.20	1.52	ELH1KM102O35KT	
	1000	25x25	0.20	1.45	ELH1KM102P25KT	
	1200	22x35	0.20	1.69	ELH1KM122O35KT	
	1200	25x30	0.20	1.68	ELH1KM122P30KT	
	1500	22x40	0.20	1.97	ELH1KM152O40KT	
	1500	25x35	0.20	1.98	ELH1KM152P35KT	
	1500	30x25	0.20	1.95	ELH1KM152Q25KT	
	1800	22x45	0.20	2.23	ELH1KM182O45KT	
	1800	25x35	0.20	2.15	ELH1KM182P35KT	
	1800	25x40	0.20	2.20	ELH1KM182P40KT	
	1800	30x30	0.20	2.20	ELH1KM182Q30KT	
	2200	25x45	0.20	2.53	ELH1KM222P45KT	
	2200	30x35	0.20	2.55	ELH1KM222Q35KT	
	2200	35x30	0.20	2.50	ELH1KM222R30KT	
	200	270	22x25	0.15	0.99	ELH2DM271O25KT
		330	22x30	0.15	1.20	ELH2DM331O30KT
		330	25x25	0.15	1.20	ELH2DM331P25KT
390		22x35	0.15	1.30	ELH2DM391O35KT	
390		25x30	0.15	1.34	ELH2DM391P30KT	
470		22x40	0.15	1.44	ELH2DM471O40KT	

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
25	15000	25x45	0.45	3.27	ELH1EM153P45KT	
	15000	30x35	0.45	3.13	ELH1EM153Q35KT	
	15000	35x30	0.45	3.26	ELH1EM153R30KT	
	18000	30x40	0.45	3.56	ELH1EM183Q40KT	
	18000	35x35	0.45	3.84	ELH1EM183R35KT	
	22000	30x45	0.45	4.04	ELH1EM223Q45KT	
	22000	35x35	0.45	3.75	ELH1EM223R35KT	
	27000	35x45	0.45	4.74	ELH1EM273R45KT	
	33000	35x50	0.45	5.50	ELH1EM333R50KT	
	35	3300	22x25	0.40	1.45	ELH1VM332O25KT
		3900	22x30	0.40	1.69	ELH1VM392O30KT
		4700	22x35	0.40	2.02	ELH1VM472O35KT
		4700	25x25	0.40	1.62	ELH1VM472P25KT
		5600	22x35	0.40	2.13	ELH1VM562O35KT
		5600	25x30	0.40	2.00	ELH1VM562P30KT
		6800	22x40	0.40	2.41	ELH1VM682O40KT
		6800				



**LH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
200	470	25x30	0.15	1.44	ELH2DM471P30KT
	470	30x25	0.15	1.48	ELH2DM471Q25KT
	560	22x35	0.15	1.50	ELH2DM561O35KT
	560	22x45	0.15	1.60	ELH2DM561O45KT
	560	25x35	0.15	1.60	ELH2DM561P35KT
	560	30x30	0.15	1.60	ELH2DM561Q30KT
	680	22x50	0.15	1.75	ELH2DM681O50KT
	680	25x40	0.15	1.76	ELH2DM681P40KT
	680	30x30	0.15	1.74	ELH2DM681Q30KT
	820	25x45	0.15	2.10	ELH2DM821P45KT
	820	30x35	0.15	2.11	ELH2DM821Q35KT
	820	35x30	0.15	2.10	ELH2DM821R30KT
	1000	25x45	0.15	2.20	ELH2DM102P45KT
	1000	25x50	0.15	2.36	ELH2DM102P50KT
	1000	30x40	0.15	2.40	ELH2DM102Q40KT
	1000	35x35	0.15	2.30	ELH2DM102R35KT
	1200	30x45	0.15	2.69	ELH2DM122Q45KT
	1200	35x35	0.15	2.53	ELH2DM122R35KT
1500	30x45	0.15	2.60	ELH2DM152Q45KT	
1500	35x40	0.15	2.97	ELH2DM152R40KT	
1800	35x50	0.15	3.45	ELH2DM182R50KT	
220	220	22x25	0.15	0.94	ELH2NM221O25KT
	270	22x30	0.15	1.09	ELH2NM271O30KT
	330	22x35	0.15	1.24	ELH2NM331O35KT
	330	25x30	0.15	1.14	ELH2NM331P30KT
	390	22x35	0.15	1.30	ELH2NM391O35KT
	390	25x30	0.15	1.26	ELH2NM391P30KT
	470	22x40	0.15	1.41	ELH2NM471O40KT
	470	25x35	0.15	1.39	ELH2NM471P35KT
	470	30x25	0.15	1.37	ELH2NM471Q25KT
	560	22x45	0.15	1.60	ELH2NM561O45KT
	560	25x40	0.15	1.56	ELH2NM561P40KT
	560	30x30	0.15	1.61	ELH2NM561Q30KT
	560	35x25	0.15	1.52	ELH2NM561R25KT
	680	25x45	0.15	1.75	ELH2NM681P45KT
	680	30x35	0.15	1.76	ELH2NM681Q35KT
	680	35x30	0.15	1.72	ELH2NM681R30KT
	820	25x50	0.15	1.97	ELH2NM821P50KT
	820	30x40	0.15	2.06	ELH2NM821Q40KT
820	35x30	0.15	1.95	ELH2NM821R30KT	
1000	30x45	0.15	2.44	ELH2NM102Q45KT	
1000	35x35	0.15	2.20	ELH2NM102R35KT	
1200	35x40	0.15	2.37	ELH2NM122R40KT	
1500	35x45	0.15	2.64	ELH2NM152R45KT	
250	180	22x25	0.15	0.84	ELH2EM181O25KT
	220	22x30	0.15	0.97	ELH2EM221O30KT
	220	25x25	0.15	0.99	ELH2EM221P25KT
	270	22x35	0.15	1.11	ELH2EM271O35KT
	270	25x30	0.15	1.15	ELH2EM271P30KT
	330	22x40	0.15	1.26	ELH2EM331O40KT
	330	25x30	0.15	1.26	ELH2EM331P30KT
	330	30x25	0.15	1.31	ELH2EM331Q25KT
	390	22x45	0.15	1.41	ELH2EM391O45KT
	390	25x35	0.15	1.42	ELH2EM391P35KT
	390	30x30	0.15	1.50	ELH2EM391Q30KT
	470	22x50	0.15	1.58	ELH2EM471O50KT
	470	25x40	0.15	1.61	ELH2EM471P40KT
	470	30x30	0.15	1.61	ELH2EM471Q30KT
	560	25x45	0.15	1.80	ELH2EM561P45KT
	560	30x35	0.15	1.84	ELH2EM561Q35KT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
250	680	25x50	0.15	2.03	ELH2EM681P50KT	
	680	30x40	0.15	2.09	ELH2EM681Q40KT	
	680	35x25	0.15	1.80	ELH2EM681R25KT	
	680	35x30	0.15	1.96	ELH2EM681R30KT	
	820	30x45	0.15	2.35	ELH2EM821Q45KT	
	820	35x35	0.15	2.26	ELH2EM821R35KT	
	1000	30x50	0.15	2.64	ELH2EM102Q50KT	
	1000	35x35	0.15	2.40	ELH2EM102R35KT	
	1000	35x40	0.15	2.57	ELH2EM102R40KT	
	1200	35x45	0.15	2.88	ELH2EM122R45KT	
	1200	40x40	0.15	2.88	ELH2EM122Y40PT	
	1500	35x50	0.15	3.00	ELH2EM152R50KT	
	315	120	22x25	0.15	0.56	ELH2FM121O25KT
		150	22x30	0.15	0.66	ELH2FM151O30KT
		150	25x25	0.15	0.65	ELH2FM151P25KT
		180	22x30	0.15	0.78	ELH2FM181O30KT
		180	25x25	0.15	0.71	ELH2FM181P25KT
		220	22x35	0.15	0.89	ELH2FM221O35KT
220		25x30	0.15	0.85	ELH2FM221P30KT	
270		22x40	0.15	1.01	ELH2FM271O40KT	
270		25x30	0.15	0.98	ELH2FM271P30KT	
270		30x25	0.15	1.01	ELH2FM271Q25KT	
330		22x45	0.15	1.14	ELH2FM331O45KT	
330		25x35	0.15	1.12	ELH2FM331P35KT	
330		30x30	0.15	1.21	ELH2FM331Q30KT	
390		25x40	0.15	1.31	ELH2FM391P40KT	
390		30x30	0.15	1.30	ELH2FM391Q30KT	
390		35x25	0.15	1.23	ELH2FM391R25KT	
470		30x35	0.15	1.53	ELH2FM471Q35KT	
470		35x30	0.15	1.47	ELH2FM471R30KT	
560	30x40	0.15	1.65	ELH2FM561Q40KT		
560	35x35	0.15	1.66	ELH2FM561R35KT		
680	30x45	0.15	1.80	ELH2FM681Q45KT		
680	35x40	0.15	1.96	ELH2FM681R40KT		
820	35x50	0.15	2.19	ELH2FM821R50KT		
350	100	22x25	0.15	0.53	ELH2VM101O25KT	
	120	22x30	0.15	0.61	ELH2VM121O30KT	
	120	25x25	0.15	0.62	ELH2VM121P25KT	
	150	22x35	0.15	0.73	ELH2VM151O35KT	
	150	25x30	0.15	0.73	ELH2VM151P30KT	
	180	22x40	0.15	0.83	ELH2VM181O40KT	
	180	25x30	0.15	0.80	ELH2VM181P30KT	
	180	30x25	0.15	0.81	ELH2VM181Q25KT	
	220	22x45	0.15	0.94	ELH2VM221O45KT	
	220	25x35	0.15	0.92	ELH2VM221P35KT	
	220	30x30	0.15	0.98	ELH2VM221Q30KT	
	270	22x50	0.15	1.07	ELH2VM271O50KT	
	270	25x40	0.15	1.05	ELH2VM271P40KT	
	270	30x30	0.15	1.03	ELH2VM271Q30KT	
	330	25x45	0.15	1.24	ELH2VM331P45KT	
	330	30x35	0.15	1.24	ELH2VM331Q35KT	
	330	35x30	0.15	1.18	ELH2VM331R30KT	
	390	25x50	0.15	1.38	ELH2VM391P50KT	
390	30x40	0.15	1.39	ELH2VM391Q40KT		
390	35x35	0.15	1.39	ELH2VM391R35KT		
470	30x45	0.15	1.57	ELH2VM471Q45KT		
470	35x35	0.15	1.50	ELH2VM471R35KT		
560	30x50	0.15	1.75	ELH2VM561Q50KT		
560	35x40	0.15	1.69	ELH2VM561R40KT		
680	35x45	0.15	1.96	ELH2VM681R45KT		

**LH series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
385	82	22x25	0.15	0.52	ELH3BM820O25KT
	100	22x25	0.15	0.58	ELH3BM101O25KT
	120	22x30	0.15	0.68	ELH3BM121O30KT
	120	25x25	0.15	0.68	ELH3BM121P25KT
	150	22x30	0.15	0.79	ELH3BM151O30KT
	150	25x25	0.15	0.78	ELH3BM151P25KT
	180	22x35	0.15	0.89	ELH3BM181O35KT
	180	25x30	0.15	0.86	ELH3BM181P30KT
	220	22x40	0.15	1.01	ELH3BM221O40KT
	220	25x25	0.15	0.92	ELH3BM221P25KT
	220	25x30	0.15	1.01	ELH3BM221P30KT
	270	25x35	0.15	1.13	ELH3BM271P35KT
	270	30x30	0.15	1.14	ELH3BM271Q30KT
	270	35x25	0.15	1.10	ELH3BM271R25KT
	330	30x30	0.15	1.20	ELH3BM331Q30KT
	330	30x35	0.15	1.31	ELH3BM331Q35KT
	330	35x25	0.15	1.32	ELH3BM331R25KT
	390	30x35	0.15	1.48	ELH3BM391Q35KT
390	35x30	0.15	1.48	ELH3BM391R30KT	
470	35x35	0.15	1.76	ELH3BM471R35KT	
560	35x40	0.15	1.95	ELH3BM561R40KT	
400	82	22x25	0.15	0.56	ELH2GM820O25KT
	100	22x25	0.15	0.62	ELH2GM101O25KT
	120	22x30	0.15	0.73	ELH2GM121O30KT
	120	25x25	0.15	0.73	ELH2GM121P25KT
	150	22x35	0.15	0.85	ELH2GM151O35KT
	150	25x25	0.15	0.80	ELH2GM151P25KT
	150	25x30	0.15	0.85	ELH2GM151P30KT
	180	22x35	0.15	0.92	ELH2GM181O35KT
	180	22x40	0.15	0.95	ELH2GM181O40KT
	180	25x30	0.15	0.92	ELH2GM181P30KT
	180	30x25	0.15	0.95	ELH2GM181Q25KT
	220	22x40	0.15	1.08	ELH2GM221O40KT
	220	22x45	0.15	1.16	ELH2GM221O45KT
	220	25x35	0.15	1.16	ELH2GM221P35KT
	220	30x25	0.15	1.16	ELH2GM221Q25KT
	220	30x30	0.15	1.24	ELH2GM221Q30KT
	270	25x40	0.15	1.29	ELH2GM271P40KT
	270	30x25	0.15	1.20	ELH2GM271Q25KT
270	30x30	0.15	1.36	ELH2GM271Q30KT	
270	35x25	0.15	1.36	ELH2GM271R25KT	
330	30x30	0.15	1.40	ELH2GM331Q30KT	
330	30x35	0.15	1.47	ELH2GM331Q35KT	
330	35x30	0.15	1.47	ELH2GM331R30KT	
390	30x35	0.15	1.55	ELH2GM391Q35KT	
390	30x40	0.15	1.64	ELH2GM391Q40KT	
390	35x30	0.15	1.55	ELH2GM391R30KT	
470	30x40	0.15	1.68	ELH2GM471Q40KT	
470	30x45	0.15	1.74	ELH2GM471Q45KT	
470	35x35	0.15	1.68	ELH2GM471R35KT	
470	35x40	0.15	1.74	ELH2GM471R40KT	
560	30x45	0.15	1.80	ELH2GM561Q45KT	
560	30x50	0.15	1.90	ELH2GM561Q50KT	
560	35x40	0.15	1.90	ELH2GM561R40KT	
680	30x50	0.15	2.00	ELH2GM681Q50KT	
680	30x55	0.15	2.20	ELH2GM681Q55KT	
680	35x40	0.15	2.00	ELH2GM681R40KT	
680	35x45	0.15	2.20	ELH2GM681R45KT	
680	35x50	0.15	2.36	ELH2GM681R50KT	
820	35x50	0.15	2.36	ELH2GM821R50KT	
820	35x55	0.15	2.50	ELH2GM821R55KT	
1000	35x65	0.15	2.60	ELH2GM102R65KT	
1000	35x70	0.15	2.65	ELH2GM102R70KT	

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
400	1000	40x60	0.15	2.60	ELH2GM102Y60PT
	1200	35x75	0.15	2.85	ELH2GM122R75KT
	1200	40x70	0.15	2.97	ELH2GM122Y70PT
	1500	40x80	0.15	3.48	ELH2GM152Y80PT
	1800	40x100	0.15	4.31	ELH2GM182YA0PT
	2200	45x100	0.15	4.80	ELH2GM222IA0PT
420	82	22x25	0.15	0.56	ELH2TM820O25KT
	100	22x25	0.15	0.63	ELH2TM101O25KT
	120	22x30	0.15	0.73	ELH2TM121O30KT
	120	25x25	0.15	0.72	ELH2TM121P25KT
	150	22x35	0.15	0.86	ELH2TM151O35KT
	150	25x30	0.15	0.83	ELH2TM151P30KT
	150	30x25	0.15	0.83	ELH2TM151Q25KT
	180	22x35	0.15	0.95	ELH2TM18135KT
	180	22x40	0.15	1.02	ELH2TM18140KT
	180	25x30	0.15	0.95	ELH2TM181P30KT
	180	30x25	0.15	0.95	ELH2TM181Q25KT

LH series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
450	270	25x45	0.15	1.31	ELH2WM271P45KT
	270	30x30	0.15	1.25	ELH2WM271Q30KT
	270	30x35	0.15	1.31	ELH2WM271Q35KT
	270	35x25	0.15	1.25	ELH2WM271Q25KT
	270	35x35	0.15	1.31	ELH2WM271R35KT
	330	25x50	0.15	1.38	ELH2WM331P50KT
	330	30x35	0.15	1.38	ELH2WM331Q35KT
	330	30x40	0.15	1.42	ELH2WM331Q40KT
	330	35x30	0.15	1.38	ELH2WM331R30KT
	330	35x35	0.15	1.44	ELH2WM331R35KT
	390	25x50	0.15	1.50	ELH2WM391P50KT
	390	30x40	0.15	1.50	ELH2WM391Q40KT
	390	30x45	0.15	1.61	ELH2WM391Q45KT
	390	35x35	0.15	1.50	ELH2WM391R35KT
	390	35x40	0.15	1.61	ELH2WM391R40KT
	470	25x55	0.15	1.55	ELH2WM471P55KT
	470	30x45	0.15	1.68	ELH2WM471Q45KT
	470	30x50	0.15	1.72	ELH2WM471Q50KT
	470	35x40	0.15	1.72	ELH2WM471R40KT
	470	35x45	0.15	1.76	ELH2WM471R45KT
	470	35x50	0.15	1.80	ELH2WM471R50KT
	560	30x50	0.15	1.82	ELH2WM561Q50KT
	560	35x40	0.15	1.80	ELH2WM561R40KT
	560	35x45	0.15	1.86	ELH2WM561R45KT
	560	35x50	0.15	1.90	ELH2WM561R50KT
	680	35x50	0.15	2.05	ELH2WM681R50KT
	680	35x55	0.15	2.12	ELH2WM681R55KT
820	30x60	0.15	2.38	ELH2WM821Q60KT	
820	35x55	0.15	2.38	ELH2WM821R55KT	
820	35x60	0.15	2.45	ELH2WM821R60KT	
820	35x65	0.15	2.55	ELH2WM821R65KT	
1000	35x70	0.15	2.70	ELH2WM102R70KT	
1000	35x80	0.15	2.85	ELH2WM102R80KT	
1000	40x70	0.15	2.82	ELH2WM102Y70PT	
1200	40x80	0.15	3.22	ELH2WM122Y80PT	
1500	40x100	0.15	3.63	ELH2WM152YA0PT	
1500	45x83	0.15	3.50	ELH2WM152I83PT	
1800	45x100	0.15	3.80	ELH2WM182IA0PT	
500	56	22x25	0.20	0.43	ELH2HM560O25KT
	68	22x30	0.20	0.52	ELH2HM680O30KT
	68	25x25	0.20	0.55	ELH2HM680P25KT
	82	22x30	0.20	0.60	ELH2HM820O30KT
	82	22x35	0.20	0.62	ELH2HM820O35KT
	82	25x25	0.20	0.57	ELH2HM820P25KT
	100	22x35	0.20	0.68	ELH2HM101O35KT
	100	25x30	0.20	0.72	ELH2HM101P30KT
	120	22x40	0.20	0.76	ELH2HM121O40KT
	120	25x30	0.20	0.76	ELH2HM121P30KT
	120	25x35	0.20	0.79	ELH2HM121P35KT
	120	30x25	0.20	0.79	ELH2HM121Q25KT
	150	25x40	0.20	0.98	ELH2HM151P40KT
	150	30x30	0.20	0.98	ELH2HM151Q30KT
	150	35x25	0.20	0.98	ELH2HM151R25KT
	180	25x45	0.20	1.20	ELH2HM181P45KT
	180	30x35	0.20	1.17	ELH2HM181Q35KT
	180	35x25	0.20	1.10	ELH2HM181R25KT
	220	30x35	0.20	1.28	ELH2HM221Q35KT
	220	30x40	0.20	1.33	ELH2HM221Q40KT
	220	35x30	0.20	1.23	ELH2HM221R30KT
	270	30x45	0.20	1.42	ELH2HM271Q45KT
	270	35x35	0.20	1.42	ELH2HM271R35KT
	330	35x40	0.20	1.56	ELH2HM331R40KT

Specifications subject to change without notice.

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
500	390	30x50	0.20	1.61	ELH2HM391Q50KT
	390	35x45	0.20	1.70	ELH2HM391R45KT
	470	35x55	0.20	1.80	ELH2HM471R55KT
550	82	22x35	0.20	0.74	ELH2JM820O35KT
	82	25x30	0.20	0.74	ELH2JM820P30KT
	100	22x45	0.20	0.84	ELH2JM101O45KT
	100	25x35	0.20	0.84	ELH2JM101P35KT
	100	30x25	0.20	0.84	ELH2JM101Q25KT
	120	22x50	0.20	0.96	ELH2JM121O50KT
	120	25x40	0.20	0.96	ELH2JM121P40KT
	120	30x30	0.20	0.92	ELH2JM121Q30KT
	120	35x25	0.20	0.90	ELH2JM121R25KT
	150	25x45	0.20	1.08	ELH2JM151P45KT
	150	30x35	0.20	1.06	ELH2JM151Q35KT
	180	25x50	0.20	1.22	ELH2JM181P50KT
	180	30x40	0.20	1.18	ELH2JM181Q40KT
	180	35x30	0.20	1.12	ELH2JM181R30KT
	220	30x45	0.20	1.35	ELH2JM221Q45KT
	220	35x35	0.20	1.26	ELH2JM221R35KT
	270	30x50	0.20	1.52	ELH2JM271Q50KT
	270	35x40	0.20	1.48	ELH2JM271R40KT
	330	35x50	0.20	1.61	ELH2JM331R50KT
	390	35x55	0.20	1.68	ELH2JM391R55KT
	470	35x60	0.20	1.84	ELH2JM471R60KT

LC series

- Wide temperature range
- Miniaturized
- Endurance: 2,000 hours at 105°C
- RoHS Compliant

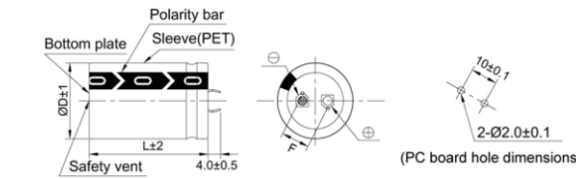


SPECIFICATIONS

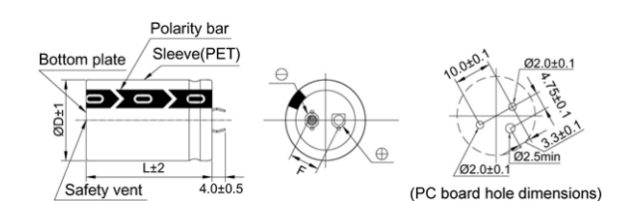
Items	Characteristics	
Category Temperature Range	-40~+105°C	
Rated Voltage Range	400~500V.DC	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
Leakage Current	I 3√CV Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	400 450,500
	Dissipation Factor(Max.)	0.15 0.20 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	400~450 500
	Z(-25°C)/Z(+20°C)	6 10
	Z(-40°C)/Z(+20°C)	8 14 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 2,000 hours at 105°C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.	
	Capacitance Change	±15% of the initial value
	Dissipation Factor	150% of the initial specified value
	Leakage Current	200% of the initial specified value

DIMENSIONS[mm]

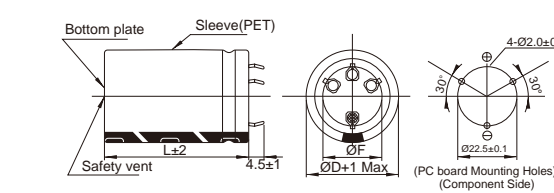
- Terminal Code : K ( 22 to 35 ) : Standard



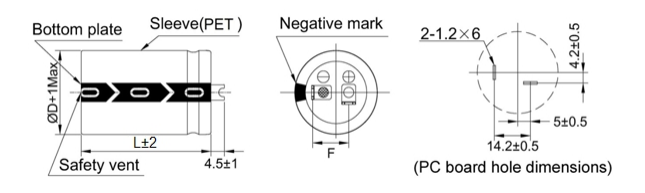
- Terminal Code : T ( 22 to 35 ) : Standard



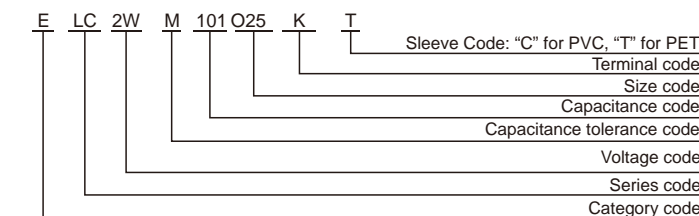
- Terminal Code : P ( 35 to 45 ) : Standard



- Terminal Code : L ( 35 ) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
400~500	1.00	1.30	1.41	1.43



LC series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
400	100	22x25	0.15	0.70	ELC2GM101O25KT
	120	22x30	0.15	0.75	ELC2GM121O30KT
	150	22x30	0.15	0.88	ELC2GM151O30KT
	150	25x25	0.15	0.88	ELC2GM151P25KT
	180	22x35	0.15	0.95	ELC2GM181O35KT
	180	25x30	0.15	0.95	ELC2GM181P30KT
	220	22x45	0.15	1.10	ELC2GM221O45KT
	220	25x35	0.15	1.10	ELC2GM221P35KT
	220	30x25	0.15	1.10	ELC2GM221Q25KT
	270	22x50	0.15	1.22	ELC2GM271O50KT
	270	25x40	0.15	1.22	ELC2GM271P40KT
	270	30x30	0.15	1.22	ELC2GM271Q30KT
	270	35x25	0.15	1.22	ELC2GM271R25KT
	330	25x45	0.15	1.44	ELC2GM331P45KT
	330	30x35	0.15	1.44	ELC2GM331Q35KT
	330	35x30	0.15	1.44	ELC2GM331R30KT
	390	25x50	0.15	1.55	ELC2GM391P50KT
	390	30x40	0.15	1.55	ELC2GM391Q40KT
	390	35x30	0.15	1.55	ELC2GM391R30KT
	470	30x45	0.15	1.68	ELC2GM471Q45KT
470	35x35	0.15	1.68	ELC2GM471R35KT	
560	30x50	0.15	1.90	ELC2GM561Q50KT	
560	35x40	0.15	1.90	ELC2GM561R40KT	
680	35x45	0.15	2.12	ELC2GM681R45KT	
450	100	22x25	0.20	0.71	ELC2WM101O25KT
	120	22x30	0.20	0.82	ELC2WM121O30KT
	150	22x35	0.20	0.94	ELC2WM151O35KT
	150	25x30	0.20	0.89	ELC2WM151P30KT
	180	22x40	0.20	1.05	ELC2WM181O40KT
	180	25x30	0.20	1.00	ELC2WM181P30KT
	220	22x45	0.20	1.19	ELC2WM221O45KT
	220	25x35	0.20	1.16	ELC2WM221P35KT
	220	30x30	0.20	1.11	ELC2WM221Q30KT
	270	22x50	0.20	1.36	ELC2WM271O50KT
	270	25x40	0.20	1.32	ELC2WM271P40KT
	270	30x30	0.20	1.26	ELC2WM271Q30KT
	270	35x25	0.20	1.26	ELC2WM271R25KT
	330	25x50	0.20	1.52	ELC2WM331P50KT
	330	30x35	0.20	1.45	ELC2WM331Q35KT
	330	35x30	0.20	1.45	ELC2WM331R30KT
	390	30x40	0.20	1.63	ELC2WM391Q40KT
	470	30x45	0.20	1.85	ELC2WM471Q45KT
	470	30x50	0.20	1.90	ELC2WM471Q50KT
	470	35x35	0.20	1.77	ELC2WM471R35KT
560	35x40	0.20	2.02	ELC2WM561R40KT	
680	35x50	0.20	2.36	ELC2WM681R50KT	

Specifications subject to change without notice.

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
500	56	22x25	0.20	0.43	ELC2HM560O25KT
	68	22x25	0.20	0.50	ELC2HM680O25KT
	82	22x30	0.20	0.60	ELC2HM820O30KT
	82	25x25	0.20	0.57	ELC2HM820P25KT
	100	22x30	0.20	0.68	ELC2HM101O30KT
	100	25x25	0.20	0.68	ELC2HM101P25KT
	120	22x35	0.20	0.74	ELC2HM121O35KT
	120	25x30	0.20	0.76	ELC2HM121P30KT
	150	25x35	0.20	0.88	ELC2HM151P35KT
	150	30x25	0.20	0.88	ELC2HM151Q25KT
	180	25x40	0.20	1.02	ELC2HM181P40KT
	180	30x30	0.20	1.08	ELC2HM181Q30KT
	180	35x25	0.20	1.10	ELC2HM181R25KT
	220	30x35	0.20	1.28	ELC2HM221Q35KT
	220	35x30	0.20	1.23	ELC2HM221R30KT
	270	30x40	0.20	1.38	ELC2HM271Q40KT
	270	35x35	0.20	1.42	ELC2HM271R35KT
	330	35x40	0.20	1.56	ELC2HM331R40KT
	390	30x50	0.20	1.61	ELC2HM391Q50KT
	390	35x45	0.20	1.70	ELC2HM391R45KT
470	35x50	0.20	1.80	ELC2HM471R50KT	

LZ series

- Miniaturized series
- Endurance. 2,000 hours at 105°C
- RoHS Compliant

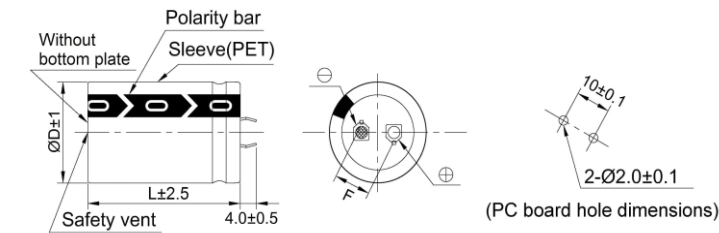


SPECIFICATIONS

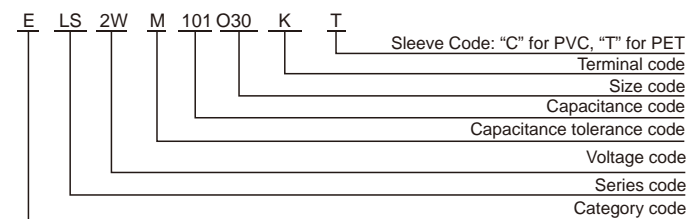
Items	Characteristics			
Category Temperature Range	-40~+105			
Rated Voltage Range	400~450V.DC			
Capacitance Tolerance	± 20% (M) (at 20 , 120Hz)			
Leakage Current	I ≤ 3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)			
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	400	420,450	(at 20°C, 120Hz)
	Dissipation Factor(Max.)	0.15	0.20	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	400 to 450		(at 120Hz)
	Z(-25°C)/Z(+20°C)	6		
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20 after DC voltage plus the rated ripple current is applied for 2,000 hours at 105.			
	Capacitance Change	±20% of the initial value		
	Dissipation Factor	200% of the initial specified value		
	Leakage Current	The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20 after exposing them for 1,000 hours at 105 without voltage applied..			
	Capacitance Change	±15% of the initial value		
	Dissipation Factor	150% of the initial specified value		
	Leakage Current	200% of the initial specified value		

DIMENSIONS[mm]

- Terminal Code : K ( 22 to 35) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
400~450	1.00	1.30	1.41	1.43

# LZ series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
400	150	22x25	0.15	0.90	ELZ2GM151O25KT
	180	22x30	0.15	1.02	ELZ2GM181O40KT
	180	25x25	0.15	1.04	ELZ2GM181P30KT
	220	22x35	0.15	1.20	ELZ2GM221O45KT
	220	25x30	0.15	1.22	ELZ2GM221P35KT
	270	22x40	0.15	1.32	ELZ2GM271O50KT
	270	25x30	0.15	1.28	ELZ2GM271P40KT
	270	30x25	0.15	1.32	ELZ2GM271R25KT
	330	22x45	0.15	1.46	ELZ2GM331P50KT
	330	25x35	0.15	1.42	ELZ2GM331Q40KT
	390	22x55	0.15	1.65	ELZ2GM391P50KT
	390	25x40	0.15	1.60	ELZ2GM391Q45KT
	390	30x30	0.15	1.60	ELZ2GM391R35KT
	470	25x50	0.15	1.90	ELZ2GM471Q50KT
	470	30x35	0.15	1.78	ELZ2GM471R40KT
	560	25x55	0.15	2.08	ELZ2GM561R45KT
560	30x40	0.15	2.00	ELZ2GM561R45KT	
680	30x50	0.15	2.28	ELZ2GM681R45KT	
820	30x55	0.15	2.50	ELZ2GM821R50KT	
420	150	22x25	0.20	0.87	ELZ2TM151O25KT
	180	22x30	0.20	1.00	ELZ2TM181O30KT
	180	25x25	0.20	1.02	ELZ2TM181P25KT
	220	22x35	0.20	1.13	ELZ2TM221O35KT
	270	22x40	0.20	1.27	ELZ2TM271O40KT
	270	25x30	0.20	1.28	ELZ2TM271P30KT
	270	30x25	0.20	1.28	ELZ2TM271Q25KT
	330	22x45	0.20	1.44	ELZ2TM331O45KT
	330	25x35	0.20	1.48	ELZ2TM331P35KT
	390	22x55	0.20	1.63	ELZ2TM391O55KT
	390	25x40	0.20	1.64	ELZ2TM391P40KT
	390	30x30	0.20	1.55	ELZ2TM391Q30KT
	470	25x50	0.20	1.86	ELZ2TM471P50KT
	470	30x35	0.20	1.74	ELZ2TM471Q35KT
	560	25x55	0.20	2.09	ELZ2TM561P55KT
	560	30x40	0.20	1.96	ELZ2TM561Q40KT
680	30x50	0.20	2.25	ELZ2TM681Q50KT	
820	30x55	0.20	2.52	ELZ2TM821Q55KT	
450	330	30x30	0.20	1.43	ELZ2WM331Q30KT
	390	25x45	0.20	1.67	ELZ2WM391P45KT
	390	30x35	0.20	1.59	ELZ2WM391Q35KT
	470	25x55	0.20	1.81	ELZ2WM471P55KT
	470	30x40	0.20	1.70	ELZ2WM471Q40KT
	560	25x60	0.20	1.88	ELZ2WM561P60KT
	560	30x45	0.20	1.80	ELZ2WM561Q45KT
	680	30x50	0.20	2.00	ELZ2WM681Q50KT
	820	30x60	0.20	2.30	ELZ2WM821Q60KT
	450	120	22x25	0.20	0.78
180		22x30	0.20	1.00	ELZ2WM181O30KT
180		25x25	0.20	1.02	ELZ2WM181P25KT
220		22x35	0.20	1.13	ELZ2WM221O35KT
220		25x30	0.20	1.16	ELZ2WM221P30KT
270		22x45	0.20	1.30	ELZ2WM271O45KT
270		25x35	0.20	1.34	ELZ2WM271P35KT
330		22x50	0.20	1.47	ELZ2WM331O50KT
330		25x40	0.20	1.51	ELZ2WM331P40KT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
450	330	30x30	0.20	1.43	ELZ2WM331Q30KT
	390	25x45	0.20	1.67	ELZ2WM391P45KT
	390	30x35	0.20	1.59	ELZ2WM391Q35KT
	470	25x55	0.20	1.81	ELZ2WM471P55KT
	470	30x40	0.20	1.70	ELZ2WM471Q40KT
	560	25x60	0.20	1.88	ELZ2WM561P60KT
	560	30x45	0.20	1.80	ELZ2WM561Q45KT
	680	30x50	0.20	2.00	ELZ2WM681Q50KT
	820	30x60	0.20	2.30	ELZ2WM821Q60KT

Specifications subject to change without notice.

# LS series

- Downsized, long life series
- Endurance: 3,000 hours at 85°C
- Non solvent-proof type
- RoHS Compliant

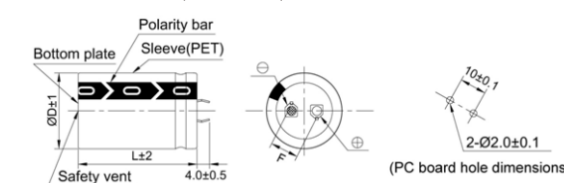


SPECIFICATIONS

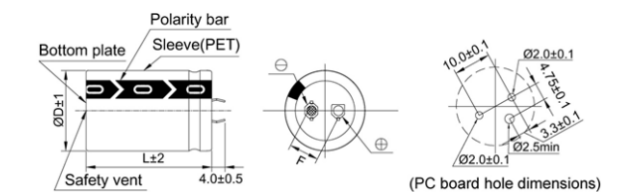
Items	Characteristics			
Category Temperature Range	-25~+85°C			
Rated Voltage Range	160~600V.DC			
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)			
Leakage Current	I 3√CV Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)			
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160 to 400	420 to 550	600
	Dissipation Factor(Max.)	0.15	0.20	0.30
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	160 to 250	315 to 550	600
	Z(-25°C)/Z(+20°C)	4	8	10
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 3,000 hours at 85°C.			
	Capacitance Change	±20% of the initial value		
	Dissipation Factor	200% of the initial specified value		
	Leakage Current	The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.			
	Capacitance Change	±15% of the initial value		
	Dissipation Factor	150% of the initial specified value		
	Leakage Current	200% of the initial specified value		

DIMENSIONS[mm]

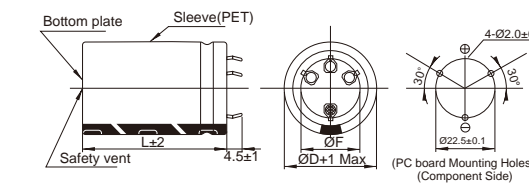
- Terminal Code : K ( 22 to 35 ) : Standard



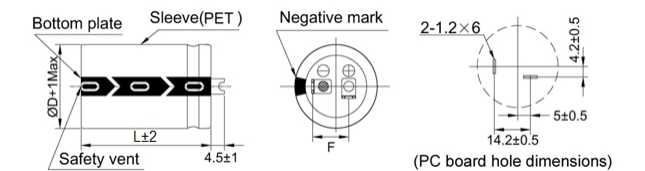
- Terminal Code : T ( 22 to 35 ) : Standard



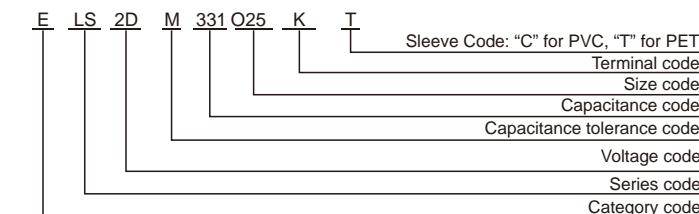
- Terminal Code: P ( 35 to 45 ): Standard



- Terminal Code : L ( 35 ) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
160~250	1.00	1.32	1.45	1.50
315~600	1.00	1.30	1.41	1.43

Snap-in&Lug Terminal Type



LS series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
160	270	22x20	0.15	1.30	ELS2CM271O20KT
	330	22x25	0.15	1.55	ELS2CM331O25KT
	390	22x25	0.15	1.63	ELS2CM391O25KT
	390	25x20	0.15	1.62	ELS2CM391P20KT
	470	22x30	0.15	1.86	ELS2CM471O30KT
	470	25x25	0.15	1.86	ELS2CM471P25KT
	560	22x30	0.15	2.15	ELS2CM561O30KT
	560	25x25	0.15	2.15	ELS2CM561P25KT
	560	30x20	0.15	2.05	ELS2CM561Q20KT
	680	22x35	0.15	2.35	ELS2CM681O35KT
	680	25x30	0.15	2.33	ELS2CM681P30KT
	680	30x25	0.15	2.33	ELS2CM681Q25KT
	680	35x20	0.15	2.26	ELS2CM681R20KT
	820	22x40	0.15	2.68	ELS2CM821O40KT
	820	25x30	0.15	2.65	ELS2CM821P30KT
	820	30x25	0.15	2.64	ELS2CM821Q25KT
	1000	22x45	0.15	3.02	ELS2CM102O45KT
	1000	25x35	0.15	3.00	ELS2CM102P35KT
	1000	30x30	0.15	3.96	ELS2CM102Q30KT
	1000	35x25	0.15	3.13	ELS2CM102R25KT
	1200	22x50	0.15	3.47	ELS2CM122O50KT
	1200	25x40	0.15	3.43	ELS2CM122P40KT
	1200	30x30	0.15	3.41	ELS2CM122Q30KT
	1500	25x50	0.15	3.96	ELS2CM152P50KT
1500	30x35	0.15	3.96	ELS2CM152Q35KT	
1500	35x30	0.15	3.94	ELS2CM152R30KT	
1800	30x40	0.15	4.31	ELS2CM182Q40KT	
1800	35x35	0.15	4.28	ELS2CM182R35KT	
2200	30x50	0.15	4.96	ELS2CM222O50KT	
2200	35x40	0.15	4.96	ELS2CM222R40KT	
2700	35x45	0.15	5.57	ELS2CM272R45KT	
3300	35x55	0.15	6.21	ELS2CM332R55KT	
180	220	22x20	0.15	1.18	ELS2LM221O20KT
	330	22x25	0.15	1.77	ELS2LM331O25KT
	330	25x20	0.15	1.49	ELS2LM331P20KT
	390	22x25	0.15	1.84	ELS2LM391O25KT
	470	22x30	0.15	1.91	ELS2LM471O30KT
	470	25x25	0.15	2.08	ELS2LM471P25KT
	470	30x20	0.15	1.88	ELS2LM471Q20KT
	560	22x35	0.15	2.25	ELS2LM561O35KT
	560	25x25	0.15	2.25	ELS2LM561P25KT
	680	22x35	0.15	2.48	ELS2LM681O35KT
	680	25x30	0.15	2.50	ELS2LM681P30KT
	680	30x25	0.15	2.46	ELS2LM681Q25KT
	680	35x20	0.15	2.26	ELS2LM681R20KT
	820	22x40	0.15	2.86	ELS2LM821O40KT
	820	25x35	0.15	2.75	ELS2LM821P35KT
	820	30x25	0.15	2.69	ELS2LM821Q25KT
	1000	22x50	0.15	3.10	ELS2LM102O50KT
	1000	25x40	0.15	3.06	ELS2LM102P40KT
	1000	30x30	0.15	3.10	ELS2LM102Q30KT
	1000	35x25	0.15	2.98	ELS2LM102R25KT
	1200	25x45	0.15	3.63	ELS2LM122P45KT
	1200	30x35	0.15	3.55	ELS2LM122Q35KT
	1200	35x30	0.15	3.49	ELS2LM122R30KT
	1500	30x40	0.15	4.10	ELS2LM152Q40KT
1500	35x35	0.15	4.02	ELS2LM152R35KT	
1800	30x45	0.15	4.55	ELS2LM182Q45KT	
1800	35x35	0.15	4.54	ELS2LM182R35KT	
2200	35x40	0.15	4.83	ELS2LM222R40KT	
2700	35x50	0.15	5.30	ELS2LM272R50KT	
200	220	22x20	0.15	1.18	ELS2DM221O20KT
	270	22x25	0.15	1.37	ELS2DM271O25KT
	270	25x20	0.15	1.35	ELS2DM271P20KT
	330	22x25	0.15	1.51	ELS2DM331O25KT
	330	25x20	0.15	1.49	ELS2DM331P20KT
	390	22x30	0.15	1.73	ELS2DM391O30KT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
200	390	25x25	0.15	1.71	ELS2DM391P25KT
	390	30x20	0.15	1.71	ELS2DM391Q20KT
	470	22x30	0.15	1.97	ELS2DM471O30KT
	470	25x25	0.15	1.95	ELS2DM471P25KT
	470	30x20	0.15	1.88	ELS2DM471Q20KT
	560	22x35	0.15	2.18	ELS2DM561O35KT
	560	25x30	0.15	2.15	ELS2DM561P30KT
	560	30x25	0.15	2.15	ELS2DM561Q25KT
	560	35x20	0.15	2.05	ELS2DM561R20KT
	680	22x40	0.15	2.48	ELS2DM681O40KT
	680	25x35	0.15	2.48	ELS2DM681P35KT
	680	30x25	0.15	2.34	ELS2DM681Q25KT
	820	22x45	0.15	2.81	ELS2DM821O45KT
	820	25x35	0.15	2.79	ELS2DM821P35KT
	820	30x30	0.15	2.80	ELS2DM821Q30KT
	820	35x25	0.15	2.83	ELS2DM821R25KT
	1000	22x50	0.15	3.28	ELS2DM102O50KT
	1000	25x45	0.15	3.28	ELS2DM102P45KT
	1000	30x35	0.15	3.15	ELS2DM102Q35KT
	1000	35x30	0.15	3.26	ELS2DM102R30KT
	1200	25x50	0.15	3.61	ELS2DM122P50KT
	1200	30x35	0.15	3.61	ELS2DM122Q35KT
	1200	35x30	0.15	3.57	ELS2DM122R30KT
	1500	30x45	0.15	4.13	ELS2DM152Q45KT
1500	35x35	0.15	4.06	ELS2DM152R35KT	
1800	30x50	0.15	4.60	ELS2DM182Q50KT	
1800	35x40	0.15	4.59	ELS2DM182R40KT	
2000	35x50	0.15	4.86	ELS2DM202R50KT	
2200	35x45	0.15	5.25	ELS2DM222R45KT	
220	180	22x20	0.15	1.06	ELS2NM181O20KT
	270	22x25	0.15	1.47	ELS2NM271O25KT
	270	25x20	0.15	1.35	ELS2NM271P20KT
	330	22x30	0.15	1.70	ELS2NM331O30KT
	330	25x25	0.15	1.69	ELS2NM331P25KT
	330	30x20	0.15	1.58	ELS2NM331Q20KT
	390	22x30	0.15	1.89	ELS2NM391O30KT
	390	25x25	0.15	1.84	ELS2NM391P25KT
	390	30x20	0.15	1.71	ELS2NM391Q20KT
	470	22x35	0.15	2.08	ELS2NM471O35KT
	470	25x30	0.15	2.08	ELS2NM471P30KT
	470	30x25	0.15	2.12	ELS2NM471Q25KT
	470	35x20	0.15	1.88	ELS2NM471R20KT
	560	22x40	0.15	2.33	ELS2NM561O40KT
	560	25x35	0.15	2.38	ELS2NM561P35KT
	560	30x25	0.15	2.31	ELS2NM561Q25KT
	680	22x45	0.15	2.63	ELS2NM681O45KT
	680	25x35	0.15	2.68	ELS2NM681P35KT
	680	30x30	0.15	2.62	ELS2NM681Q30KT
	680	35x25	0.15	2.58	ELS2NM681R25KT
	820	25x45	0.15	3.01	ELS2NM821P45KT
	820	30x35	0.15	2.99	ELS2NM821Q35KT
	820	35x30	0.15	2.79	ELS2NM821R30KT
	1000	25x50	0.15	3.40	ELS2NM102P50KT
1000	30x35	0.15	3.42	ELS2NM102Q35KT	
1000	35x30	0.15	3.29	ELS2NM102R30KT	
1200	30x40	0.15	3.88	ELS2NM122Q40KT	
1200	35x35	0.15	3.68	ELS2NM122R35KT	
1500	30x50	0.15	4.44	ELS2NM152Q50KT	
1500	35x40	0.15	4.10	ELS2NM152R40KT	
1800	35x45	0.15	4.52	ELS2NM182R45KT	
250	150	22x20	0.15	0.97	ELS2EM151O20KT
	180	22x20	0.15	1.06	ELS2EM181O20KT
	220	22x25	0.15	1.24	ELS2EM221O25KT
	220	25x20	0.15	1.22	ELS2EM221P20KT
	270	22x25	0.15	1.50	ELS2EM271O25KT
	330	22x30	0.15	1.66	ELS2EM331O30KT
	330	25x25	0.15	1.61	ELS2EM331P25KT

LS series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
250	330	30x20	0.15	1.58	ELS2EM331Q20KT
	390	22x35	0.15	1.88	ELS2EM391O35KT
	390	25x30	0.15	1.88	ELS2EM391P30KT
	390	30x25	0.15	1.86	ELS2EM391Q25KT
	390	35x20	0.15	1.71	ELS2EM391R20KT
	470	22x40	0.15	2.15	ELS2EM471O40KT
	470	25x35	0.15	2.15	ELS2EM471P35KT
	470	30x25	0.15	2.05	ELS2EM471Q25KT
	560	22x45	0.15	2.48	ELS2EM561O45KT
	560	25x35	0.15	2.35	ELS2EM561P35KT
	560	30x30	0.15	2.35	ELS2EM561Q30KT
	680	22x50	0.15	2.61	ELS2EM681O50KT
	680	25x40	0.15	2.67	ELS2EM681P40KT
	680	30x30	0.15	2.71	ELS2EM681Q30KT
	680	35x25	0.15	2.58	ELS2EM681R25KT
	820	25x45	0.15	3.01	ELS2EM821P45KT
	820	30x35	0.15	2.98	ELS2EM821Q35KT
	820	35x30	0.15	2.96	ELS2EM821R30KT
	1000	30x40	0.15	3.56	ELS2EM102Q40KT
	1000	35x35	0.15	3.48	ELS2EM102R35KT
	1200	30x45	0.15	3.99	ELS2EM122Q45KT
	1200	35x40	0.15	3.84	ELS2EM122R40KT
	1500	35x45	0.15	4.33	ELS2EM152R45KT
	1600	35x45	0.15	4.42	ELS2EM162R45KT
1800	35x50	0.15	4.54	ELS2EM182R50KT	
315	100	22x20	0.15	0.79	ELS2FM101O20KT
	120	25x20	0.15	0.90	ELS2FM121P20KT
	150	22x25	0.15	1.06	ELS2FM151O25KT
	150	25x20	0.15	1.00	ELS2FM151P20KT
	180	22x30	0.15	1.29	ELS2FM181O30KT
	180	25x25	0.15	1.38	ELS2FM181P25KT
	180	30x20	0.15	1.16	ELS2FM181Q20KT
	220	22x30	0.15	1.41	ELS2FM221O30KT
	220	25x25	0.15	1.47	ELS2FM221P25KT
	220	30x20	0.15	1.28	ELS2FM221Q20KT
	270	22x35	0.15	1.68	ELS2FM271O35KT
	270	25x30	0.15	1.70	ELS2FM271P30KT
	270	30x25	0.15	1.55	ELS2FM271Q25KT
	270	35x20	0.15	1.43	ELS2FM271R20KT
	330	22x40	0.15	1.91	ELS2FM331O40KT
	330	25x35	0.15	1.94	ELS2FM331P35KT
	330	30x25	0.15	1.98	ELS2FM331Q25KT
	390	22x45	0.15	2.07	ELS2FM391O45KT
	390	25x40	0.15	2.11	ELS2FM391P40KT
	390	30x30	0.15	2.15	ELS2FM391Q30KT
	390	35x25	0.15	1.95	ELS2FM391R25KT
	470	25x45	0.15	2.31	ELS2FM471P45KT
	470	30x35	0.15	2.38	ELS2FM471Q35KT
	470	35x30	0.15	2.46	ELS2FM471R30KT
560	25x50	0.15	2.46	ELS2FM561P50KT	
560	30x35	0.15	2.63	ELS2FM561Q35KT	
560	35x30	0.15	2.69	ELS2FM561R30KT	
680	30x45	0.15	2.82	ELS2FM681O45KT	
680	35x35	0.15	3.05	ELS2FM681R35KT	
820	30x50	0.15	3.28	ELS2FM821O50KT	
820	35x40	0.15	3.45	ELS2FM821R40KT	
1000	35x45	0.15	3.59	ELS2FM102R45KT	
350	82	22x20	0.15	0.72	ELS2VM820O20KT
	120	22x25	0.15	1.04	ELS2VM121O25KT
	120	25x20	0.15	0.90	ELS2VM121P20KT
	150	22x30	0.15	1.20	ELS2VM151O30KT
	150	25x25	0.15	1.22	ELS2VM151P25KT
	150	30x20	0.15	1.06	ELS2VM151Q20KT
	180	22x30	0.15	1.34	ELS2VM181O30KT
	180	25x25	0.15	1.37	ELS2VM181P25KT
350	180	30x20	0.15	1.16	ELS2VM181Q20KT
	220	22x35	0.15	1.47	ELS2VM221O35KT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
350	220	25x30	0.15	1.53	ELS2VM221P30KT
	220	30x25	0.15</		



LS series

- Compliant to AEC-Q200
- STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxD(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number	
420	150	25x30	0.20	1.26	ELS2TM151P30KT	
	150	30x25	0.20	1.30	ELS2TM151Q25KT	
	150	35x20	0.20	1.11	ELS2TM151R20KT	
	180	22x40	0.20	1.33	ELS2TM181O40KT	
	180	25x35	0.20	1.42	ELS2TM181P35KT	
	180	30x25	0.20	1.48	ELS2TM181Q25KT	
	180	35x20	0.20	1.16	ELS2TM181R20KT	
	220	22x45	0.20	1.55	ELS2TM221O45KT	
	220	25x35	0.20	1.58	ELS2TM221P35KT	
	220	30x30	0.20	1.65	ELS2TM221Q30KT	
	220	35x25	0.20	1.47	ELS2TM221R25KT	
	270	25x40	0.20	1.74	ELS2TM271P40KT	
	270	30x35	0.20	1.90	ELS2TM271Q35KT	
	270	35x30	0.20	1.94	ELS2TM271R30KT	
	330	25x50	0.20	2.20	ELS2TM331P50KT	
	330	30x35	0.20	1.98	ELS2TM331Q35KT	
	330	35x35	0.20	2.17	ELS2TM331R35KT	
	390	30x40	0.20	2.22	ELS2TM391Q40KT	
	390	35x35	0.20	2.27	ELS2TM391R35KT	
	470	30x45	0.20	2.50	ELS2TM471Q45KT	
	470	35x40	0.20	2.61	ELS2TM471R40KT	
	560	35x45	0.20	2.95	ELS2TM561R45KT	
	680	35x50	0.20	3.15	ELS2TM681R50KT	
	450	47	22x20	0.20	0.54	ELS2WM470O20KT
		56	22x20	0.20	0.59	ELS2WM560O20KT
		68	22x25	0.20	0.71	ELS2WM680O25KT
		68	25x20	0.20	0.68	ELS2WM680P20KT
		82	22x25	0.20	0.86	ELS2WM820O25KT
		82	25x20	0.20	0.74	ELS2WM820P20KT
		82	30x20	0.20	0.79	ELS2WM820Q20KT
		100	22x30	0.20	0.95	ELS2WM101O30KT
		100	25x25	0.20	0.97	ELS2WM101P25KT
		100	30x20	0.20	0.87	ELS2WM101Q20KT
		120	22x35	0.20	1.07	ELS2WM121O35KT
		120	25x30	0.20	1.09	ELS2WM121P30KT
		120	30x25	0.20	1.12	ELS2WM121Q25KT
		120	35x20	0.20	0.99	ELS2WM121R20KT
		150	22x40	0.20	1.18	ELS2WM151O40KT
		150	25x30	0.20	1.25	ELS2WM151P30KT
		150	30x25	0.20	1.29	ELS2WM151Q25KT
150		35x20	0.20	1.06	ELS2WM151R20KT	
180		22x45	0.20	1.32	ELS2WM181O45KT	
180		25x35	0.20	1.40	ELS2WM181P35KT	
180		30x30	0.20	1.45	ELS2WM181Q30KT	
180		35x25	0.20	1.33	ELS2WM181R25KT	
220		22x50	0.20	1.48	ELS2WM221O50KT	
220		25x40	0.20	1.59	ELS2WM221P40KT	
220		30x30	0.20	1.64	ELS2WM221Q30KT	
220		35x25	0.20	1.66	ELS2WM221R25KT	
270		25x45	0.20	1.73	ELS2WM271P45KT	
270		30x35	0.20	1.89	ELS2WM271Q35KT	
270		35x30	0.20	1.90	ELS2WM271R30KT	
330		25x50	0.20	2.12	ELS2WM331P50KT	
330		30x40	0.20	2.12	ELS2WM331Q40KT	
330		35x35	0.20	2.15	ELS2WM331R35KT	
390		30x45	0.20	2.35	ELS2WM391Q45KT	
390		35x40	0.20	2.38	ELS2WM391R40KT	
470		30x50	0.20	2.65	ELS2WM471Q50KT	
470		35x45	0.20	2.68	ELS2WM471R45KT	
560		35x50	0.20	2.88	ELS2WM561R50KT	
500		47	22x20	0.20	0.59	ELS2HM470O20KT
		56	22x25	0.20	0.61	ELS2HM560O25KT
		56	25x20	0.20	0.62	ELS2HM560P20KT
	68	22x30	0.20	0.75	ELS2HM680O30KT	
	68	25x25	0.20	0.78	ELS2HM680P25KT	
	82	22x30	0.20	0.92	ELS2HM820O30KT	
	82	25x25	0.20	0.95	ELS2HM820P25KT	
	100	22x35	0.20	1.02	ELS2HM101O35KT	
	100	25x30	0.20	1.06	ELS2HM101P30KT	
	100	30x25	0.20	1.01	ELS2HM101Q25KT	
	120	22x40	0.20	1.12	ELS2HM121O40KT	
	120	25x35	0.20	1.23	ELS2HM121P35KT	

Specifications subject to change without notice.

WV (Vdc)	Cap (μF)	Size DxD(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number	
500	120	30x30	0.20	1.20	ELS2HM121Q30KT	
	150	22x45	0.20	1.22	ELS2HM151O45KT	
	150	25x40	0.20	1.26	ELS2HM151P40KT	
	150	30x30	0.20	1.34	ELS2HM151Q30KT	
	180	22x50	0.20	1.39	ELS2HM181O50KT	
	180	25x45	0.20	1.45	ELS2HM181P45KT	
	180	30x35	0.20	1.47	ELS2HM181Q35KT	
	220	25x50	0.20	1.52	ELS2HM221P50KT	
	220	30x40	0.20	1.60	ELS2HM221Q40KT	
	270	30x45	0.20	1.98	ELS2HM271Q45KT	
	270	35x35	0.20	2.02	ELS2HM271R35KT	
	330	30x50	0.20	2.25	ELS2HM331Q50KT	
	330	35x40	0.20	2.27	ELS2HM331R40KT	
	390	35x45	0.20	2.45	ELS2HM391R45KT	
	470	35x50	0.20	2.76	ELS2HM471R50KT	
	560	35x60	0.20	2.90	ELS2HM561R60KT	
	550	47	22x25	0.20	0.59	ELS2JM470O25KT
		56	22x30	0.20	0.63	ELS2JM560O30KT
		68	22x30	0.20	0.76	ELS2JM680O30KT
		68	25x25	0.20	0.72	ELS2JM680P25KT
		82	22x35	0.20	0.91	ELS2JM820O35KT
		82	25x30	0.20	0.89	ELS2JM820P30KT
		82	30x25	0.20	0.88	ELS2JM820Q25KT
		100	22x40	0.20	0.97	ELS2JM101O40KT
		100	25x35	0.20	0.97	ELS2JM101P35KT
		100	30x25	0.20	0.92	ELS2JM101Q25KT
		120	22x45	0.20	1.07	ELS2JM121O45KT
		120	25x40	0.20	1.16	ELS2JM121P40KT
		120	30x30	0.20	1.12	ELS2JM121Q30KT
		150	25x45	0.20	1.25	ELS2JM151P45KT
		150	30x35	0.20	1.29	ELS2JM151Q35KT
		150	35x30	0.20	1.29	ELS2JM151R30KT
		180	25x50	0.20	1.40	ELS2JM181P50KT
		180	30x40	0.20	1.45	ELS2JM181Q40KT
		180	35x30	0.20	1.36	ELS2JM181R30KT
		220	30x45	0.20	1.61	ELS2JM221Q45KT
		220	35x35	0.20	1.60	ELS2JM221R35KT
		270	35x40	0.20	2.00	ELS2JM271R40KT
		330	35x45	0.20	2.26	ELS2JM331R45KT
		390	35x50	0.20	2.45	ELS2JM391R50KT
470		35x60	0.20	2.80	ELS2JM471R60KT	
600		47	22x30	0.30	0.59	ELS2KM470O30KT
		56	22x35	0.30	0.63	ELS2KM560O35KT
		56	25x30	0.30	0.62	ELS2KM560P30KT
		68	22x40	0.30	0.76	ELS2KM680O40KT
		68	25x35	0.30	0.76	ELS2KM680P35KT
		82	22x45	0.30	0.92	ELS2KM820O45KT
		82	25x40	0.30	0.90	ELS2KM820P40KT
		100	25x45	0.30	1.01	ELS2KM101P45KT
		100	30x35	0.30	1.01	ELS2KM101Q35KT
		120	25x50	0.30	1.16	ELS2KM121P50KT
		120	30x40	0.30	1.16	ELS2KM121Q40KT
		150	30x45	0.30	1.29	ELS2KM151Q45KT
180		30x50	0.30	1.45	ELS2KM181Q50KT	
180		35x40	0.30	1.45	ELS2KM181R40KT	
220		35x45	0.30	1.61	ELS2KM221R45KT	
270	35x50	0.30	2.02	ELS2KM271R50KT		
330	35x60	0.30	2.27	ELS2KM331R60KT		

LM series

- Downsized, long life
- Endurance: 3,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant

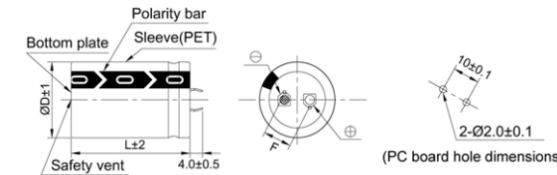


SPECIFICATIONS

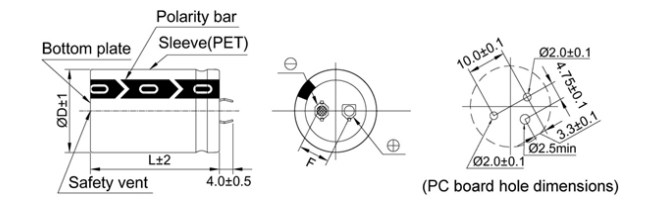
Items	Characteristics			
Category Temperature Range	-25~+105°C			
Rated Voltage Range	160~550V.DC			
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)			
Leakage Current	I 3√CV Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 5 minutes)			
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160 to 400	420 to 550	(at 20°C, 120Hz)
	Dissipation Factor(Max.)	0.15	0.20	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	160 to 250	315 to 550	(at 120Hz)
	Z(-25°C)/Z(+20°C)	4	8	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 3,000 hours at 105 °C.			
	Capacitance Change	±20% of the initial value		
	Dissipation Factor	200% of the initial specified value		
	Leakage Current	The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.			
	Capacitance Change	±15% of the initial value		
	Dissipation Factor	150% of the initial specified value		
	Leakage Current	200% of the initial specified value		

DIMENSIONS[mm]

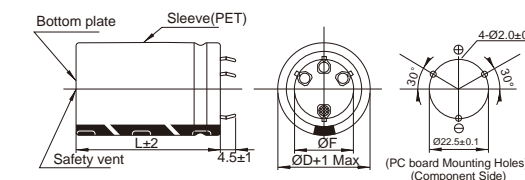
- Terminal Code : K ( 22 to 35) : Standard



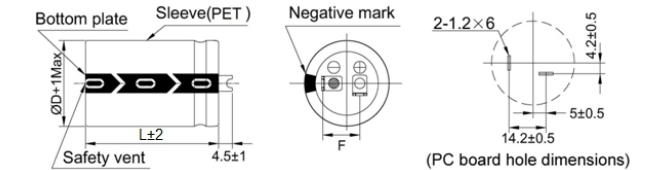
- Terminal Code : T ( 25 to 35) : Standard



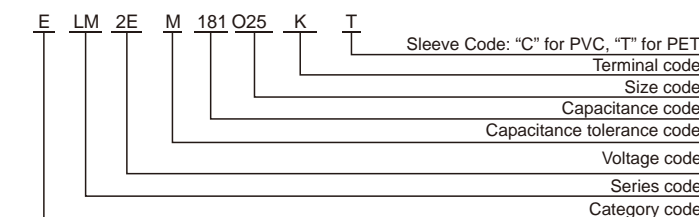
- Terminal Code : P ( 35 to 45):Standard



- Terminal Code : L ( 35) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
160~250	1.00	1.32	1.45	1.50
315~550	1.00	1.30	1.41	1.43



**LM series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxD(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
160	220	22x20	0.15	0.81	ELM2CM221O20KT
	270	25x20	0.15	0.98	ELM2CM271P20KT
	330	22x25	0.15	1.20	ELM2CM331O25KT
	330	25x20	0.15	1.02	ELM2CM331P20KT
	390	22x25	0.15	1.30	ELM2CM391O25KT
	390	25x25	0.15	1.26	ELM2CM391P25KT
	390	30x20	0.15	1.25	ELM2CM391Q20KT
	470	22x30	0.15	1.55	ELM2CM471O30KT
	470	25x25	0.15	1.55	ELM2CM471P25KT
	470	30x20	0.15	1.30	ELM2CM471Q20KT
	560	22x35	0.15	1.67	ELM2CM561O35KT
	560	25x30	0.15	1.67	ELM2CM561P30KT
	560	30x25	0.15	1.67	ELM2CM561Q25KT
	560	35x20	0.15	1.46	ELM2CM561R20KT
	680	22x40	0.15	1.82	ELM2CM681O40KT
	680	25x30	0.15	1.82	ELM2CM681P30KT
	680	30x25	0.15	1.82	ELM2CM681Q25KT
	680	35x20	0.15	1.51	ELM2CM681R20KT
	820	22x45	0.15	2.04	ELM2CM821O45KT
	820	25x35	0.15	2.04	ELM2CM821P35KT
	820	30x30	0.15	2.04	ELM2CM821Q30KT
	820	35x25	0.15	2.04	ELM2CM821R25KT
	1000	22x50	0.15	2.25	ELM2CM102O50KT
	1000	25x40	0.15	2.25	ELM2CM102P40KT
	1000	30x30	0.15	2.25	ELM2CM102Q30KT
	1000	35x25	0.15	2.25	ELM2CM102R25KT
	1200	25x45	0.15	2.49	ELM2CM122P45KT
	1200	30x35	0.15	2.49	ELM2CM122Q35KT
	1200	30x40	0.15	2.54	ELM2CM122Q40KT
	1200	35x30	0.15	2.49	ELM2CM122R30KT
	1500	25x60	0.15	2.97	ELM2CM152P60KT
	1500	30x40	0.15	2.84	ELM2CM152Q40KT
	1800	30x45	0.15	3.32	ELM2CM182Q45KT
1800	35x35	0.15	3.00	ELM2CM182R35KT	
2200	30x60	0.15	3.86	ELM2CM222Q60KT	
2200	35x45	0.15	3.50	ELM2CM222R45KT	
2700	35x50	0.15	4.00	ELM2CM272R50KT	
3300	35x60	0.15	4.35	ELM2CM332R60KT	
180	180	22x20	0.15	0.80	ELM2LM181O20KT
	220	25x20	0.15	0.90	ELM2LM221P20KT
	270	22x25	0.15	1.00	ELM2LM271O25KT
	270	25x20	0.15	0.95	ELM2LM271P20KT
	330	22x25	0.15	1.20	ELM2LM331O25KT
	330	25x25	0.15	1.16	ELM2LM331P25KT
	330	30x20	0.15	1.15	ELM2LM331Q20KT
	390	22x30	0.15	1.35	ELM2LM391O30KT
	390	25x25	0.15	1.35	ELM2LM391P25KT
	390	30x20	0.15	1.20	ELM2LM391Q20KT
	470	22x35	0.15	1.50	ELM2LM471O35KT
	470	25x30	0.15	1.50	ELM2LM471P30KT
	470	30x25	0.15	1.50	ELM2LM471Q25KT
	470	35x20	0.15	1.36	ELM2LM471R20KT
	560	22x40	0.15	1.67	ELM2LM561O40KT
	560	25x30	0.15	1.67	ELM2LM561P30KT
	560	30x25	0.15	1.67	ELM2LM561Q25KT
	560	35x20	0.15	1.43	ELM2LM561R20KT
	680	22x45	0.15	1.78	ELM2LM681O45KT
	680	25x35	0.15	1.78	ELM2LM681P35KT
	680	30x30	0.15	1.78	ELM2LM681Q30KT
	680	35x25	0.15	1.83	ELM2LM681R25KT
	820	22x50	0.15	2.04	ELM2LM821O50KT
	820	25x40	0.15	2.04	ELM2LM821P40KT
	820	30x30	0.15	2.04	ELM2LM821Q30KT
	820	35x25	0.15	2.04	ELM2LM821R25KT
	1000	25x45	0.15	2.30	ELM2LM102P45KT
	1000	30x35	0.15	2.30	ELM2LM102Q35KT
	1000	35x30	0.15	2.30	ELM2LM102R30KT
	1200	25x50	0.15	2.55	ELM2LM122P50KT
	1200	30x40	0.15	2.55	ELM2LM122Q40KT
	1200	35x30	0.15	2.55	ELM2LM122R30KT
	1500	30x45	0.15	2.90	ELM2LM152Q45KT
1500	35x35	0.15	2.85	ELM2LM152R35KT	
1800	30x60	0.15	3.49	ELM2LM182Q60KT	
1800	35x40	0.15	3.10	ELM2LM182R40KT	
2200	35x50	0.15	3.65	ELM2LM222R50KT	
2700	35x60	0.15	4.12	ELM2LM272R60KT	

WV (Vdc)	Cap (µF)	Size DxD(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
200	150	22x20	0.15	0.73	ELM2DM151O20KT
	180	22x20	0.15	0.80	ELM2DM181O20KT
	220	25x20	0.15	0.85	ELM2DM221P20KT
	270	22x25	0.15	1.10	ELM2DM271O25KT
	270	30x20	0.15	1.05	ELM2DM271Q20KT
	330	22x30	0.15	1.25	ELM2DM331O30KT
	330	25x25	0.15	1.25	ELM2DM331P25KT
	330	30x20	0.15	1.10	ELM2DM331Q20KT
	390	22x30	0.15	1.35	ELM2DM391O30KT
	390	25x25	0.15	1.35	ELM2DM391P25KT
	390	30x25	0.15	1.30	ELM2DM391Q25KT
	390	35x20	0.15	1.30	ELM2DM391R20KT
	470	22x35	0.15	1.50	ELM2DM471O35KT
	470	22x40	0.15	1.54	ELM2DM471O40KT
	470	25x30	0.15	1.50	ELM2DM471P30KT
	470	30x25	0.15	1.50	ELM2DM471Q25KT
	470	35x20	0.15	1.41	ELM2DM471R20KT
	560	22x40	0.15	1.67	ELM2DM561O40KT
	560	25x30	0.15	1.67	ELM2DM561P30KT
	560	30x25	0.15	1.67	ELM2DM561Q25KT
	680	22x45	0.15	1.78	ELM2DM681O45KT
	680	25x35	0.15	1.78	ELM2DM681P35KT
	680	30x30	0.15	1.78	ELM2DM681Q30KT
	680	35x25	0.15	1.78	ELM2DM681R25KT
	820	25x40	0.15	2.04	ELM2DM821P40KT
	820	25x45	0.15	2.04	ELM2DM821P45KT
	820	30x30	0.15	2.04	ELM2DM821Q30KT
	820	30x35	0.15	2.08	ELM2DM821Q35KT
	1000	25x50	0.15	2.30	ELM2DM102P50KT
	1000	30x35	0.15	2.30	ELM2DM102Q35KT
	1000	35x30	0.15	2.30	ELM2DM102R30KT
	1200	25x60	0.15	2.66	ELM2DM122P60KT
	1200	30x45	0.15	2.65	ELM2DM122Q45KT
1200	35x35	0.15	2.65	ELM2DM122R35KT	
1500	30x50	0.15	3.08	ELM2DM152Q50KT	
1500	35x40	0.15	3.08	ELM2DM152R40KT	
1800	30x60	0.15	3.49	ELM2DM182Q60KT	
1800	35x45	0.15	3.48	ELM2DM182R45KT	
2200	35x55	0.15	3.62	ELM2DM222R55KT	
3300	40x60	0.15	4.00	ELM2DM332V60PT	
220	150	22x20	0.15	0.67	ELM2NM151O20KT
	180	25x20	0.15	0.76	ELM2NM181P20KT
	220	22x25	0.15	1.00	ELM2NM221O25KT
	220	25x20	0.15	0.84	ELM2NM221P20KT
	270	22x30	0.15	1.15	ELM2NM271O30KT
	270	25x25	0.15	1.08	ELM2NM271P25KT
	270	30x20	0.15	0.98	ELM2NM271Q20KT
	330	22x35	0.15	1.25	ELM2NM331O35KT
	330	25x25	0.15	1.25	ELM2NM331P25KT
	330	35x20	0.15	1.13	ELM2NM331R20KT
	390	22x35	0.15	1.40	ELM2NM391O35KT
	390	25x30	0.15	1.40	ELM2NM391P30KT
	390	30x25	0.15	1.36	ELM2NM391Q25KT
	390	35x20	0.15	1.23	ELM2NM391R20KT
	470	22x40	0.15	1.51	ELM2NM471O40KT
	470	25x35	0.15	1.54	ELM2NM471P35KT
	470	30x25	0.15	1.50	ELM2NM471Q25KT
	560	22x45	0.15	1.70	ELM2NM561O45KT
	560	25x40	0.15	1.72	ELM2NM561P40KT
	560	30x30	0.15	1.70	ELM2NM561Q30KT
	560	35x25	0.15	1.71	ELM2NM561R25KT
	680	25x45	0.15	1.94	ELM2NM681P45KT
	680	30x35	0.15	1.93	ELM2NM681Q35KT
	680	35x25	0.15	1.89	ELM2NM681R25KT
	820	25x50	0.15	2.18	ELM2NM821P50KT
	820	30x40	0.15	2.19	ELM2NM821Q40KT
	820	35x30	0.15	2.16	ELM2NM821R30KT
	1000	25x60	0.15	2.54	ELM2NM102P60KT
	1000	30x45	0.15	2.50	ELM2NM102Q45KT
	1000	35x35	0.15	2.44	ELM2NM102R35KT
	1200	30x50	0.15	2.81	ELM2NM122Q50KT
	1200	35x40	0.15	2.79	ELM2NM122R40KT
	1500	30x60	0.15	3.30	ELM2NM152Q60KT
1500	35x45	0.15	3.22	ELM2NM152R45KT	
1800	35x50	0.15	3.63	ELM2NM182R50KT	
2200	35x60	0.15	4.23	ELM2NM222R60KT	

**LM series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxD(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
250	120	22x20	0.15	0.60	ELM2EM121O20KT
	150	25x20	0.15	0.74	ELM2EM151P20KT
	180	22x25	0.15	0.78	ELM2EM181O25KT
	180	25x20	0.15	0.75	ELM2EM181P20KT
	220	22x25	0.15	1.00	ELM2EM221O25KT
	220	25x25	0.15	0.95	ELM2EM221P25KT
	220	30x20	0.15	0.95	ELM2EM221Q20KT
	270	22x30	0.15	1.18	ELM2EM271O30KT
	270	25x25	0.15	1.18	ELM2EM271P25KT
	270	30x20	0.15	1.00	ELM2EM271Q20KT
	330	22x35	0.15	1.30	ELM2EM331O35KT
	330	25x30	0.15	1.30	ELM2EM331P30KT
	330	30x25	0.15	1.30	ELM2EM331Q25KT
	330	35x20	0.15	1.16	ELM2EM331R20KT
	390	22x40	0.15	1.49	ELM2EM391O40KT
	390	25x35	0.15	1.49	ELM2EM391P35KT
	390	30x25	0.15	1.49	ELM2EM391Q25KT
	470	22x45	0.15	1.65	ELM2EM471O45KT
	470	25x35	0.15	1.65	ELM2EM471P35KT
	470	30x25	0.15	1.60	ELM2EM471Q25KT
	470	30x30	0.15	1.65	ELM2EM471Q30KT
	470	35x25	0.15	1.65	ELM2EM471R25KT
	560	22x50	0.15	1.67	ELM2EM561O50KT
	560	25x40	0.15	1.80	ELM2EM561P40KT
	560	30x30	0.15	1.80	ELM2EM561Q30KT
	560	35x25	0.15	1.80	ELM2EM561R25KT
	680	25x40	0.15	1.90	ELM2EM681P40KT
	680	25x50	0.15	2.00	ELM2EM681P50KT
	680	30x35	0.15	2.00	ELM2EM681Q35KT
	680	35x30	0.15	2.00	ELM2EM681R30KT
	820	25x60	0.15	2.20	ELM2EM821P60KT
	820	30x35	0.15	2.25	ELM2EM821Q35KT
	820	30x40	0.15	2.30	ELM2EM821Q40KT
820	35x35	0.15	2.30	ELM2EM821R35KT	
1000	30x40	0.15	2.00	ELM2EM102Q40KT	
1000	30x50	0.15	2.47	ELM2EM102Q50KT	
1000	35x40	0.15	2.47	ELM2EM102R40KT	
1200	30x50	0.15	2.60	ELM2EM122Q50KT	
1200	30x60	0.15	2.85	ELM2EM122Q60KT	
1200	35x45	0.15	2.60	ELM2EM122R45KT	
1500	35x50	0.15	3.00	ELM2EM152R50KT	
1500	40x45	0.15	3.00	ELM2EM152Y45PT	
1800	35x60	0.15	3.42	ELM2EM182R60KT	
2200	45x50	0.15	3.68	ELM2EM222I50PT	
315	68	22x20	0.15	0.45	ELM2FM680O20KT
	82	22x20	0.15	0.47	ELM2FM820O20KT
	100	22x25	0.15	0.61	ELM2FM101O25KT
	100	25x20	0.15	0.56	ELM2FM101P20KT
	120	22x25	0.15	0.75	ELM2FM121O25KT
	120	25x20	0.15	0.62	ELM2FM121P20KT
	120	30x20	0.15	0	



**LM series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
400	330	30x40	0.15	1.44	ELM2GM331Q40KT	
	330	35x30	0.15	1.44	ELM2GM331R30KT	
	390	25x60	0.15	1.51	ELM2GM391P60KT	
	390	30x45	0.15	1.60	ELM2GM391Q45KT	
	390	35x35	0.15	1.60	ELM2GM391R35KT	
	470	25x50	0.15	1.80	ELM2GM471P50KT	
	470	30x50	0.15	1.90	ELM2GM471Q50KT	
	470	35x35	0.15	1.80	ELM2GM471R35KT	
	470	35x40	0.15	1.90	ELM2GM471R40KT	
	470	35x45	0.15	2.00	ELM2GM471R45KT	
	560	30x50	0.15	2.05	ELM2GM561Q50KT	
	560	30x60	0.15	2.10	ELM2GM561Q60KT	
	560	35x45	0.15	2.12	ELM2GM561R45KT	
	680	35x45	0.15	2.20	ELM2GM681R45KT	
	680	35x50	0.15	2.27	ELM2GM681R50KT	
	820	35x60	0.15	2.42	ELM2GM821R60KT	
	1000	35x65	0.15	2.60	ELM2GM102R65KT	
	1200	35x65	0.15	2.70	ELM2GM122R65KT	
	1200	40x80	0.15	2.80	ELM2GM122Y80PT	
	1500	40x80	0.15	3.00	ELM2GM152Y80PT	
2200	45x100	0.15	3.50	ELM2GM222IA0PT		
420	47	22x20	0.20	0.37	ELM2TM470O20KT	
	56	25x20	0.20	0.42	ELM2TM560P20KT	
	68	22x25	0.20	0.50	ELM2TM680O25KT	
	68	25x20	0.20	0.46	ELM2TM680P20KT	
	82	22x25	0.20	0.64	ELM2TM820O25KT	
	82	25x20	0.20	0.56	ELM2TM820P20KT	
	82	25x25	0.20	0.58	ELM2TM820P25KT	
	82	30x20	0.20	0.53	ELM2TM820Q20KT	
	100	22x30	0.20	0.70	ELM2TM101O30KT	
	100	25x25	0.20	0.70	ELM2TM101P25KT	
	100	30x20	0.20	0.59	ELM2TM101Q20KT	
	120	22x35	0.20	0.75	ELM2TM121O35KT	
	120	25x30	0.20	0.75	ELM2TM121P30KT	
	120	30x25	0.20	0.73	ELM2TM121Q25KT	
	120	35x20	0.20	0.67	ELM2TM121R20KT	
	150	22x40	0.20	0.88	ELM2TM151O40KT	
	150	25x35	0.20	0.88	ELM2TM151P35KT	
	150	30x25	0.20	0.88	ELM2TM151Q25KT	
	180	22x45	0.20	0.95	ELM2TM181O45KT	
	180	25x35	0.20	0.95	ELM2TM181P35KT	
	180	30x30	0.20	0.95	ELM2TM181Q30KT	
	180	35x25	0.20	0.94	ELM2TM181R25KT	
	220	22x50	0.20	1.10	ELM2TM221O50KT	
	220	25x45	0.20	1.10	ELM2TM221P45KT	
	220	30x35	0.20	1.10	ELM2TM221Q35KT	
	220	35x25	0.20	1.10	ELM2TM221R25KT	
	270	25x50	0.20	1.22	ELM2TM271P50KT	
	270	30x40	0.20	1.22	ELM2TM271Q40KT	
	270	35x30	0.20	1.22	ELM2TM271R30KT	
	330	25x60	0.20	1.41	ELM2TM331P60KT	
	330	30x45	0.20	1.45	ELM2TM331Q45KT	
	330	35x35	0.20	1.45	ELM2TM331R35KT	
	390	30x50	0.20	1.55	ELM2TM391Q50KT	
	390	35x40	0.20	1.55	ELM2TM391R40KT	
	470	30x60	0.20	1.79	ELM2TM471Q60KT	
	470	35x45	0.20	1.90	ELM2TM471R45KT	
	560	35x50	0.20	2.15	ELM2TM561R50KT	
	680	35x60	0.20	2.27	ELM2TM681R60KT	
	450	56	22x25	0.20	0.40	ELM2WM560O25KT
		68	22x30	0.20	0.53	ELM2WM680O30KT
68		25x25	0.20	0.50	ELM2WM680P25KT	
82		22x30	0.20	0.64	ELM2WM820O30KT	
82		25x25	0.20	0.64	ELM2WM820P25KT	
100		22x30	0.20	0.69	ELM2WM101O30KT	
100		25x25	0.20	0.69	ELM2WM101P25KT	
120		22x35	0.20	0.80	ELM2WM121O35KT	
120		25x30	0.20	0.80	ELM2WM121P30KT	

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
450	120	30x25	0.20	0.80	ELM2WM121Q25KT
	150	22x40	0.20	0.88	ELM2WM151O40KT
	150	25x30	0.20	0.88	ELM2WM151P30KT
	150	30x25	0.20	0.88	ELM2WM151Q25KT
	180	22x45	0.20	1.00	ELM2WM181O45KT
	180	25x35	0.20	1.00	ELM2WM181P35KT
	180	30x25	0.20	0.92	ELM2WM181Q25KT
	180	30x30	0.20	1.00	ELM2WM181Q30KT
	220	22x45	0.20	1.10	ELM2WM221O45KT
	220	25x35	0.20	1.10	ELM2WM221P35KT
	220	25x40	0.20	1.12	ELM2WM221P40KT
	220	25x45	0.20	1.18	ELM2WM221P45KT
	220	30x25	0.20	1.00	ELM2WM221Q25KT
	220	30x30	0.20	1.08	ELM2WM221Q30KT
	220	30x35	0.20	1.12	ELM2WM221Q35KT
	220	35x25	0.20	1.12	ELM2WM221R25KT
	270	25x50	0.20	1.18	ELM2WM271P50KT
	270	30x30	0.20	1.10	ELM2WM271Q30KT
	270	30x35	0.20	1.26	ELM2WM271Q35KT
	270	30x40	0.20	1.28	ELM2WM271Q40KT
	270	35x30	0.20	1.20	ELM2WM271R30KT
	270	35x35	0.20	1.28	ELM2WM271R35KT
	330	25x45	0.20	1.24	ELM2WM331P45KT
	330	25x50	0.20	1.31	ELM2WM331P50KT
	330	30x45	0.20	1.40	ELM2WM331Q45KT
	330	35x35	0.20	1.38	ELM2WM331R35KT
	390	25x60	0.20	1.48	ELM2WM391P60KT
	390	30x50	0.20	1.51	ELM2WM391Q50KT
	390	35x40	0.20	1.55	ELM2WM391R40KT
	470	30x45	0.20	1.60	ELM2WM471Q45KT
	470	35x40	0.20	1.70	ELM2WM471R40KT
	470	35x50	0.20	1.85	ELM2WM471R50KT
	560	30x50	0.20	1.72	ELM2WM561Q50KT
	560	30x55	0.20	1.84	ELM2WM561Q55KT
	560	35x45	0.20	1.84	ELM2WM561R45KT
	560	35x50	0.20	1.91	ELM2WM561R50KT
	680	30x65	0.20	2.00	ELM2WM681Q65KT
	680	35x55	0.20	2.10	ELM2WM681R55KT
	820	35x65	0.20	2.30	ELM2WM821R65KT
	1000	35x70	0.20	2.50	ELM2WM102R70PT
1500	45x83	0.20	2.80	ELM2WM152I83PT	
500	47	22x25	0.20	0.51	ELM2HM470O25KT
	56	22x30	0.20	0.58	ELM2HM560O30KT
	68	25x25	0.20	0.65	ELM2HM680P25KT
	82	22x35	0.20	0.72	ELM2HM820O35KT
	82	25x30	0.20	0.74	ELM2HM820P30KT
	100	22x45	0.20	0.83	ELM2HM101O45KT
	100	30x25	0.20	0.82	ELM2HM101Q25KT
	120	22x50	0.20	0.93	ELM2HM121O50KT
	120	25x35	0.20	0.93	ELM2HM121P35KT
	120	25x40	0.20	0.95	ELM2HM121P40KT
	120	30x30	0.20	0.91	ELM2HM121Q30KT
	150	22x50	0.20	1.08	ELM2HM151O50KT
	150	25x45	0.20	1.08	ELM2HM151P45KT
	150	30x35	0.20	1.04	ELM2HM151Q35KT
	150	35x25	0.20	0.99	ELM2HM151R25KT
	180	25x50	0.20	1.20	ELM2HM181P50KT
	180	30x40	0.20	1.17	ELM2HM181Q40KT
	180	35x30	0.20	1.10	ELM2HM181R30KT
	220	30x45	0.20	1.33	ELM2HM221Q45KT
	220	35x35	0.20	1.23	ELM2HM221R35KT
270	30x50	0.20	1.38	ELM2HM271Q50KT	
270	35x40	0.20	1.40	ELM2HM271R40KT	
330	35x40	0.20	1.52	ELM2HM331R40KT	
330	35x45	0.20	1.55	ELM2HM331R45KT	
390	35x50	0.20	1.68	ELM2HM391R50KT	
470	35x60	0.20	1.76	ELM2HM471R60KT	

**LM series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
550	82	22x35	0.20	0.72	ELM2JM820O35KT
	82	25x30	0.20	0.74	ELM2JM820P30KT
	100	22x45	0.20	0.83	ELM2JM101O45KT
	100	25x35	0.20	0.85	ELM2JM101P35KT
	100	30x25	0.20	0.82	ELM2JM101Q25KT
	120	22x50	0.20	0.93	ELM2JM121O50KT
	120	25x40	0.20	0.95	ELM2JM121P40KT
	120	30x30	0.20	0.91	ELM2JM121Q30KT
	120	35x25	0.20	0.88	ELM2JM121R25KT
	150	25x45	0.20	1.08	ELM2JM151P45KT
	150	30x35	0.20	1.04	ELM2JM151Q35KT
	180	25x50	0.20	1.20	ELM2JM181P50KT
	180	30x40	0.20	1.17	ELM2JM181Q40KT
	180	35x30	0.20	1.10	ELM2JM181R30KT
	220	30x45	0.20	1.33	ELM2JM221Q45KT
	220	35x35	0.20	1.23	ELM2JM221R35KT
	270	30x50	0.20	1.50	ELM2JM271Q50KT
	270	35x40	0.20	1.42	ELM2JM271R40KT
	330	35x50	0.20	1.60	ELM2JM331R50KT
	390	35x55	0.20	1.64	ELM2JM391R55KT
470	35x60	0.20	1.80	ELM2JM471R60KT	

Specifications subject to change without notice.



# LP series

- Long life, high ripple current series
- Endurance: 3,000 hours at 105°C
- RoHS Compliant

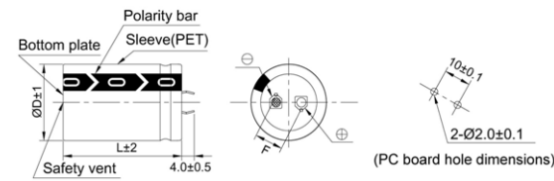
## SPECIFICATIONS



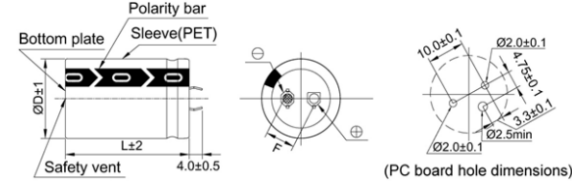
Items	Characteristics		
Category Temperature Range	-40~+105°C		
Rated Voltage Range	400~450V.DC		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)		
Leakage Current	$I \leq 3\sqrt{CV}$ Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	400	420, 450
	Dissipation Factor(Max.)	0.15	0.20
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	400~450	
	Z(-25°C)/Z(+20°C)	6	
	Z(-40°C)/Z(+20°C)	8 (at 120Hz)	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 3,000 hours at 105°C.		
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	200% of the initial specified value	
	Leakage Current	The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.		
	Capacitance Change	±15% of the initial value	
	Dissipation Factor	150% of the initial specified value	
	Leakage Current	200% of the initial specified value	

## DIMENSIONS[mm]

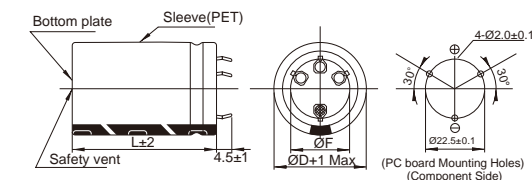
- Terminal Code : K ( 22 to 35 ) : Standard



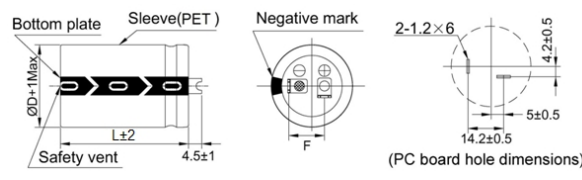
- Terminal Code : T ( 25 to 35 ) : Standard



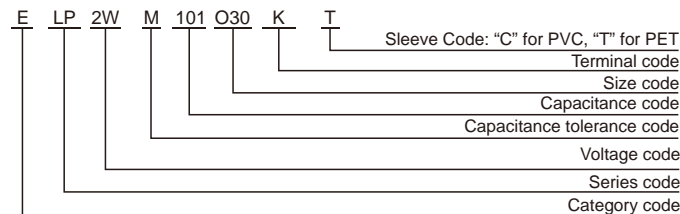
- Terminal Code : P ( 35 to 45 ) : Standard



- Terminal Code : L ( 35 ) : Standard



## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
400~450	1.00	1.30	1.41	1.43

# LP series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
400	100	22x25	0.15	0.85	ELP2GM101O25KT	
	120	22x30	0.15	1.01	ELP2GM121O30KT	
	120	25x25	0.15	1.04	ELP2GM121P25KT	
	150	22x35	0.15	1.15	ELP2GM151O35KT	
	180	22x40	0.15	1.27	ELP2GM181O40KT	
	180	25x30	0.15	1.22	ELP2GM181P30KT	
	180	30x25	0.15	1.35	ELP2GM181Q25KT	
	220	22x45	0.15	1.40	ELP2GM221O45KT	
	220	25x35	0.15	1.40	ELP2GM221P35KT	
	220	30x30	0.15	1.56	ELP2GM221Q30KT	
	270	22x50	0.15	1.55	ELP2GM271O50KT	
	270	25x40	0.15	1.55	ELP2GM271P40KT	
	270	30x35	0.15	1.78	ELP2GM271Q35KT	
	270	35x25	0.15	1.78	ELP2GM271R25KT	
	330	25x50	0.15	1.83	ELP2GM331P50KT	
	330	30x40	0.15	2.00	ELP2GM331Q40KT	
	330	35x30	0.15	1.95	ELP2GM331R30KT	
	390	25x50	0.15	2.20	ELP2GM391P50KT	
	390	30x45	0.15	2.20	ELP2GM391Q45KT	
	390	35x35	0.15	2.20	ELP2GM391R35KT	
	470	30x50	0.15	2.38	ELP2GM471Q50KT	
	470	35x40	0.15	2.49	ELP2GM471R40KT	
	560	35x45	0.15	2.74	ELP2GM561R45KT	
	680	35x50	0.15	2.95	ELP2GM681R50KT	
	420	100	22x25	0.20	0.89	ELP2TM101O25KT
		120	22x30	0.20	1.06	ELP2TM121O30KT
		120	25x25	0.20	1.09	ELP2TM121P25KT
		150	22x35	0.20	1.21	ELP2TM151O35KT
180		22x40	0.20	1.34	ELP2TM181O40KT	
180		25x30	0.20	1.28	ELP2TM181P30KT	
180		30x25	0.20	1.42	ELP2TM181Q25KT	
220		22x45	0.20	1.47	ELP2TM221O45KT	
220		22x50	0.20	1.60	ELP2TM221O50KT	
220		25x35	0.20	1.47	ELP2TM221P35KT	
220		30x30	0.20	1.64	ELP2TM221Q30KT	
220		35x25	0.20	1.64	ELP2TM221R25KT	
270		25x40	0.20	1.63	ELP2TM271P40KT	
270		25x45	0.20	1.79	ELP2TM271P45KT	
270		30x35	0.20	1.87	ELP2TM271Q35KT	
330		25x50	0.20	1.93	ELP2TM331P50KT	
330		30x40	0.20	2.10	ELP2TM331Q40KT	
330		35x30	0.20	2.05	ELP2TM331R30KT	
390		30x45	0.20	2.32	ELP2TM391Q45KT	
390		35x35	0.20	2.32	ELP2TM391R35KT	
470		30x50	0.20	2.51	ELP2TM471Q50KT	
470		35x40	0.20	2.62	ELP2TM471R40KT	
560		35x45	0.20	2.88	ELP2TM561R45KT	
680		35x50	0.20	3.10	ELP2TM681R50KT	
820		35x60	0.20	3.50	ELP2TM821R60KT	
450		82	22x25	0.20	0.81	ELP2WM820O25KT
		100	22x30	0.20	0.97	ELP2WM101O30KT
		100	25x25	0.20	1.04	ELP2WM101P25KT
	120	22x35	0.20	1.08	ELP2WM121O35KT	

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
450	150	22x40	0.20	1.22	ELP2WM151O40KT
	150	25x35	0.20	1.31	ELP2WM151P35KT
	150	30x25	0.20	1.31	ELP2WM151Q25KT
	180	22x45	0.20	1.35	ELP2WM181O45KT
	180	22x50	0.20	1.42	ELP2WM181O50KT
	180	25x40	0.20	1.35	ELP2WM181P40KT
	180	30x30	0.20	1.49	ELP2WM181Q30KT
	180	35x25	0.20	1.60	ELP2WM181R25KT
	220	25x45	0.20	1.55	ELP2WM221P45KT
	220	30x35	0.20	1.71	ELP2WM221Q35KT
	270	25x50	0.20	1.74	ELP2WM271P50KT
	270	30x40	0.20	1.90	ELP2WM271Q40KT
	270	35x30	0.20	1.90	ELP2WM271R30KT
	330	30x40	0.20	2.05	ELP2WM331Q40KT
	330	30x45	0.20	2.20	ELP2WM331Q45KT
	330	35x35	0.20	2.20	ELP2WM331R35KT
	390	30x50	0.20	2.40	ELP2WM391Q50KT
	390	35x40	0.20	2.42	ELP2WM391R40KT
	470	35x45	0.20	2.67	ELP2WM471R45KT
	560	35x50	0.20	2.85	ELP2WM561R50KT
	680	35x60	0.20	3.15	ELP2WM681R60KT
	820	35x70	0.20	3.48	ELP2WM821R70KT

Specifications subject to change without notice.

LQ series

- Long life series
- Endurance: 5,000 hours at 85°C
- RoHS Compliant

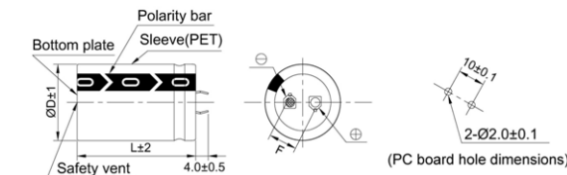
■ SPECIFICATIONS



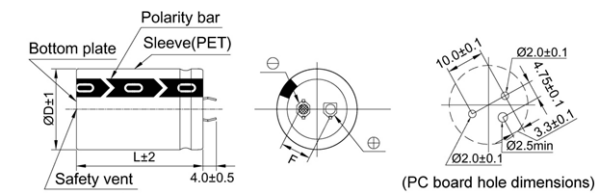
Items	Characteristics	
Category Temperature Range	-25~+85°C	
Rated Voltage Range	160~450V.DC	
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)	
Leakage Current	$I \leq 3\sqrt{CV}$ Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan )	Rated Voltage(V <sub>dc</sub> )	160~400      420~450
	Dissipation Factor(Max.)	0.15      0.20 (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160~250      315~450
	Z(-25°C)/Z(+20°C)	4      8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 5,000 hours at 85 °C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.	
	Capacitance Change	±15% of the initial value
	Dissipation Factor	150% of the initial specified value
	Leakage Current	The initial specified value

■ DIMENSIONS[mm]

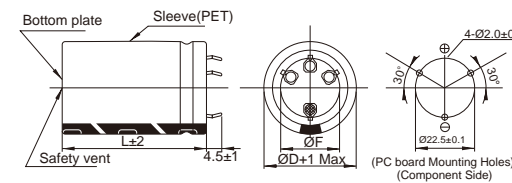
- Terminal Code : K ( 22 to 35) : Standard



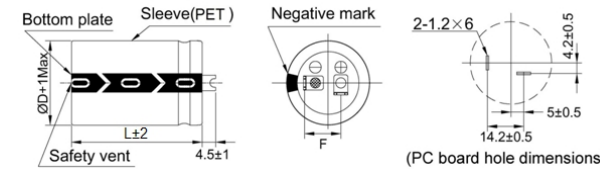
- Terminal Code : T ( 25 to 35) : Standard



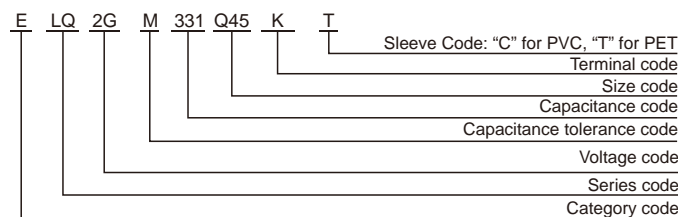
- Terminal Code : P ( 35 to 45) : Standard



- Terminal Code : L ( 35) : Standard



■ PART NUMBERING SYSTEM



■ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
160~250	1.00	1.32	1.45	1.50
315~450	1.00	1.30	1.41	1.43

LQ series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number	
160	220	22x25	0.15	1.00	ELQ2CM221O25KT	
	270	22x25	0.15	1.10	ELQ2CM271O25KT	
	330	22x25	0.15	1.30	ELQ2CM331O25KT	
	390	22x30	0.15	1.50	ELQ2CM391O30KT	
	390	25x25	0.15	1.51	ELQ2CM391P25KT	
	470	22x30	0.15	1.65	ELQ2CM471O30KT	
	470	25x25	0.15	1.70	ELQ2CM471P25KT	
	560	22x35	0.15	1.91	ELQ2CM561O35KT	
	560	25x30	0.15	1.90	ELQ2CM561P30KT	
	560	30x25	0.15	2.01	ELQ2CM561Q25KT	
	680	22x40	0.15	2.10	ELQ2CM681O40KT	
	680	25x35	0.15	2.20	ELQ2CM681P35KT	
	680	30x30	0.15	2.22	ELQ2CM681Q30KT	
	820	22x50	0.15	2.48	ELQ2CM821O50KT	
	820	25x40	0.15	2.43	ELQ2CM821P40KT	
	820	30x30	0.15	2.49	ELQ2CM821Q30KT	
	820	35x25	0.15	2.45	ELQ2CM821R25KT	
	1000	25x45	0.15	2.69	ELQ2CM102P45KT	
	1000	30x35	0.15	2.79	ELQ2CM102Q35KT	
	1000	35x30	0.15	2.71	ELQ2CM102R30KT	
1200	25x50	0.15	3.09	ELQ2CM122P50KT		
1200	30x40	0.15	3.11	ELQ2CM122Q40KT		
1200	35x35	0.15	3.05	ELQ2CM122R35KT		
1500	30x45	0.15	3.68	ELQ2CM152Q45KT		
1500	35x40	0.15	3.51	ELQ2CM152R40KT		
1800	35x45	0.15	3.88	ELQ2CM182R45KT		
2200	35x50	0.15	4.52	ELQ2CM222R50KT		
180	270	22x25	0.15	1.19	ELQ2LM271O25KT	
	330	22x30	0.15	1.38	ELQ2LM331O30KT	
	390	22x30	0.15	1.45	ELQ2LM391O30KT	
	390	25x25	0.15	1.49	ELQ2LM391P25KT	
	470	22x35	0.15	1.68	ELQ2LM471O35KT	
	470	25x30	0.15	2.69	ELQ2LM471P30KT	
	470	30x25	0.15	1.81	ELQ2LM471Q25KT	
	560	22x40	0.15	1.89	ELQ2LM561O40KT	
	560	25x35	0.15	2.01	ELQ2LM561P35KT	
	560	30x30	0.15	2.10	ELQ2LM561Q30KT	
	680	22x50	0.15	2.29	ELQ2LM681O50KT	
	680	25x40	0.15	2.21	ELQ2LM681P40KT	
	680	30x30	0.15	2.31	ELQ2LM681Q30KT	
	680	35x25	0.15	2.22	ELQ2LM681R25KT	
	820	25x45	0.15	2.51	ELQ2LM821P45KT	
	820	30x35	0.15	2.60	ELQ2LM821Q35KT	
	820	35x30	0.15	2.66	ELQ2LM821R30KT	
	1000	25x50	0.15	2.91	ELQ2LM102P50KT	
	1000	30x40	0.15	2.90	ELQ2LM102Q40KT	
	1000	35x35	0.15	2.94	ELQ2LM102R35KT	
1200	30x45	0.15	3.29	ELQ2LM122Q45KT		
1200	35x35	0.15	3.19	ELQ2LM122R35KT		
1500	35x45	0.15	3.60	ELQ2LM152R45KT		
1800	35x50	0.15	4.11	ELQ2LM182R50KT		
200	220	22x25	0.15	1.11	ELQ2DM221O25KT	
	270	22x25	0.15	1.21	ELQ2DM271O25KT	
	330	22x30	0.15	1.41	ELQ2DM331O30KT	
	330	25x25	0.15	1.40	ELQ2DM331P25KT	
	390	22x35	0.15	1.59	ELQ2DM391O35KT	
	390	25x30	0.15	1.61	ELQ2DM391P30KT	
	470	22x40	0.15	1.78	ELQ2DM471O40KT	
	470	25x35	0.15	1.85	ELQ2DM471P35KT	
	470	30x25	0.15	1.88	ELQ2DM471Q25KT	
	560	22x45	0.15	2.11	ELQ2DM561O45KT	
	220	560	25x35	0.15	2.13	ELQ2DM561P35KT
		560	30x30	0.15	2.10	ELQ2DM561Q30KT
		560	35x25	0.15	2.05	ELQ2DM561R25KT
		680	25x40	0.15	2.33	ELQ2DM681P40KT
		680	30x35	0.15	2.40	ELQ2DM681Q35KT
		680	35x30	0.15	2.48	ELQ2DM681R30KT
		820	25x50	0.15	2.59	ELQ2DM821P50KT
		820	30x40	0.15	2.78	ELQ2DM821Q40KT
		820	35x30	0.15	2.59	ELQ2DM821R30KT
		1000	30x45	0.15	3.06	ELQ2DM102Q45KT
1000		35x35	0.15	2.80	ELQ2DM102R35KT	
1200		30x50	0.15	3.41	ELQ2DM122Q50KT	
1200		35x40	0.15	3.18	ELQ2DM122R40KT	
1500		35x50	0.15	3.80	ELQ2DM152R50KT	
250		180	22x25	0.15	1.06	ELQ2NM181O25KT
		220	22x25	0.15	1.10	ELQ2NM221O25KT
		270	22x30	0.15	1.19	ELQ2NM271O30KT
		270	25x25	0.15	1.20	ELQ2NM271P25KT
		330	22x35	0.15	1.40	ELQ2NM331O35KT
		330	25x30	0.15	1.42	ELQ2NM331P30KT
	330	30x25	0.15	1.42	ELQ2NM331Q25KT	
	390	22x40	0.15	1.57	ELQ2NM391O40KT	
	390	25x35	0.15	1.58	ELQ2NM391P35KT	
	390	30x30	0.15	1.55	ELQ2NM391Q30KT	
	470	22x45	0.15	1.77	ELQ2NM471O45KT	
	470	25x40	0.15	1.79	ELQ2NM471P40KT	
	470	30x30	0.15	1.81	ELQ2NM471Q30KT	
	560	22x50	0.15	2.12	ELQ2NM561O50KT	
	560	25x45	0.15	2.22	ELQ2NM561P45KT	
	560	30x35	0.15	2.28	ELQ2NM561Q35KT	
	560	35x30	0.15	2.26	ELQ2NM561R30KT	
	680	25x50	0.15	2.35	ELQ2NM681P50KT	
	680	30x40	0.15	2.30	ELQ2NM681Q40KT	
	680	35x30	0.15	2.36	ELQ2NM681R30KT	
820	30x45	0.15	2.81	ELQ2NM821Q45KT		
820	35x35	0.15	2.79	ELQ2NM821R35KT		
1000	30x50	0.15	3.12	ELQ2NM102Q50KT		
1000	35x40	0.15	3.29	ELQ2NM102R40KT		
1200	35x45	0.15	3.40	ELQ2NM122R45KT		
1500	35x50	0.15	3.86	ELQ2NM152R50KT		
250	180	22x25	0.15	0.94	ELQ2EM181O25KT	
	220	22x30	0.15	1.09	ELQ2EM221O30KT	
	220	25x25	0.15	1.10	ELQ2EM221P25KT	
	270	22x35	0.15	1.19	ELQ2EM271O35KT	
	270	25x30	0.15	1.21	ELQ2EM271P30KT	
	330	22x40	0.15	1.38	ELQ2EM331O40KT	
	330	25x30	0.15	1.39	ELQ2EM331P30KT	
	330	30x25	0.15	1.48	ELQ2EM331Q25KT	
	390	22x45	0.15	1.61	ELQ2EM391O45KT	
	390	25x35	0.15	1.60	ELQ2EM391P35KT	
	390	30x30	0.15	1.63	ELQ2EM391Q30KT	
	470	22x50	0.15	1.79	ELQ2EM471O50KT	
	470	25x40	0.15	1.78	ELQ2EM471P40KT	
	470	30x30	0.15	1.81	ELQ2EM471Q30KT	
	560	25x45	0.15	2.01	ELQ2EM561P45KT	
	560	30x35	0.15	2.10	ELQ2EM561Q35KT	
	680	30x40	0.15	2.25	ELQ2EM681Q40KT	
	680	35x35	0.15	2.39	ELQ2EM681R35KT	
	820	30x45	0.15	2.61	ELQ2EM821Q45KT	
	820	35x40	0.15	2.59	ELQ2EM821R40KT	
1000	35x45	0.15	2.87	ELQ2EM102R45KT		
1200	35x50	0.15	3.32	ELQ2EM122R50KT		



LQ series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
315	100	22x25	0.15	0.79	ELQ2FM101O25KT
	120	22x30	0.15	0.90	ELQ2FM121O30KT
	150	22x30	0.15	1.06	ELQ2FM151O30KT
	150	25x25	0.15	1.00	ELQ2FM151P25KT
	180	22x35	0.15	1.29	ELQ2FM181O35KT
	180	25x30	0.15	1.32	ELQ2FM181P30KT
	220	22x40	0.15	1.41	ELQ2FM221O40KT
	220	25x35	0.15	1.45	ELQ2FM221P35KT
	220	30x25	0.15	1.28	ELQ2FM221Q25KT
	270	22x45	0.15	1.68	ELQ2FM271O45KT
	270	25x40	0.15	1.62	ELQ2FM271P40KT
	270	30x30	0.15	1.55	ELQ2FM271Q30KT
	270	35x25	0.15	1.43	ELQ2FM271R25KT
	330	25x45	0.15	1.94	ELQ2FM331P45KT
	330	30x35	0.15	1.98	ELQ2FM331Q35KT
	330	35x30	0.15	1.91	ELQ2FM331R30KT
	390	25x50	0.15	2.11	ELQ2FM391P50KT
	390	30x40	0.15	2.15	ELQ2FM391Q40KT
	390	35x30	0.15	1.95	ELQ2FM391R30KT
	470	30x45	0.15	2.38	ELQ2FM471Q45KT
470	35x35	0.15	2.46	ELQ2FM471R35KT	
560	30x50	0.15	2.63	ELQ2FM561Q50KT	
560	35x40	0.15	2.69	ELQ2FM561R40KT	
680	35x45	0.15	3.05	ELQ2FM681R45KT	
350	82	22x25	0.15	0.64	ELQ2VM820O25KT
	100	22x25	0.15	0.86	ELQ2VM101O25KT
	120	22x30	0.15	1.04	ELQ2VM121O30KT
	120	25x25	0.15	0.90	ELQ2VM121P25KT
	150	22x35	0.15	1.20	ELQ2VM151O35KT
	150	25x30	0.15	1.22	ELQ2VM151P30KT
	180	22x40	0.15	1.34	ELQ2VM181O40KT
	180	25x30	0.15	1.37	ELQ2VM181P30KT
	220	22x45	0.15	1.47	ELQ2VM221O45KT
	220	25x35	0.15	1.53	ELQ2VM221P35KT
	220	30x30	0.15	1.54	ELQ2VM221Q30KT
	220	35x25	0.15	1.29	ELQ2VM221R25KT
	270	25x45	0.15	1.73	ELQ2VM271P45KT
	270	30x35	0.15	1.80	ELQ2VM271Q35KT
	270	35x30	0.15	1.49	ELQ2VM271R30KT
	330	25x50	0.15	1.97	ELQ2VM331P50KT
	330	30x40	0.15	2.03	ELQ2VM331Q40KT
	330	35x30	0.15	1.80	ELQ2VM331R30KT
	390	30x40	0.15	2.23	ELQ2VM391Q40KT
	390	35x35	0.15	2.30	ELQ2VM391R35KT
470	30x45	0.15	2.53	ELQ2VM471Q45KT	
470	35x40	0.15	2.55	ELQ2VM471R40KT	
560	35x45	0.15	2.75	ELQ2VM561R45KT	
680	35x50	0.15	3.15	ELQ2VM681R50KT	
400	68	22x25	0.15	0.65	ELQ2GM680O25KT
	82	22x25	0.15	0.84	ELQ2GM820O25KT
	100	22x30	0.15	0.99	ELQ2GM101O30KT
	100	25x25	0.15	0.82	ELQ2GM101P25KT
	120	22x35	0.15	1.09	ELQ2GM121O35KT
	120	25x30	0.15	1.13	ELQ2GM121P30KT
	150	22x40	0.15	1.24	ELQ2GM151O40KT
	150	25x30	0.15	1.27	ELQ2GM151P30KT
	150	30x25	0.15	1.20	ELQ2GM151Q25KT
	180	22x45	0.15	1.41	ELQ2GM181O45KT
	180	25x35	0.15	1.44	ELQ2GM181P35KT
	180	30x30	0.15	1.52	ELQ2GM181Q30KT
180	35x25	0.15	1.16	ELQ2GM181R25KT	

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
400	220	22x50	0.15	1.58	ELQ2GM221O50KT
	220	25x40	0.15	1.64	ELQ2GM221P40KT
	220	30x35	0.15	1.66	ELQ2GM221Q35KT
	220	35x30	0.15	1.47	ELQ2GM221R30KT
	270	25x45	0.15	1.79	ELQ2GM271P45KT
	270	30x40	0.15	1.82	ELQ2GM271Q40KT
	270	35x30	0.15	1.63	ELQ2GM271R30KT
	330	30x45	0.15	2.05	ELQ2GM331Q45KT
	330	35x35	0.15	2.05	ELQ2GM331R35KT
	390	30x50	0.15	2.26	ELQ2GM391Q50KT
	390	35x40	0.15	2.28	ELQ2GM391R40KT
	470	35x45	0.15	2.54	ELQ2GM471R45KT
	560	35x50	0.15	2.85	ELQ2GM561R50KT
	680	35x55	0.15	3.28	ELQ2GM681R55KT
	1000	35x55	0.15	3.50	ELQ2GM102R55KT
	1000	35x65	0.15	3.62	ELQ2GM102R65KT
	1200	40x60	0.15	3.80	ELQ2GM122Y60PT
	1200	40x70	0.15	3.90	ELQ2GM122Y70PT
	1500	40x75	0.15	4.15	ELQ2GM152Y75PT
	1500	40x80	0.15	4.20	ELQ2GM152Y80PT
1500	45x60	0.15	4.15	ELQ2GM152I60PT	
1800	35x100	0.15	4.52	ELQ2GM182RA0KT	
1800	40x80	0.15	4.52	ELQ2GM182Y80PT	
1800	40x100	0.15	4.68	ELQ2GM182YA0PT	
420	100	22x30	0.20	0.97	ELQ2TM101O30KT
	100	25x25	0.20	0.98	ELQ2TM101P25KT
	120	22x30	0.20	1.07	ELQ2TM121O30KT
	120	25x30	0.20	1.08	ELQ2TM121P30KT
	150	22x40	0.20	1.21	ELQ2TM151O40KT
	150	25x35	0.20	1.26	ELQ2TM151P35KT
	180	25x35	0.20	1.42	ELQ2TM181P35KT
	180	30x30	0.20	1.48	ELQ2TM181Q30KT
	220	25x40	0.20	1.58	ELQ2TM221P40KT
	220	30x35	0.20	1.65	ELQ2TM221Q35KT
	270	30x35	0.20	1.90	ELQ2TM271Q35KT
	270	35x30	0.20	1.94	ELQ2TM271R30KT
	330	35x35	0.20	2.17	ELQ2TM331R35KT
	390	30x50	0.20	2.22	ELQ2TM391Q50KT
	390	35x45	0.20	2.23	ELQ2TM391R45KT
	560	35x50	0.20	2.93	ELQ2TM561R50KT
	68	22x30	0.20	0.71	ELQ2WM680O30KT
	82	22x35	0.20	0.86	ELQ2WM820O35KT
	100	22x35	0.20	0.95	ELQ2WM101O35KT
	100	25x30	0.20	0.97	ELQ2WM101P30KT
120	22x40	0.20	1.07	ELQ2WM121O40KT	
120	25x35	0.20	1.09	ELQ2WM121P35KT	
150	22x50	0.20	1.18	ELQ2WM151O50KT	
150	25x40	0.20	1.25	ELQ2WM151P40KT	
150	30x30	0.20	1.29	ELQ2WM151Q30KT	
180	25x45	0.20	1.40	ELQ2WM181P45KT	
180	30x35	0.20	1.45	ELQ2WM181Q35KT	
180	35x25	0.20	1.30	ELQ2WM181R25KT	
220	25x50	0.20	1.59	ELQ2WM221P50KT	
220	30x40	0.20	1.64	ELQ2WM221Q40KT	
220	35x30	0.20	1.60	ELQ2WM221R30KT	
270	30x45	0.20	1.88	ELQ2WM271Q45KT	
270	35x35	0.20	1.89	ELQ2WM271R35KT	
330	30x50	0.20	2.12	ELQ2WM331Q50KT	
330	35x40	0.20	2.15	ELQ2WM331R40KT	
390	35x45	0.20	2.35	ELQ2WM391R45KT	
470	35x50	0.20	2.65	ELQ2WM471R50KT	

LQ series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
450	560	35x50	0.20	2.88	ELQ2WM561R50KT
	680	35x55	0.20	3.20	ELQ2WM681R55KT
	820	35x60	0.20	3.58	ELQ2WM821R60KT
	1000	35x70	0.20	3.70	ELQ2WM102R70KT

Specifications subject to change without notice.



# LG series

- Long life, high ripple current series
- Endurance: 12,000 hours at 85°C
- RoHS Compliant

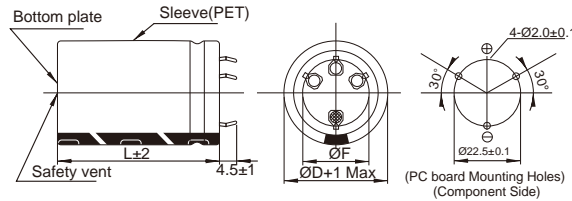


## SPECIFICATIONS

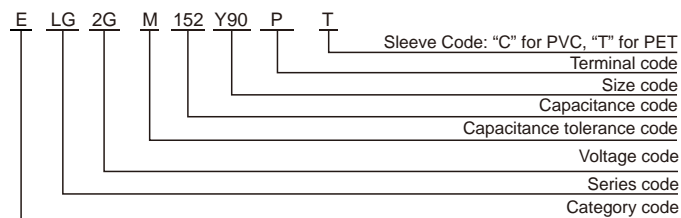
Items	Characteristics
Category Temperature Range	-25~+85°C
Rated Voltage Range	350~450V.DC
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)
Leakage Current	$I \leq 3\sqrt{CV}$ Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> ) 350~450
	Dissipation Factor(Max.) 0.20 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> ) 350~450
	Z(-25°C)/Z(+20°C) 8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 12,000 hours at 85 °C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
	Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.
	Capacitance Change ±15% of the initial value
	Dissipation Factor 150% of the initial specified value
	Leakage Current 200% of the initial specified value

## DIMENSIONS[mm]

- Terminal Code: P ( 35 to 45):Standard



## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	50	120	300	1k	10k	100k
350~450	0.77	1.00	1.16	1.30	1.41	1.43

# LG series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
350	680	35x50	0.20	3.62	ELG2VM681R50KT
	820	35x55	0.20	3.97	ELG2VM821R55KT
	820	40x50	0.20	4.08	ELG2VM821Y50PT
	1000	35x65	0.20	4.54	ELG2VM102R65KT
	1000	40x55	0.20	4.46	ELG2VM102Y55PT
	1200	35x75	0.20	5.09	ELG2VM122R75PT
	1200	40x60	0.20	4.82	ELG2VM122Y60PT
	1200	45x50	0.20	4.43	ELG2VM122I50PT
	1500	35x95	0.20	5.98	ELG2VM152R95PT
	1500	40x70	0.20	5.47	ELG2VM152Y70PT
400	1500	45x60	0.20	5.20	ELG2VM152I60PT
	1800	40x90	0.20	6.51	ELG2VM182Y90PT
	1800	45x65	0.20	5.53	ELG2VM182I65PT
	2200	45x85	0.20	6.73	ELG2VM222I85PT
	2700	45x100	0.20	7.62	ELG2VM272IA0PT
	470	35x45	0.20	3.18	ELG2GM471R45PT
	560	35x50	0.20	3.45	ELG2GM561R50KT
	680	35x60	0.20	3.98	ELG2GM681R60KT
	680	40x50	0.20	3.90	ELG2GM681Y50PT
	820	35x65	0.20	4.32	ELG2GM821R65KT
420	820	40x55	0.20	4.25	ELG2GM821Y55PT
	820	45x50	0.20	4.27	ELG2GM821I50PT
	1000	35x80	0.20	5.02	ELG2GM102R80PT
	1000	40x65	0.20	4.88	ELG2GM102Y65PT
	1000	45x55	0.20	4.64	ELG2GM102I55PT
	1200	35x90	0.20	5.54	ELG2GM122R90PT
	1200	40x75	0.20	5.47	ELG2GM122Y75PT
	1200	45x60	0.20	4.99	ELG2GM122I60PT
	1500	40x90	0.20	6.30	ELG2GM152Y90PT
	1500	45x70	0.20	5.65	ELG2GM152I70PT
450	1800	45x80	0.20	6.28	ELG2GM182I80PT
	2200	45x95	0.20	7.18	ELG2GM222I95PT
	560	35x50	0.20	3.39	ELG2WM561R50KT
	680	35x60	0.20	3.92	ELG2WM681R60KT
	680	40x50	0.20	3.85	ELG2WM681Y50PT
	820	35x65	0.20	4.26	ELG2WM821R65KT
	820	40x55	0.20	4.21	ELG2WM821Y55PT
	1000	35x80	0.20	4.94	ELG2WM102R80PT
	1000	40x65	0.20	4.82	ELG2WM102Y65PT
	1000	45x50	0.20	4.23	ELG2WM102I50PT
420	1200	35x95	0.20	5.58	ELG2WM122R95PT
	1200	40x75	0.20	5.42	ELG2WM122Y75PT
	1200	45x60	0.20	4.97	ELG2WM122I60PT
	1200	45x60	0.20	4.97	ELG2TM122I60PT

Specifications subject to change without notice.

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/85°C, 120Hz)	Part Number
420	1500	40x90	0.20	6.19	ELG2TM152Y90PT
	1500	45x70	0.20	5.63	ELG2TM152I70PT
	1800	45x85	0.20	6.50	ELG2TM182I85PT
	2200	45x100	0.20	7.36	ELG2TM222IA0PT
450	470	35x50	0.20	3.25	ELG2WM471R50KT
	560	35x55	0.20	3.56	ELG2WM561R55KT
	560	40x50	0.20	3.70	ELG2WM561Y50PT
	680	35x65	0.20	4.07	ELG2WM681R65KT
	680	40x55	0.20	4.06	ELG2WM681Y55PT
	820	35x75	0.20	4.55	ELG2WM821R75PT
	820	40x60	0.20	4.41	ELG2WM821Y60PT
	820	45x50	0.20	4.14	ELG2WM821I50PT
	1000	35x85	0.20	5.07	ELG2WM102R85PT
	1000	40x70	0.20	5.00	ELG2WM102Y70PT
450	1000	45x60	0.20	4.84	ELG2WM102I60PT
	1200	35x100	0.20	5.71	ELG2WM122RA0PT
	1200	40x80	0.20	5.57	ELG2WM122Y80PT
	1200	45x65	0.20	5.18	ELG2WM122I65PT
	1500	40x95	0.20	6.36	ELG2WM152Y95PT
	1500	45x80	0.20	6.13	ELG2WM152I80PT
	1800	45x90	0.20	6.71	ELG2WM182I90PT

LT series

- Downsize and long life series
- Endurance: 5,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant

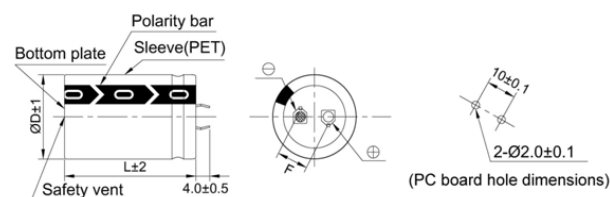
SPECIFICATIONS



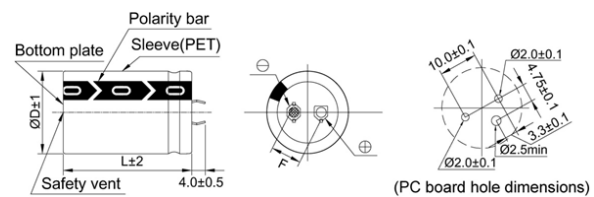
Items	Characteristics		
Category Temperature Range	-25~+105°C		
Rated Voltage Range	160~500V.DC		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)		
Leakage Current	I ≤ 3√CV Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160~400	420~550
	Dissipation Factor(Max.)	0.15	0.20
Low Temperature Characteristics (Max.Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160~250	315~550
	Z(-25°C)/Z(+20°C)	4	8
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 5,000 hours at 105 °C.		
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	200% of the initial specified value (500 Vdc: 250%)	
	Leakage Current	The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.		
	Capacitance Change	±15% of the initial value	
	Dissipation Factor	150% of the initial specified value	
	Leakage Current	200% of the initial specified value	

DIMENSIONS[mm]

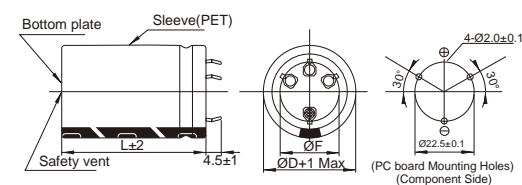
• Terminal Code : K ( 22 to 35) : Standard



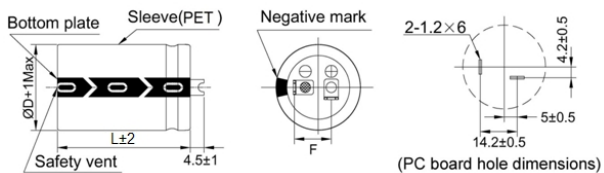
• Terminal Code : T ( 25 to 35) : Standard



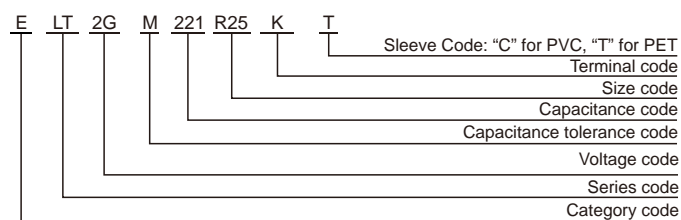
• Terminal Code: P ( 35 to 45): Standard



• Terminal Code : L ( 35) : Standard



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current(Hz)

W.V	120	1k	10k	100k
160~250	1.00	1.32	1.45	1.50
315~550	1.00	1.30	1.41	1.43

LT series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
160	390	22x25	0.15	1.32	ELT2CM391O25KT
	470	25x25	0.15	1.48	ELT2CM471P25KT
	560	22x30	0.15	1.66	ELT2CM561O30KT
	560	25x25	0.15	1.68	ELT2CM561P25KT
	560	25x30	0.15	1.74	ELT2CM561P30KT
	680	22x35	0.15	1.87	ELT2CM681O35KT
	680	25x30	0.15	1.88	ELT2CM681P30KT
	680	30x25	0.15	1.96	ELT2CM681Q25KT
	820	22x40	0.15	2.09	ELT2CM821O40KT
	820	22x45	0.15	2.18	ELT2CM821O45KT
	1000	22x50	0.15	2.41	ELT2CM102O50KT
	1000	25x40	0.15	2.38	ELT2CM102P40KT
	1000	30x30	0.15	2.40	ELT2CM102Q30KT
	1000	35x25	0.15	2.55	ELT2CM102R25KT
	1200	25x45	0.15	2.71	ELT2CM122P45KT
	1200	30x40	0.15	2.77	ELT2CM122Q40KT
	1200	35x30	0.15	2.86	ELT2CM122R30KT
	1500	25x50	0.15	3.08	ELT2CM152P50KT
	1500	30x45	0.15	3.17	ELT2CM152Q45KT
	1500	35x35	0.15	3.22	ELT2CM152R35KT
180	1800	30x50	0.15	3.53	ELT2CM182Q50KT
	1800	35x40	0.15	3.66	ELT2CM182R40KT
	2200	35x45	0.15	4.14	ELT2CM222R45KT
	2700	35x50	0.15	4.68	ELT2CM272R50KT
	330	22x25	0.15	1.21	ELT2LM331O25KT
	470	22x30	0.15	1.52	ELT2LM471O30KT
	470	25x25	0.15	1.52	ELT2LM471P25KT
	560	22x35	0.15	1.70	ELT2LM561O35KT
	560	25x30	0.15	1.78	ELT2LM561P30KT
	680	22x40	0.15	1.91	ELT2LM681O40KT
680	25x30	0.15	1.88	ELT2LM681P30KT	
820	22x45	0.15	1.99	ELT2LM821O45KT	
820	25x35	0.15	2.16	ELT2LM821P35KT	
820	30x30	0.15	2.17	ELT2LM821Q30KT	
820	35x25	0.15	2.31	ELT2LM821R25KT	
1000	22x50	0.15	2.25	ELT2LM102O50KT	
1000	25x45	0.15	2.47	ELT2LM102P45KT	
1000	30x35	0.15	2.46	ELT2LM102Q35KT	
1200	25x50	0.15	2.75	ELT2LM122P50KT	
1200	30x40	0.15	2.77	ELT2LM122Q40KT	
1200	35x30	0.15	2.86	ELT2LM122R30KT	
1500	30x50	0.15	3.22	ELT2LM152Q50KT	
1500	35x35	0.15	3.22	ELT2LM152R35KT	
1800	35x45	0.15	3.74	ELT2LM182R45KT	
2200	35x50	0.15	4.22	ELT2LM222R50KT	
200	270	22x25	0.15	1.10	ELT2DM271O25KT
	330	22x30	0.15	1.22	ELT2DM331O30KT
	330	25x25	0.15	1.22	ELT2DM331P25KT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
200	390	22x30	0.15	1.38	ELT2DM391O30KT
	390	25x25	0.15	1.39	ELT2DM391P25KT
	470	22x35	0.15	1.55	ELT2DM471O35KT
	470	22x40	0.15	1.62	ELT2DM471O40KT
	470	25x30	0.15	1.58	ELT2DM471P30KT
	470	30x25	0.15	1.55	ELT2DM471Q25KT
	560	22x40	0.15	1.73	ELT2DM561O40KT
	560	22x45	0.15	1.78	ELT2DM561O45KT
	560	25x30	0.15	1.71	ELT2DM561P30KT
	560	30x25	0.15	1.78	ELT2DM561Q25KT
	680	22x45	0.15	1.81	ELT2DM681O45KT
	680	25x35	0.15	1.87	ELT2DM681P35KT
	680	30x30	0.15	1.98	ELT2DM681Q30KT
	680	35x25	0.15	2.10	ELT2DM681R25KT
	820	22x50	0.15	2.18	ELT2DM821O50KT
	820	25x40	0.15	2.09	ELT2DM821P40KT
	820	30x30	0.15	2.10	ELT2DM821Q30KT
	820	30x35	0.15	2.22	ELT2DM821Q35KT
	1000	25x50	0.15	2.39	ELT2DM102P50KT
	1000	30x35	0.15	2.40	ELT2DM102Q35KT
1000	30x40	0.15	2.53	ELT2DM102Q40KT	
1000	35x30	0.15	2.61	ELT2DM102R30KT	
1000	35x35	0.15	2.72	ELT2DM102R35KT	
1200	30x50	0.15	2.88	ELT2DM122Q50KT	
1200	35x35	0.15	2.88	ELT2DM122R35KT	
1500	30x50	0.15	2.92	ELT2DM152Q50KT	
1500	35x40	0.15	2.96	ELT2DM152R40KT	
1800	35x50	0.15	3.12	ELT2DM182R50KT	
2200	35x55	0.15	3.34	ELT2DM222R55KT	
2700	35x60	0.15	3.50	ELT2DM272R60KT	
220	270	22x25	0.15	1.10	ELT2NM271O25KT
	330	22x30	0.15	1.19	ELT2NM331O30KT
	390	25x30	0.15	1.39	ELT2NM391P30KT
	470	22x40	0.15	1.55	ELT2NM471O40KT
	470	25x30	0.15	1.56	ELT2NM471P30KT
	470	30x25	0.15	1.63	ELT2NM471Q25KT
	560	22x45	0.15	1.73	ELT2NM561O45KT
	560	30x30	0.15	1.79	ELT2NM561Q30KT
	680	22x50	0.15	1.99	ELT2NM681O50KT
	680	25x40	0.15	1.96	ELT2NM681P40KT
680	30x35	0.15	2.02	ELT2NM681Q35KT	
820	25x45	0.15	2.24	ELT2NM821P45KT	
820	30x40	0.15	2.29	ELT2NM821Q40KT	
820	35x30	0.15	2.36	ELT2NM821R30KT	
1000	30x45	0.15	2.59	ELT2NM102Q45KT	
1000	35x35	0.15	2.63	ELT2NM102R35KT	
1200	30x50	0.15	2.88	ELT2NM122Q50KT	
1200	35x40	0.15	2.98	ELT2NM122R40KT	
1500	35x45	0.15	3.41	ELT2NM152R45KT	
1800	35x50	0.15	3.82	ELT2NM182R50KT	

Snap-in&Lug Terminal Type



**LT series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
250	220	22x25	0.15	1.01	ELT2EM221O25KT
	220	22x35	0.15	1.10	ELT2EM221O35KT
	220	25x25	0.15	1.10	ELT2EM221P25KT
	270	22x30	0.15	1.20	ELT2EM271O30KT
	330	22x30	0.15	1.32	ELT2EM331O30KT
	330	25x25	0.15	1.32	ELT2EM331P25KT
	330	30x25	0.15	1.32	ELT2EM331Q25KT
	390	22x35	0.15	1.44	ELT2EM391O35KT
	390	22x45	0.15	1.44	ELT2EM391O45KT
	390	25x30	0.15	1.43	ELT2EM391P30KT
	390	25x35	0.15	1.51	ELT2EM391P35KT
	390	30x25	0.15	1.51	ELT2EM391Q25KT
	470	22x40	0.15	1.62	ELT2EM471O40KT
	560	22x50	0.15	1.84	ELT2EM561O50KT
	560	25x40	0.15	1.78	ELT2EM561P40KT
	560	30x30	0.15	1.83	ELT2EM561Q30KT
	560	35x25	0.15	1.91	ELT2EM561R25KT
	680	25x45	0.15	2.04	ELT2EM681P45KT
	680	30x35	0.15	2.06	ELT2EM681Q35KT
	680	30x40	0.15	2.15	ELT2EM681Q40KT
	680	35x30	0.15	2.15	ELT2EM681R30KT
	680	35x35	0.15	2.20	ELT2EM681R35KT
	820	25x50	0.15	2.28	ELT2EM821P50KT
	820	30x40	0.15	2.28	ELT2EM821Q40KT
	820	30x45	0.15	2.39	ELT2EM821Q45KT
	820	35x35	0.15	2.38	ELT2EM821R35KT
	1000	30x50	0.15	2.68	ELT2EM102Q50KT
	1000	35x40	0.15	2.72	ELT2EM102R40KT
1200	30x50	0.15	2.80	ELT2EM122Q50KT	
1200	35x45	0.15	2.82	ELT2EM122R45KT	
1500	35x50	0.15	3.12	ELT2EM152R50KT	
1800	35x60	0.15	3.36	ELT2EM182R60KT	
315	100	22x25	0.15	0.64	ELT2FM101O25KT
	150	22x25	0.15	0.80	ELT2FM151O25KT
	180	22x30	0.15	0.92	ELT2FM181O30KT
	180	25x25	0.15	0.94	ELT2FM181P25KT
	220	22x35	0.15	1.04	ELT2FM221O35KT
	220	30x25	0.15	1.17	ELT2FM221Q25KT
	270	22x40	0.15	1.18	ELT2FM271O40KT
	270	25x30	0.15	1.19	ELT2FM271P30KT
	330	22x45	0.15	1.33	ELT2FM331O45KT
	330	25x35	0.15	1.37	ELT2FM331P35KT
	330	30x30	0.15	1.40	ELT2FM331Q30KT
	330	35x25	0.15	1.49	ELT2FM331R25KT
	390	22x50	0.15	1.48	ELT2FM391O50KT
	390	25x40	0.15	1.52	ELT2FM391P40KT
	470	25x45	0.15	1.70	ELT2FM471P45KT
	470	30x35	0.15	1.71	ELT2FM471Q35KT
	470	35x30	0.15	1.82	ELT2FM471R30KT

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
315	560	30x45	0.15	1.97	ELT2FM561Q45KT	
	560	35x35	0.15	2.00	ELT2FM561R35KT	
	680	30x50	0.15	2.21	ELT2FM681Q50KT	
	680	35x40	0.15	2.29	ELT2FM681R40KT	
	820	35x45	0.15	2.57	ELT2FM821R45KT	
	1000	35x50	0.15	2.89	ELT2FM102R50KT	
	1200	35x60	0.15	3.02	ELT2FM122R60KT	
	1500	35x70	0.15	3.38	ELT2FM152R70KT	
	350	120	22x25	0.15	0.72	ELT2VM121O25KT
		150	22x30	0.15	0.84	ELT2VM151O30KT
		180	25x25	0.15	0.94	ELT2VM181P25KT
		220	22x40	0.15	1.06	ELT2VM221O40KT
		220	25x30	0.15	1.07	ELT2VM221P30KT
		220	30x25	0.15	1.13	ELT2VM221Q25KT
		270	22x45	0.15	1.20	ELT2VM271O45KT
		270	22x50	0.15	1.24	ELT2VM271O50KT
		270	25x35	0.15	1.24	ELT2VM271P35KT
		270	30x30	0.15	1.27	ELT2VM271Q30KT
270		35x25	0.15	1.35	ELT2VM271R25KT	
330		22x50	0.15	1.36	ELT2VM331O50KT	
330		25x40	0.15	1.39	ELT2VM331P40KT	
330		30x35	0.15	1.43	ELT2VM331Q35KT	
390		25x45	0.15	1.55	ELT2VM391P45KT	
390		30x40	0.15	1.60	ELT2VM391Q40KT	
390		35x30	0.15	1.66	ELT2VM391R30KT	
470		25x50	0.15	1.72	ELT2VM471P50KT	
470	30x45	0.15	1.81	ELT2VM471Q45KT		
470	35x35	0.15	1.83	ELT2VM471R35KT		
560	30x50	0.15	2.00	ELT2VM561Q50KT		
560	35x40	0.15	2.07	ELT2VM561R40KT		
680	35x45	0.15	2.34	ELT2VM681R45KT		
820	35x50	0.15	2.62	ELT2VM821R50KT		
400	68	22x25	0.15	0.48	ELT2GM680O25KT	
	82	22x25	0.15	0.60	ELT2GM820O25KT	
	100	22x25	0.15	0.66	ELT2GM101O25KT	
	120	22x30	0.15	0.75	ELT2GM121O30KT	
	120	25x25	0.15	0.75	ELT2GM121P25KT	
	150	22x35	0.15	0.86	ELT2GM151O35KT	
	150	25x30	0.15	0.86	ELT2GM151P30KT	
	180	22x35	0.15	0.92	ELT2GM181O35KT	
	180	22x40	0.15	0.96	ELT2GM181O40KT	
	180	25x30	0.15	0.97	ELT2GM181P30KT	
	180	30x25	0.15	1.02	ELT2GM181Q25KT	
	220	22x45	0.15	1.09	ELT2GM221O45KT	
	220	25x35	0.15	1.12	ELT2GM221P35KT	
	220	25x40	0.15	1.15	ELT2GM221P40KT	
	220	30x30	0.15	1.15	ELT2GM221Q30KT	
	270	22x50	0.15	1.23	ELT2GM271O50KT	
	270	25x40	0.15	1.25	ELT2GM271P40KT	

**LT series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
400	270	25x45	0.15	1.29	ELT2GM271P45KT
	270	25x50	0.15	1.32	ELT2GM271P50KT
	270	30x30	0.15	1.27	ELT2GM271Q30KT
	270	30x35	0.15	1.32	ELT2GM271Q35KT
	330	25x45	0.15	1.42	ELT2GM331P45KT
	330	25x50	0.15	1.44	ELT2GM331P50KT
	330	30x35	0.15	1.43	ELT2GM331Q35KT
	330	30x45	0.15	1.52	ELT2GM331Q45KT
	330	35x30	0.15	1.52	ELT2GM331R30KT
	390	30x40	0.15	1.60	ELT2GM391Q40KT
	390	30x45	0.15	1.64	ELT2GM391Q45KT
	390	35x35	0.15	1.67	ELT2GM391R35KT
	470	30x45	0.15	1.84	ELT2GM471Q45KT
	470	30x50	0.15	1.84	ELT2GM471Q50KT
	470	35x40	0.15	1.90	ELT2GM471R40KT
	470	35x45	0.15	2.00	ELT2GM471R45KT
	560	35x45	0.15	2.12	ELT2GM561R45KT
	560	35x50	0.15	2.22	ELT2GM561R50KT
	680	35x50	0.15	2.38	ELT2GM681R50KT
	820	35x50	0.15	2.20	ELT2GM821R50KT
	820	35x55	0.15	2.42	ELT2GM821R55KT
	820	35x60	0.15	2.58	ELT2GM821R60KT
	1000	35x70	0.15	2.86	ELT2GM102R70KT
	1000	35x80	0.15	2.92	ELT2GM102R80KT
	1000	40x80	0.15	3.00	ELT2GM102Y80PT
	1200	40x80	0.15	3.18	ELT2GM122Y80PT
	1500	40x100	0.15	3.36	ELT2GM152YA0PT
	1800	40x100	0.15	3.58	ELT2GM182YA0PT
1800	45x100	0.15	3.68	ELT2GM182IA0PT	
2200	45x100	0.15	3.82	ELT2GM222IA0PT	
2700	45x100	0.15	4.00	ELT2GM272IA0PT	
420	100	22x25	0.20	0.66	ELT2TM101O25KT
	120	22x30	0.20	0.75	ELT2TM121O30KT
	120	25x25	0.20	0.77	ELT2TM121P25KT
	150	22x35	0.20	0.86	ELT2TM151O35KT
	180	22x45	0.20	0.98	ELT2TM181O45KT
	180	25x35	0.20	1.01	ELT2TM181P35KT
	180	30x25	0.20	1.02	ELT2TM181Q25KT
	220	22x50	0.20	1.11	ELT2TM221O50KT
	220	25x40	0.20	1.14	ELT2TM221P40KT
	220	30x30	0.20	1.14	ELT2TM221Q30KT
	220	35x25	0.20	1.22	ELT2TM221R25KT
	270	25x45	0.20	1.29	ELT2TM271P45KT
	270	30x35	0.20	1.30	ELT2TM271Q35KT
	270	35x30	0.20	1.38	ELT2TM271R30KT
	330	25x50	0.20	1.44	ELT2TM331P50KT
	330	30x40	0.20	1.48	ELT2TM331Q40KT
	330	35x35	0.20	1.54	ELT2TM331R35KT

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
420	390	30x45	0.20	1.64	ELT2TM391Q45KT	
	390	35x40	0.20	1.73	ELT2TM391R40KT	
	470	30x45	0.20	1.70	ELT2TM471Q45KT	
	470	30x50	0.20	1.84	ELT2TM471Q50KT	
	470	35x45	0.20	1.94	ELT2TM471R45KT	
	560	35x45	0.20	2.06	ELT2TM561R45KT	
	560	35x50	0.20	2.17	ELT2TM561R50KT	
	680	35x50	0.20	2.32	ELT2TM681R50KT	
	450	68	22x25	0.20	0.45	ELT2WM680O25KT
		68	22x30	0.20	0.50	ELT2WM680O30KT
68		25x25	0.20	0.50	ELT2WM680P25KT	
82		22x25	0.20	0.59	ELT2WM820O25KT	
82		22x30	0.20	0.62	ELT2WM820O30KT	
100		22x30	0.20	0.69	ELT2WM101O30KT	
100		25x25	0.20	0.70	ELT2WM101P25KT	
120		22x30	0.20	0.74	ELT2WM121O30KT	
120		22x35	0.20	0.77	ELT2WM121O35KT	
120		25x25	0.20	0.74	ELT2WM121P25KT	
120		25x30	0.20	0.77	ELT2WM121P30KT	
150		22x35	0.20	0.86	ELT2WM151O35KT	
150		22x40	0.20	0.88	ELT2WM151O40KT	
150		22x45	0.20	0.90	ELT2WM151O45KT	
150		25x30	0.20	0.88	ELT2WM151P30KT	
150		25x35	0.20	0.92	ELT2WM151P35KT	
150		30x25	0.20	0.93	ELT2WM151Q25KT	
180		22x45	0.20	0.98	ELT2WM181O45KT	
180		22x50	0.20	1.01	ELT2WM181O50KT	
180		25x30	0.20	1.00	ELT2WM181P30KT	
180		25x35	0.20	1.02	ELT2WM181P35KT	
180		25x40	0.20	1.03	ELT2WM181P40KT	
180		30x30	0.20	1.03	ELT2WM181Q30KT	
180		35x25	0.20	1.10	ELT2WM181R25KT	
220		22x50	0.20	1.14	ELT2WM221O50KT	
220		25x35	0.20	1.12	ELT2WM221P35KT	
220		25x40	0.20	1.14	ELT2WM221P40KT	
220		25x45	0.20	1.16	ELT2WM221P45KT	
220	30x30	0.20	1.16	ELT2WM221Q30KT		
220	30x35	0.20	1.17	ELT2WM221Q35KT		
220	30x40	0.20	1.20	ELT2WM221Q40KT		
220	35x30	0.20	1.24	ELT2WM221R30KT		
270	25x45	0.20	1.28	ELT2WM271P45KT		
270	25x50	0.20	1.31	ELT2WM271P50KT		
270	30x40	0.20	1.33	ELT2WM271Q40KT		
270	35x30	0.20	1.36	ELT2WM271R30KT		
270	35x35	0.20	1.39	ELT2WM271R35KT		
330	25x50	0.20	1.42	ELT2WM331P50KT		
330	25x55	0.20	1.48	ELT2WM331P55KT		
330	30x40	0.20	1.46	ELT2WM331Q40KT		

Snap-in Lug Terminal Type



LT series

STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
450	330	30x45	0.20	1.51	ELT2WM331Q45KT
	330	35x35	0.20	1.48	ELT2WM331R35KT
	330	35x40	0.20	1.51	ELT2WM331R40KT
	390	30x45	0.20	1.64	ELT2WM391Q45KT
	390	30x50	0.20	1.67	ELT2WM391Q50KT
	390	35x35	0.20	1.60	ELT2WM391R35KT
	390	35x45	0.20	1.77	ELT2WM391R45KT
	470	30x50	0.20	1.80	ELT2WM471Q50KT
	470	35x40	0.20	1.70	ELT2WM471R40KT
	470	35x45	0.20	1.84	ELT2WM471R45KT
	470	35x50	0.20	1.86	ELT2WM471R50KT
	560	30x55	0.20	1.80	ELT2WM561Q55KT
	560	30x60	0.20	1.92	ELT2WM561Q60KT
	560	35x45	0.20	1.80	ELT2WM561R45KT
	560	35x50	0.20	1.92	ELT2WM561R50KT
	560	35x55	0.20	1.94	ELT2WM561R55KT
	680	35x55	0.20	2.04	ELT2WM681R55KT
	680	35x60	0.20	2.10	ELT2WM681R60KT
	820	35x65	0.20	2.35	ELT2WM821R65KT
	820	35x70	0.20	2.40	ELT2WM821R70KT
1000	35x80	0.20	2.60	ELT2WM102R80KT	
1000	40x65	0.20	2.60	ELT2WM102Y65PT	
1500	45x83	0.20	3.00	ELT2WM152I83PT	
500	47	22x25	0.20	0.35	ELT2HM470O25KT
	68	22x25	0.20	0.42	ELT2HM680O25KT
	82	25x25	0.20	0.60	ELT2HM820P25KT
	100	22x35	0.20	0.80	ELT2HM101O35KT
	100	25x30	0.20	0.80	ELT2HM101P30KT
	100	30x25	0.20	0.82	ELT2HM101Q25KT
	120	30x25	0.20	0.88	ELT2HM121Q25KT
	120	30x30	0.20	0.91	ELT2HM121Q30KT
	120	35x25	0.20	0.88	ELT2HM121R25KT
	150	30x30	0.20	1.00	ELT2HM151Q30KT
	150	30x35	0.20	1.04	ELT2HM151Q35KT
	150	35x30	0.20	1.04	ELT2HM151R30KT
	180	30x40	0.20	1.17	ELT2HM181Q40KT
	180	35x30	0.20	1.10	ELT2HM181R30KT
	220	25x50	0.20	1.21	ELT2HM221P50KT
	220	30x40	0.20	1.26	ELT2HM221Q40KT
	220	30x45	0.20	1.33	ELT2HM221Q45KT
	220	35x35	0.20	1.23	ELT2HM221R35KT
	270	30x50	0.20	1.50	ELT2HM271Q50KT
	270	35x40	0.20	1.42	ELT2HM271R40KT
330	35x45	0.20	1.60	ELT2HM331R45KT	
330	35x50	0.20	1.64	ELT2HM331R50KT	
390	35x50	0.20	1.78	ELT2HM391R50KT	
470	35x60	0.20	2.03	ELT2HM471R60KT	

Specifications subject to change without notice.

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
550	120	30x30	0.20	0.91	ELT2JM121Q30KT
	150	30x35	0.20	1.04	ELT2JM151Q35KT
	180	30x40	0.20	1.17	ELT2JM181Q40KT
	180	35x30	0.20	1.10	ELT2JM181R30KT
	220	30x50	0.20	1.33	ELT2JM221Q50KT
	220	35x40	0.20	1.23	ELT2JM221R40KT
	270	35x45	0.20	1.42	ELT2JM271R45KT
	330	35x50	0.20	1.64	ELT2JM331R50KT
	390	35x55	0.20	1.85	ELT2JM391R55KT
	470	35x60	0.20	2.03	ELT2JM471R60KT

LX series

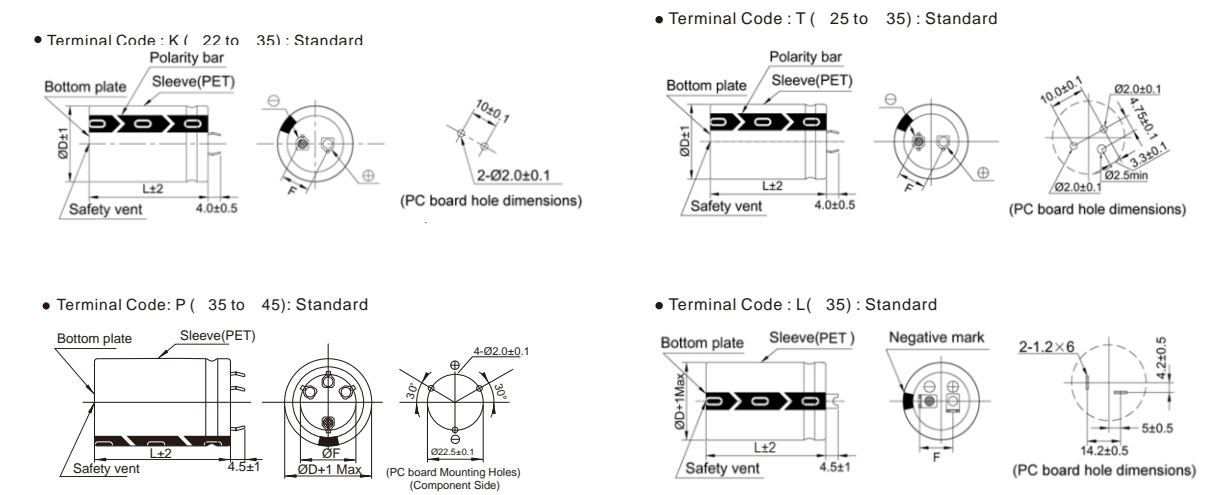
- Extremely long life
- Endurance: 7,000 hours at 105°C
- RoHS Compliant



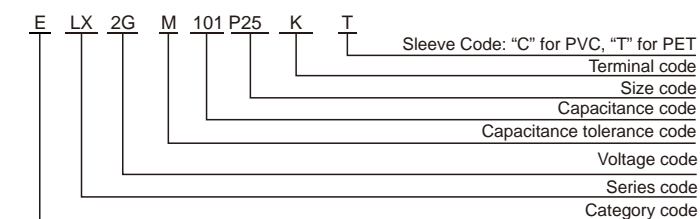
SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	-25~+105°C		
Rated Voltage Range	160~450V.DC		
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)		
Leakage Current	I ≤ 3√CV Where, I:Max.leakage current (µA),C:Nominal capacitance (µF),V: Rated voltage (V) (at 20°C after 5 minutes)		
Dissipation Factor (tan δ)	Rated Voltage(V <sub>dc</sub> )	160~400	420~450
	Dissipation Factor(Max.)	0.15	0.20
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V <sub>dc</sub> )	160~250	315~450
	Z(-25°C)/Z(+20°C)	4	8
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 7,000 hours at 105 °C.		
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	250% of the initial specified value	
	Leakage Current	The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.		
	Capacitance Change	±15% of the initial value	
	Dissipation Factor	150% of the initial specified value	
	Leakage Current	150% of the initial specified value	

DIMENSIONS[mm]



PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
160~250	1.00	1.32	1.45	1.50
315~450	1.00	1.30	1.41	1.43

**LX series**

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
160	330	22x25	0.15	1.11	ELX2CM331O25KT	
	390	22x30	0.15	1.26	ELX2CM391O30KT	
	470	22x30	0.15	1.39	ELX2CM471O30KT	
	470	25x25	0.15	1.38	ELX2CM471P25KT	
	560	22x35	0.15	1.55	ELX2CM561O35KT	
	560	25x30	0.15	1.55	ELX2CM561P30KT	
	680	22x40	0.15	1.75	ELX2CM681O40KT	
	680	25x35	0.15	1.78	ELX2CM681P35KT	
	680	30x25	0.15	1.74	ELX2CM681Q25KT	
	820	22x50	0.15	1.97	ELX2CM821O50KT	
	820	25x40	0.15	2.01	ELX2CM821P40KT	
	820	30x30	0.15	1.96	ELX2CM821Q30KT	
	1000	25x45	0.15	2.27	ELX2CM102P45KT	
	1000	30x35	0.15	2.26	ELX2CM102Q35KT	
	1200	25x50	0.15	2.54	ELX2CM122P50KT	
	1200	30x40	0.15	2.56	ELX2CM122Q40KT	
	1200	35x30	0.15	2.52	ELX2CM122R30KT	
	1500	30x45	0.15	2.96	ELX2CM152Q45KT	
	1500	35x35	0.15	2.89	ELX2CM152R35KT	
	1800	30x50	0.15	3.32	ELX2CM182Q50KT	
	1800	35x40	0.15	3.30	ELX2CM182R40KT	
	2200	35x50	0.15	3.50	ELX2CM222R50KT	
180	270	22x25	0.15	1.00	ELX2LM271O25KT	
	330	22x30	0.15	1.16	ELX2LM331O30KT	
	390	22x30	0.15	1.26	ELX2LM391O30KT	
	390	25x25	0.15	1.26	ELX2LM391P25KT	
	470	22x35	0.15	1.42	ELX2LM471O35KT	
	470	25x30	0.15	1.42	ELX2LM471P30KT	
	560	22x40	0.15	1.59	ELX2LM561O40KT	
	560	25x30	0.15	1.55	ELX2LM561P30KT	
	560	30x25	0.15	1.58	ELX2LM561Q25KT	
	680	22x45	0.15	1.79	ELX2LM681O45KT	
	680	25x35	0.15	1.78	ELX2LM681P35KT	
	680	30x30	0.15	1.79	ELX2LM681Q30KT	
	820	25x40	0.15	2.01	ELX2LM821P40KT	
	820	30x35	0.15	2.04	ELX2LM821Q35KT	
	1000	25x50	0.15	2.32	ELX2LM102P50KT	
	1000	30x35	0.15	2.26	ELX2LM102Q35KT	
	1000	35x30	0.15	2.30	ELX2LM102R30KT	
	1200	30x45	0.15	2.65	ELX2LM122Q45KT	
	1200	35x35	0.15	2.58	ELX2LM122R35KT	
	1500	30x50	0.15	3.03	ELX2LM152Q50KT	
	1500	35x40	0.15	3.01	ELX2LM152R40KT	
	1800	35x45	0.15	3.20	ELX2LM182R45KT	
2200	35x50	0.15	3.50	ELX2LM222R50KT		
200	220	22x25	0.15	0.90	ELX2DM221O25KT	
	270	22x30	0.15	1.05	ELX2DM271O30KT	
	330	22x30	0.15	1.16	ELX2DM331O30KT	
	330	25x25	0.15	1.16	ELX2DM331P25KT	
	390	22x35	0.15	1.29	ELX2DM391O35KT	
	390	25x30	0.15	1.29	ELX2DM391P30KT	
	470	22x40	0.15	1.46	ELX2DM471O40KT	
	470	25x30	0.15	1.42	ELX2DM471P30KT	
	470	30x25	0.15	1.45	ELX2DM471Q25KT	
	560	22x45	0.15	1.63	ELX2DM561O45KT	
	560	25x35	0.15	1.62	ELX2DM561P35KT	
	560	30x30	0.15	1.62	ELX2DM561Q30KT	
	200	680	25x40	0.15	1.83	ELX2DM681P40KT
		680	30x30	0.15	1.79	ELX2DM681Q30KT
		820	25x45	0.15	2.06	ELX2DM821P45KT
		820	30x35	0.15	2.04	ELX2DM821Q35KT
		1000	30x45	0.15	2.42	ELX2DM102Q45KT
		1000	35x35	0.15	2.30	ELX2DM102R35KT
		1200	30x50	0.15	2.71	ELX2DM122Q50KT
		1200	35x40	0.15	2.70	ELX2DM122R40KT
		1500	35x45	0.15	3.11	ELX2DM152R45KT
		1800	35x50	0.15	3.30	ELX2DM182R50KT
220		220	22x25	0.15	0.90	ELX2NM221O25KT
		270	22x30	0.15	1.05	ELX2NM271O30KT
		330	22x35	0.15	1.19	ELX2NM331O35KT
		330	25x25	0.15	1.16	ELX2NM331P25KT
		390	22x40	0.15	1.33	ELX2NM391O40KT
		390	25x30	0.15	1.29	ELX2NM391P30KT
		470	22x45	0.15	1.49	ELX2NM471O45KT
		470	25x35	0.15	1.48	ELX2NM471P35KT
		470	30x25	0.15	1.45	ELX2NM471Q25KT
		560	22x50	0.15	1.63	ELX2NM561O50KT
		560	25x40	0.15	1.71	ELX2NM561P40KT
		560	30x30	0.15	1.62	ELX2NM561Q30KT
	680	25x45	0.15	1.87	ELX2NM681P45KT	
	680	30x35	0.15	1.86	ELX2NM681Q35KT	
	820	25x50	0.15	2.10	ELX2NM821P50KT	
	820	30x40	0.15	2.12	ELX2NM821Q40KT	
	820	35x30	0.15	2.08	ELX2NM821R30KT	
	1000	30x50	0.15	2.48	ELX2NM102Q50KT	
	1000	35x40	0.15	2.46	ELX2NM102R40KT	
	1200	35x45	0.15	2.78	ELX2NM122R45KT	
	1500	35x50	0.15	3.00	ELX2NM152R50KT	
	250	180	22x25	0.15	0.82	ELX2EM181O25KT
220		22x30	0.15	0.95	ELX2EM221O30KT	
270		22x35	0.15	1.08	ELX2EM271O35KT	
270		25x25	0.15	1.05	ELX2EM271P25KT	
330		22x40	0.15	1.22	ELX2EM331O40KT	
330		25x30	0.15	1.19	ELX2EM331P30KT	
390		22x45	0.15	1.36	ELX2EM391O45KT	
390		25x35	0.15	1.35	ELX2EM391P35KT	
390		30x25	0.15	1.32	ELX2EM391Q25KT	
470		22x50	0.15	1.49	ELX2EM471O50KT	
470		25x40	0.15	1.52	ELX2EM471P40KT	
470		30x30	0.15	1.49	ELX2EM471Q30KT	
560		25x45	0.15	1.70	ELX2EM561P45KT	
560		30x35	0.15	1.69	ELX2EM561Q35KT	
680		25x50	0.15	1.91	ELX2EM681P50KT	
680		30x40	0.15	1.93	ELX2EM681Q40KT	
680		35x30	0.15	1.90	ELX2EM681R30KT	
820		30x45	0.15	2.19	ELX2EM821Q45KT	
820		35x35	0.15	2.13	ELX2EM821R35KT	
1000		35x40	0.15	2.46	ELX2EM102R40KT	
1200		35x50	0.15	2.86	ELX2EM122R50KT	
315		100	22x25	0.15	0.67	ELX2VM101O25KT
	120	22x30	0.15	0.77	ELX2VM121O30KT	
	120	25x25	0.15	0.76	ELX2VM121P25KT	
	150	22x35	0.15	0.88	ELX2VM151O35KT	
	150	25x30	0.15	0.88	ELX2VM151P30KT	
	180	22x40	0.15	0.99	ELX2VM181O40KT	
	180	25x30	0.15	0.96	ELX2VM181P30KT	
	180	30x25	0.15	0.98	ELX2VM181Q25KT	
350	220	22x45	0.15	1.12	ELX2VM221O45KT	
	220	25x35	0.15	1.11	ELX2VM221P35KT	
	220	30x30	0.15	1.11	ELX2VM221Q30KT	
	270	25x40	0.15	1.26	ELX2VM271P40KT	
	270	30x35	0.15	1.28	ELX2VM271Q35KT	
	330	25x45	0.15	1.40	ELX2VM331P45KT	
	330	30x35	0.15	1.42	ELX2VM331Q35KT	
	330	35x30	0.15	1.45	ELX2VM331R30KT	
	390	30x40	0.15	1.60	ELX2VM391Q40KT	
	390	35x35	0.15	1.61	ELX2VM391R35KT	
	470	30x50	0.15	1.86	ELX2VM471Q50KT	
	470	35x40	0.15	1.85	ELX2VM471R40KT	
	560	35x40	0.15	2.02	ELX2VM561R40KT	
	680	35x50	0.15	2.36	ELX2VM681R50KT	
	820	35x55	0.15	2.60	ELX2VM821R55KT	
	400	68	22x25	0.15	0.55	ELX2GM680O25KT
		82	22x30	0.15	0.63	ELX2GM820O30KT
		100	22x30	0.15	0.70	ELX2GM101O30KT
		100	25x25	0.15	0.70	ELX2GM101P25KT
		120	22x35	0.15	0.79	ELX2GM121O35KT
		120	25x30	0.15	0.79	ELX2GM121P30KT
		150	22x40	0.15	0.90	ELX2GM151O40KT
150		25x30	0.15	0.88	ELX2GM151P30KT	
150		30x25	0.15	0.90	ELX2GM151Q25KT	
180		22x45	0.15	0.99	ELX2GM181O45KT	
180		25x35	0.15	1.01	ELX2GM181P35KT	
180		30x30	0.15	1.01	ELX2GM181Q30KT	
220		25x40	0.15	1.14	ELX2GM221P40KT	
220		30x35	0.15	1.16	ELX2GM221Q35KT	
450		270	25x50	0.15	1.32	ELX2GM271P50KT
		270	30x40	0.15	1.33	ELX2GM271Q40KT
		270	35x30	0.15	1.31	ELX2GM271R30KT
		330	25x45	0.15	1.35	ELX2GM331P45KT
		330	30x45	0.15	1.52	ELX2GM331Q45KT
		330	35x35	0.15	1.48	ELX2GM331R35KT
		390	30x50	0.15	1.69	ELX2GM391Q50KT
		390	35x40	0.15	1.68	ELX2GM391R40KT
	470	35x45	0.15	1.91	ELX2GM471R45KT	
	560	35x50	0.15	2.14	ELX2GM561R50KT	
	450	56	22x25	0.20	0.50	ELX2TM560O25KT
		68	22x30	0.20	0.58	ELX2TM680O30KT
		82	22x30	0.20	0.63	ELX2TM820O30KT
		82	25x25	0.20	0.63	ELX2TM820P25KT
		100	22x35	0.20	0.72	ELX2TM101O35KT
		100	25x30	0.20	0.72	ELX2TM101P30KT
		120	22x40	0.20	0.81	ELX2TM121O40KT
		120	25x30	0.20	0.79	ELX2TM121P30KT
		120	30x25	0.20	0.80	ELX2TM121Q25KT
		150	22x45	0.20	0.92	ELX2TM151O45KT
		150	25x35	0.20	0.92	ELX2TM151P35KT
		150	30x30	0.20	0.92	ELX2TM151Q30KT
180		25x40	0.20	1.03	ELX2TM181P40KT	
180		30x35	0.20	1.05	ELX2TM181Q35KT	
220		25x50	0.20	1.19	ELX2TM221P50KT	
220		30x35	0.20	1.16	ELX2TM221Q35KT	
220		35x30	0.20	1.18	ELX2TM221R30KT	
270		30x45	0.20	1.38	ELX2TM271Q45KT	
270		35x35	0.20	1.34	ELX2TM271R35KT	
330		30x50	0.20	1.56	ELX2TM331Q50KT	
330		35x40	0.20	1.55	ELX2TM331R40KT	
390		35x45	0.20	1.74	ELX2TM391R45KT	
470	35x50	0.20	1.96	ELX2TM471R50KT		
450	47	22x25	0.20	0.46	ELX2WM470O25KT	
	56	22x30	0.20	0.52	ELX2WM560O30KT	
	68	22x30	0.20	0.58	ELX2WM680O30KT	
	68	25x25	0.20	0.58	ELX2WM680P25KT	
	82	22x35	0.20	0.65	ELX2WM820O35KT	
	82	25x30	0.20	0.65	ELX2WM820P30KT	
	100	22x40	0.20	0.74	ELX2WM101O40KT	
	100	25x30	0.20	0.72	ELX2WM101P30KT	
	100	30x25	0.20	0.73	ELX2WM101Q25KT	
	120	22x45	0.20	0.83	ELX2WM121O45KT	
	120	25x35	0.20	0.82	ELX2WM121P35KT	
	120	30x30	0.20	0.82	ELX2WM121Q30KT	
	150	25x40	0.20	0.94	ELX2WM151P40KT	
	150	30x35	0.20	0.96	ELX2WM151Q35KT	
	180	25x45	0.20	1.06	ELX2WM181P45KT	
	180	30x35	0.20	1.05	ELX2WM181Q35KT	
	180	35x30	0.20	1.07	ELX2WM181R30KT	
	220	30x40	0.20	1.20	ELX2WM221Q40KT	
	220	35x35	0.20	1.21	ELX2WM221R35KT	
	270	30x50	0.20	1.41	ELX2WM271Q50KT	
	270	35x40	0.20	1.40	ELX2WM271R40KT	
	330	35x45	0.20	1.60	ELX2WM331R45KT	
390	35x50	0.20	1.79	ELX2WM391R50KT		

WV (Vdc)	Cap (µF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number
200	680	25x40	0.15	1.83	ELX2DM681P40KT
	680	30x30	0.15	1.79	ELX2DM681Q30KT
	820	25x45	0.15	2.06	ELX2DM821P45KT
	820	30x35	0.15	2.04	ELX2DM821Q35KT
	1000	30x45	0.15		



# LB series

- High reliability. Extremely long life series
- Endurance with ripple current: 10,000 hours at 105°C
- RoHS Compliant

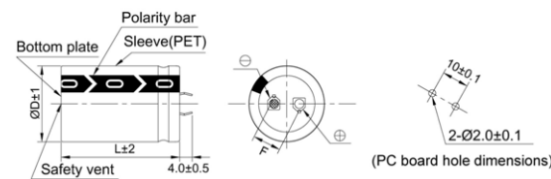


## SPECIFICATIONS

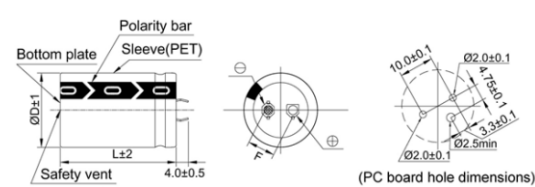
Items	Characteristics	
Category Temperature Range	-25~+105°C	
Rated Voltage Range	200~450V.DC	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
Leakage Current	I ≤ 3√CV Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	Rated Voltage (V <sub>dc</sub> )	200~400      420~450
	Dissipation Factor (Max.)	0.15      0.20 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (V <sub>dc</sub> )	200~250      315~450
	Z (-25°C)/Z (+20°C)	4      8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 10,000 hours at 105°C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	250% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.	
	Capacitance Change	±15% of the initial value
	Dissipation Factor	150% of the initial specified value
	Leakage Current	200% of the initial specified value

## DIMENSIONS [mm]

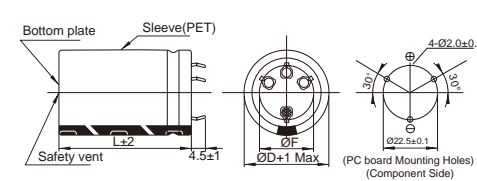
- Terminal Code : K ( 22 to 35) : Standard



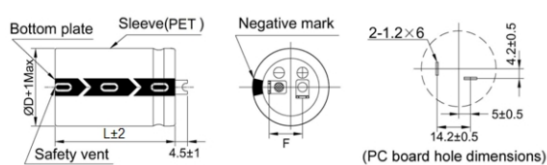
- Terminal Code : T ( 25 to 35) : Standard



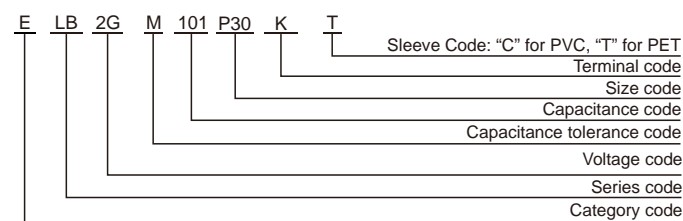
- Terminal Code : P ( 35 to 45) : Standard



- Terminal Code : L ( 35) : Standard



## PART NUMBERING SYSTEM



## RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current (Hz)

W.V	120	1k	10k	100k
200~250	1.00	1.32	1.45	1.50
400~450	1.00	1.30	1.41	1.43

# LB series

## STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
200	220	22x25	0.15	1.01	ELB2DM221O25KT	
	270	22x30	0.15	1.09	ELB2DM271O30KT	
	270	25x25	0.15	1.12	ELB2DM271P25KT	
	330	22x30	0.15	1.21	ELB2DM331O30KT	
	330	25x25	0.15	1.21	ELB2DM331P25KT	
	390	22x35	0.15	1.32	ELB2DM391O35KT	
	390	25x30	0.15	1.29	ELB2DM391P30KT	
	390	30x25	0.15	1.31	ELB2DM391Q25KT	
	470	22x40	0.15	1.41	ELB2DM471O40KT	
	470	25x35	0.15	1.42	ELB2DM471P35KT	
	470	30x30	0.15	1.40	ELB2DM471Q30KT	
	560	22x45	0.15	1.52	ELB2DM561O45KT	
	560	25x35	0.15	1.51	ELB2DM561P35KT	
	560	30x30	0.15	1.52	ELB2DM561Q30KT	
	680	25x40	0.15	1.72	ELB2DM681P40KT	
	680	30x35	0.15	1.71	ELB2DM681Q35KT	
	820	25x50	0.15	2.01	ELB2DM821P50KT	
	820	30x40	0.15	2.02	ELB2DM821Q40KT	
820	35x30	0.15	2.01	ELB2DM821R30KT		
1000	30x45	0.15	2.20	ELB2DM102Q45KT		
1000	35x35	0.15	2.21	ELB2DM102R35KT		
1200	30x50	0.15	2.32	ELB2DM122Q50KT		
1200	35x40	0.15	2.31	ELB2DM122R40KT		
1500	35x50	0.15	2.51	ELB2DM152R50KT		
250	180	22x30	0.15	0.91	ELB2EM181O30KT	
	180	25x25	0.15	0.90	ELB2EM181P25KT	
	220	22x30	0.15	1.01	ELB2EM221O30KT	
	220	25x25	0.15	1.00	ELB2EM221P25KT	
	270	22x35	0.15	1.11	ELB2EM271O35KT	
	270	25x30	0.15	1.10	ELB2EM271P30KT	
	270	30x25	0.15	1.12	ELB2EM271Q25KT	
	330	22x40	0.15	1.20	ELB2EM331O40KT	
	330	25x35	0.15	1.21	ELB2EM331P35KT	
	330	30x25	0.15	1.20	ELB2EM331Q25KT	
	390	22x45	0.15	1.30	ELB2EM391O45KT	
	390	25x35	0.15	1.32	ELB2EM391P35KT	
	390	30x30	0.15	1.33	ELB2EM391Q30KT	
	470	25x45	0.15	1.40	ELB2EM471P45KT	
	470	30x35	0.15	1.42	ELB2EM471Q35KT	
	470	35x30	0.15	1.40	ELB2EM471R30KT	
	560	25x50	0.15	1.51	ELB2EM561P50KT	
	560	30x35	0.15	1.50	ELB2EM561Q35KT	
	560	35x30	0.15	1.52	ELB2EM561R30KT	
	680	30x45	0.15	1.72	ELB2EM681Q45KT	
	680	35x35	0.15	1.71	ELB2EM681R35KT	
	820	30x50	0.15	2.01	ELB2EM821Q50KT	
	820	35x40	0.15	2.01	ELB2EM821R40KT	
	1000	35x45	0.15	2.22	ELB2EM102R45KT	
1200	35x50	0.15	2.32	ELB2EM122R50KT		
400	56	22x25	0.15	0.51	ELB2GM560O25KT	
	68	22x30	0.15	0.55	ELB2GM680O30KT	
	68	25x25	0.15	0.56	ELB2GM680P25KT	
	82	22x35	0.15	0.64	ELB2GM820O35KT	
	82	25x25	0.15	0.65	ELB2GM820P25KT	
	100	22x35	0.15	0.70	ELB2GM101O35KT	
	100	25x30	0.15	0.69	ELB2GM101P30KT	
	120	22x40	0.15	0.75	ELB2GM121O40KT	
	120	25x35	0.15	0.76	ELB2GM121P35KT	
	120	30x25	0.15	0.75	ELB2GM121Q25KT	
	150	22x50	0.15	0.82	ELB2GM151O50KT	
	150	25x40	0.15	0.83	ELB2GM151P40KT	
	450	39	22x25	0.20	0.37	ELB2WM390O25KT
		47	22x30	0.20	0.40	ELB2WM470O30KT
		56	22x35	0.20	0.47	ELB2WM560O35KT
56		25x25	0.20	0.48	ELB2WM560P25KT	
68		22x40	0.20	0.53	ELB2WM680O40KT	
68		25x30	0.20	0.53	ELB2WM680P30KT	
82		22x45	0.20	0.56	ELB2WM820O45KT	
82		25x35	0.20	0.56	ELB2WM820P35KT	
82		30x25	0.20	0.56	ELB2WM820Q25KT	
100		22x50	0.20	0.64	ELB2WM101O50KT	
100		25x40	0.20	0.64	ELB2WM101P40KT	
100		30x30	0.20	0.64	ELB2WM101Q30KT	
120		25x45	0.20	0.72	ELB2WM121P45KT	
120		30x30	0.20	0.72	ELB2WM121Q30KT	
150		25x50	0.20	0.79	ELB2WM151P50KT	
150		30x40	0.20	0.79	ELB2WM151Q40KT	
150		35x30	0.20	0.78	ELB2WM151R30KT	
180		30x45	0.20	0.87	ELB2WM181Q45KT	
180	35x35	0.20	0.87	ELB2WM181R35KT		
220	30x50	0.20	1.00	ELB2WM221Q50KT		
220	35x40	0.20	1.01	ELB2WM221R40KT		
270	35x45	0.20	1.19	ELB2WM271R45KT		
330	35x50	0.20	1.38	ELB2WM331R50KT		

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	Rated ripple current (Arms/105°C, 120Hz)	Part Number	
400	150	30x30	0.15	0.82	ELB2GM151Q30KT	
	180	25x45	0.15	0.90	ELB2GM181P45KT	
	180	30x35	0.15	0.91	ELB2GM181Q35KT	
	180	35x25	0.15	0.90	ELB2GM181R25KT	
	220	25x50	0.15	1.01	ELB2GM221P50KT	
	220	30x40	0.15	1.02	ELB2GM221Q40KT	
	220	35x30	0.15	1.00	ELB2GM221R30KT	
	270	30x45	0.15	1.10	ELB2GM271Q45KT	
	270	35x35	0.15	1.10	ELB2GM271R35KT	
	330	30x50	0.15	1.20	ELB2GM331Q50KT	
	330	35x40	0.15	1.21	ELB2GM331R40KT	
	390	35x45	0.15	1.29	ELB2GM391R45KT	
	470	35x50	0.15	1.35	ELB2GM471R50KT	
	450	39	22x25	0.20	0.37	ELB2WM390O25KT
		47	22x30	0.20	0.40	ELB2WM470O30KT
		56	22x35	0.20	0.47	ELB2WM560O35KT
		56	25x25	0.20	0.48	ELB2WM560P25KT
		68	22x40	0.20	0.53	ELB2WM680O40KT
68		25x30	0.20	0.53	ELB2WM680P30KT	
82		22x45	0.20	0.56	ELB2WM820O45KT	
82		25x35	0.20	0.56	ELB2WM820P35KT	
82		30x25	0.20	0.56	ELB2WM820Q25KT	
100		22x50	0.20	0.64	ELB2WM101O50KT	
100		25x40	0.20	0.64	ELB2WM101P40KT	
100		30x30	0.20	0.64	ELB2WM101Q30KT	
120		25x45	0.20	0.72	ELB2WM121P45KT	
120		30x30	0.20	0.72	ELB2WM121Q30KT	
150		25x50	0.20	0.79	ELB2WM151P50KT	
150		30x40	0.20	0.79	ELB2WM151Q40KT	
150		35x30	0.20	0.78	ELB2WM151R30KT	
180		30x45	0.20	0.87	ELB2WM181Q45KT	
180	35x35	0.20	0.87	ELB2WM181R35KT		
220	30x50	0.20	1.00	ELB2WM221Q50KT		
220	35x40	0.20	1.01	ELB2WM221R40KT		
270	35x45	0.20	1.19	ELB2WM271R45KT		
330	35x50	0.20	1.38	ELB2WM331R50KT		

Specifications subject to change without notice.



# NR series

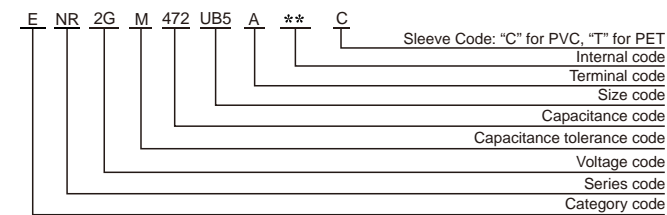
- Endurance with ripple current: 2,000 hours at 85°C
- Applications Uninterruptible power supplies and Frequency converters
- Detail specification: IEC 60384-4
- RoHS Compliant



■ SPECIFICATIONS

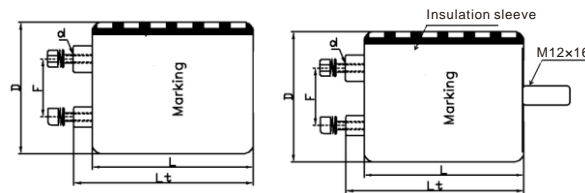
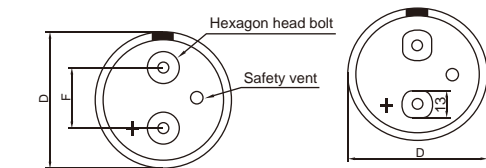
Items	Characteristics
Category Temperature Range	-25~+85°C
Rated Voltage Range	350~550 V <sub>dc</sub>
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. (at 20°C after 5 minutes) Where, I: Max.leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V)
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 2,000 hours at 85°C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
	Leakage Current The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value
	Leakage Current 200% of the initial specified value

■ PART NUMBERING SYSTEM



Terminal code	Internal code	Specification
A	0 0	Ring clip mounting Standard design
B	0 0	threaded stud Standard design
S	0 0	Ring clip mounting Special design
T	0 0	threaded stud Special design

■ DIMENSIONS(Screw-Mount)[mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max

■ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency coefficient factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4

# NR series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/85°C,120Hz)	Part Number	
350	1000	51.6×65	0.20	82	123	3.6	ENR2VM102S65*00C	
	2200	51.6×105	0.20	51	77	7.6	ENR2VM222SA5*00C	
	2700	64.3×96	0.20	46	68	8.9	ENR2VM272T96*00C	
	3300	64.3×105	0.20	35	52	10.0	ENR2VM332TA5*00C	
	3900	64.3×115	0.20	31	46	11.4	ENR2VM392TB5*00C	
	4700	76.9×105	0.20	28	42	13.5	ENR2VM472UA5*00C	
	5600	76.9×115	0.20	24	35	15.4	ENR2VM562UB5*00C	
	6800	76.9×143	0.20	21	31	17.3	ENR2VM682UE3*00C	
	8200	76.9×168	0.20	18	27	19.8	ENR2VM822UG*00C	
	10000	91×157	0.20	15	22	23.7	ENR2VM103VF7*00C	
	12000	91×168	0.20	13	19	24.3	ENR2VM123VG8*00C	
	15000	91×196	0.20	11	16	29.2	ENR2VM153VJ6*00C	
	400	1000	51.6×65	0.20	88	131	3.7	ENR2GM102S65*00C
		2200	51.6×115	0.20	58	87	7.5	ENR2GM222SB5*00C
		2700	64.3×96	0.20	47	71	9.0	ENR2GM272T96*00C
3300		64.3×115	0.20	39	58	10.6	ENR2GM332TB5*00C	
3900		64.3×130	0.20	33	49	12.5	ENR2GM392TD0*00C	
3900		64.3×115	0.20	34	50	12.0	ENR2GM392TB5*00C	
4700		76.9×115	0.20	30	45	14.1	ENR2GM472UB5*00C	
4700		76.9×113	0.20	30	45	14.0	ENR2GM472UB3*00C	
4700		76.9×105	0.20	32	47	13.5	ENR2GM472UA5*00C	
4700		64.3×130	0.20	34	49	13.0	ENR2GM472TD0*00C	
5600		76.9×130	0.20	26	39	16.8	ENR2GM562UD0*00C	
5600		76.9×115	0.20	27	40	16.5	ENR2GM562UB5*00C	
6800		76.9×130	0.20	26	37	17.0	ENR2GM682UD0*00C	
6800		76.9×143	0.20	25	36	17.4	ENR2GM682UE3*00C	
6800		76.9×155	0.20	24	35	17.6	ENR2GM682UF5*00C	
8200		76.9×155	0.20	20	30	20.5	ENR2GM822UF5*00C	
8200		91×157	0.20	19	29	21.5	ENR2GM822VF7*00C	
10000		91×157	0.20	17	26	22.8	ENR2GM103VF7*00C	
10000		91×155	0.20	17	27	22.0	ENR2GM103VF5*00C	
10000		91×130	0.20	18	28	21.3	ENR2GM103VD0*00C	
12000		91×157	0.20	17	25	24.5	ENR2GM123VJ6*00C	
12000		91×196	0.20	15	22	26.6	ENR2GM123VJ6*00C	
15000		91×220	0.20	13	18	27.4	ENR2GM153VM0*00C	
15000		91×196	0.20	14	19	26.0	ENR2GM153VJ6*00C	
450	1800	51.6×130	0.20	68	102	6.5	ENR2WM182SD0*00C	
	2200	64.3×96	0.20	56	83	7.8	ENR2WM222T96*00C	
	2700	64.3×115	0.20	45	68	8.8	ENR2WM272TB5*00C	
	3300	64.3×130	0.20	37	55	10.7	ENR2WM332TD0*00C	
	3900	76.9×115	0.20	31	46	12.0	ENR2WM392UB5*00C	
	3900	64.3×130	0.20	33	47	11.5	ENR2WM392TD0*00C	
	4700	76.9×130	0.20	27	41	14.1	ENR2WM472UD0*00C	
	4700	76.9×115	0.20	28	42	14.0	ENR2WM472UB5*00C	
	5600	76.9×155	0.20	25	38	16.0	ENR2WM562UF5*00C	
	5600	76.9×130	0.20	26	39	15.5	ENR2WM562UD0*00C	
	6800	76.9×155	0.20	21	31	18.5	ENR2WM682UF5*00C	
	6800	76.9×143	0.20	22	32	18.0	ENR2WM682UE3*00C	
	8200	91×157	0.20	17	28	19.1	ENR2WM822VF7*00C	
	8200	76.9×155	0.20	18	30	19.0	ENR2WM822UF5*00C	

## NR series

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/85°C, 120Hz)	Part Number
450	10000	91×196	0.20	13	25	21.2	ENR2WM103VJ6*00C
	10000	91×157	0.20	14	26	21.0	ENR2WM103VF5*00C
	12000	91×220	0.20	11	22	23.7	ENR2WM123VM0*00C
500	2200	64.3×115	0.25	54	80	7.3	ENR2HM222TB5*00C
	2700	64.3×130	0.25	43	64	8.5	ENR2HM272TD0*00C
	3300	76.9×115	0.25	36	53	10.0	ENR2HM332UB5*00C
	3900	76.9×130	0.25	30	47	11.4	ENR2HM392UD0*00C
	4700	76.9×155	0.25	27	40	13.3	ENR2HM472UF5*00C
	5600	91×157	0.25	25	38	14.8	ENR2HM562VF7*00C
	8200	91×196	0.25	16	26	18.1	ENR2HM822VJ6*00C
	10000	91×220	0.25	15	24	22.2	ENR2HM103VM0*00V
550	1500	64.3×115	0.30	60	95	7.0	ENR2JM152TB5*00C
	2200	76.9×105	0.30	52	78	8.1	ENR2JM222UA5*00C
	2700	76.9×115	0.30	42	62	9.0	ENR2JM272UB5*00C
	3300	76.9×130	0.30	35	51	10.5	ENR2JM332UD0*00C
	3900	76.9×155	0.30	29	45	11.0	ENR2JM392UF5*00C
	4700	91×157	0.30	26	38	12.9	ENR2JM472VF7*00C

Specifications subject to change without notice.

## NS series

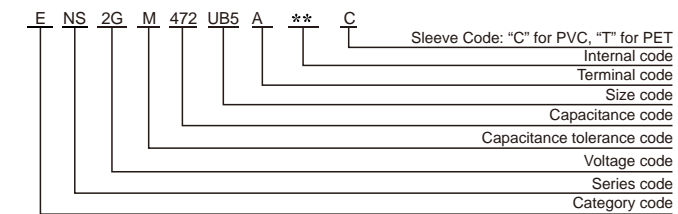
- Endurance with ripple current: 2,000 hours at 105°C
- Applications: Uninterruptible power supplies and frequency converters
- Detail specification: IEC 60384-4
- RoHS Compliant



■ SPECIFICATIONS

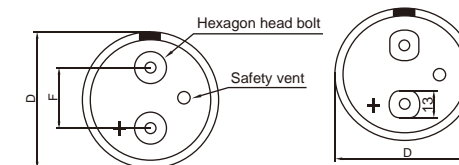
Items	Characteristics	
Category Temperature Range	-25~+105°C	
Rated Voltage Range	350~450 V <sub>dc</sub>	
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)	
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 2,000 hours at 105°C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	Leakage Current	200% of the initial specified value

■ PART NUMBERING SYSTEM

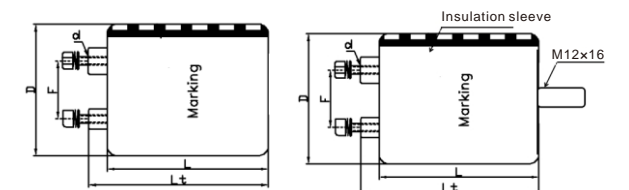


Terminal code	Internal code	Specification
A	00	Ring clip mounting Standard design
B	00	threaded stud Standard design
S	00	Ring clip mounting Special design
T	00	threaded stud Special design

■ DIMENSIONS(Screw-Mount)[mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max



■ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency coefficient factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4

NS series

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/105°C, 120Hz)	Part Number
350	1000	51.6×80	0.20	108	157	2.60	ENS2VM102S80*00C
	1500	51.6×80	0.20	79	116	3.20	ENS2VM152S80*00C
	2200	51.6×96	0.20	57	81	4.20	ENS2VM222S96*00C
	3300	64.3×105	0.20	43	59	5.10	ENS2VM332TA5*00C
	3900	64.3×115	0.20	39	54	6.70	ENS2VM392TB5*00C
	4700	64.3×143	0.20	35	48	7.20	ENS2VM472TE3*00C
	5600	76.9×130	0.20	30	40	8.50	ENS2VM562UD0*00C
	6800	76.9×143	0.20	27	36	10.0	ENS2VM682UE3*00C
	8200	76.9×168	0.20	23	31	11.7	ENS2VM822UG8*00C
	10000	76.9×196	0.20	19	28	14.3	ENS2VM103UJ6*00C
	12000	76.9×220	0.20	17	25	16.8	ENS2VM123UM0*00C
	15000	91×196	0.20	16	24	18.3	ENS2VM153VJ6*00C
400	1000	51.6×80	0.20	109	158	3.00	ENS2GM102S80*00C
	1500	51.6×96	0.20	75	107	3.70	ENS2GM152S96*00C
	2200	64.3×105	0.20	35	76	4.60	ENS2GM222TA5*00C
	3300	64.3×130	0.20	31	53	6.40	ENS2GM332TD0*00C
	3300	64.3×115	0.20	32	54	6.0	ENS2GM332TB5*00C
	3900	76.9×115	0.20	28	46	7.90	ENS2GM392UB5*00C
	3900	64.3×130	0.20	29	47	7.50	ENS2GM392TD0*00C
	4700	76.9×130	0.20	23	40	8.50	ENS2GM472UD0*00C
	4700	76.9×115	0.20	24	41	8.00	ENS2GM472UB5*00C
	5600	76.9×143	0.20	21	36	9.80	ENS2GM562UE3*00C
	5600	76.9×130	0.20	22	37	9.50	ENS2GM562UD0*00C
	6800	76.9×168	0.20	14	31	10.5	ENS2GM682UG8*00C
	6800	76.9×155	0.20	15	32	10.2	ENS2GM682UF5*00C
	8200	76.9×155	0.20	14	30	13.3	ENS2GM822UF5*00C
	10000	76.9×220	0.20	12	25	17.5	ENS2GM103UM0*00C
	10000	91×157	0.20	12	25	17.5	ENS2GM103VF7*00C
	12000	91×196	0.20	11	23	21.3	ENS2GM123VJ6*00C
	450	1000	51.6×105	0.20	95	153	4.30
1500		51.6×115	0.20	63	102	5.80	ENS2WM152SB5*00C
2200		64.3×115	0.20	43	75	7.30	ENS2WM222TB5*00C
3300		76.9×100	0.20	27	51	10.1	ENS2WM332UA0*00C
3900		76.9×115	0.20	23	45	10.9	ENS2WM392UB5*00C
4700		76.9×130	0.20	20	40	12.7	ENS2WM472UD0*00C
5600		76.9×143	0.20	17	36	15.9	ENS2WM562UE3*00C
6800		76.9×155	0.20	14	32	16.4	ENS2WM682UF5*00C
8200		91×157	0.20	11	24	17.0	ENS2WM822VF7*00C
10000		91×220	0.20	9	21	18.8	ENS2WM103VM0*00C

Specifications subject to change without notice.

NX series

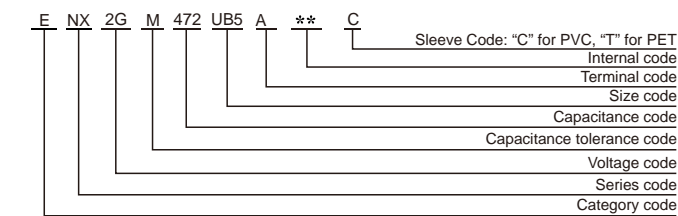
- Endurance with ripple current: 5,000 hours at 85°C
- Applications: Professional power supplies, solar and wind generator and frequency converters
- Detail specification: IEC 60384-4
- RoHS Compliant



SPECIFICATIONS

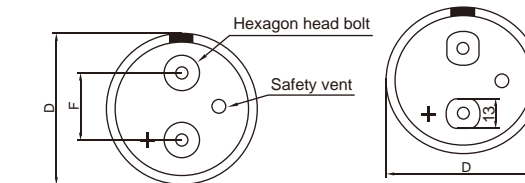
Items	Characteristics
Category Temperature Range	-25~+85°C
Rated Voltage Range	350~500 V <sub>dc</sub>
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 5,000 hours at 85°C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value

PART NUMBERING SYSTEM

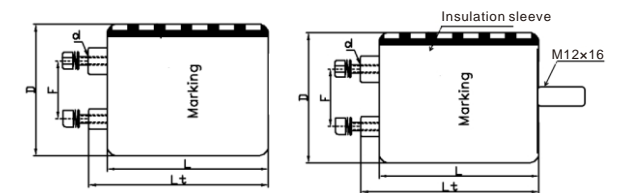


Terminal code	Internal code	Specification
A	00	Ring clip mounting Standard design
B	00	threaded stud Standard design
S	00	Ring clip mounting Special design
T	00	threaded stud Special design

DIMENSIONS(Screw-Mount)[mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max



RATED RIPPLE CURRENT MULTIPLIERS

- Frequency correction factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4



**NX series**

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/85°C,120Hz)	Part Number
350	1500	51.6×80	0.20	86	130	6.0	ENX2VM152S80*00C
	2200	51.6×105	0.20	59	89	7.9	ENX2VM222SA5*00C
	2700	64.3×96	0.20	47	70	9.3	ENX2VM272T96*00C
	3300	64.3×105	0.20	39	58	10.9	ENX2VM332TA5*00C
	3900	64.3×115	0.20	33	49	12.3	ENX2VM392TB5*00C
	4700	64.3×130	0.20	29	45	14.2	ENX2VM472TD0*00C
	5600	76.9×115	0.20	26	39	16.6	ENX2VM562UB5*00C
	6800	76.9×130	0.20	21	32	19.0	ENX2VM682UD0*00C
	8200	76.9×155	0.20	18	26	22.3	ENX2VM822UF5*00C
	10000	91×157	0.20	14	19	25.2	ENX2VM103VF7*00C
12000	91×168	0.20	12	17	29.3	ENX2VM123VG8*00C	
400	1000	51.6×75	0.20	92	153	4.7	ENX2GM102S75*00C
	1500	51.6×80	0.20	63	113	6.1	ENX2GM152S80*00C
	2200	51.6×115	0.20	41	85	8.9	ENX2GM222SB5*00C
	2700	64.3×96	0.20	31	69	10.3	ENX2GM272T96*00C
	3300	64.3×115	0.20	28	58	11.3	ENX2GM332TB5*00C
	3900	64.3×130	0.20	25	49	13.0	ENX2GM392TD0*00C
	4700	64.3×143	0.20	22	40	15.4	ENX2GM472TE3*00C
	5600	64.3×155	0.20	21	35	18.3	ENX2GM562TF5*00C
	6800	76.9×155	0.20	19	30	20.4	ENX2GM682UF5*00C
	8200	76.9×168	0.20	15	26	22.8	ENX2GM822UG8*00C
10000	91×157	0.20	13	21	26.9	ENX2GM103VF7*00C	
12000	91×196	0.20	10	18	30.5	ENX2GM123VJ6*00C	
450	1000	51.6×80	0.20	115	169	5.0	ENX2WM102S80*00C
	1500	51.6×105	0.20	75	112	6.5	ENX2WM152SA5*00C
	2200	64.3×105	0.20	58	90	8.9	ENX2WM222TA5*00C
	2700	64.3×115	0.20	39	74	10.3	ENX2WM272TB5*00C
	3300	64.3×130	0.20	28	58	12.0	ENX2WM332TD0*00C
	3900	76.9×115	0.20	23	48	13.9	ENX2WM392UB5*00C
	4700	76.9×130	0.20	20	39	16.0	ENX2WM472UD0*00C
	5600	76.9×155	0.20	16	36	18.5	ENX2WM562UF5*00C
	6800	76.9×168	0.20	14	30	20.8	ENX2WM682UG8*00C
	8200	91×157	0.20	13	25	24.5	ENX2WM822VF7*00C
10000	91×196	0.20	11	22	28.0	ENX2WM103VJ6*00C	
500	1000	51.6×105	0.25	110	165	4.9	ENX2HM102SA5*00C
	1500	64.3×105	0.25	74	110	7.8	ENX2HM152TA5*00C
	2200	64.3×130	0.25	56	88	10.0	ENX2HM222TD0*00C
	2700	64.3×143	0.25	48	72	11.6	ENX2HM272TE3*00C
	3300	76.9×130	0.25	37	56	13.1	ENX2HM332UD0*00C
	3900	76.9×155	0.25	32	46	14.5	ENX2HM392UF5*00C
4700	76.9×168	0.25	25	38	16.6	ENX2HM472UG8*00C	

Specifications subject to change without notice.

**NL series**

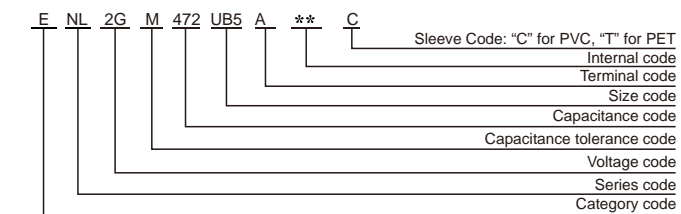
- Endurance with ripple current: 12,000 hours at 85°C
- Applications: Professional power supplies, solar and wind generator and frequency converters
- Detail specification: IEC 60384-4
- RoHS Compliant



■ SPECIFICATIONS

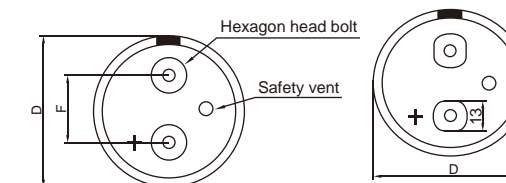
Items	Characteristics	
Category Temperature Range	-25~+85°C	
Rated Voltage Range	350~450 V <sub>dc</sub>	
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)	
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 12,000 hours at 85°C.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	200% of the initial specified value
	Leakage Current	The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.	
	Capacitance Change	±20% of the initial value
	Dissipation Factor	150% of the initial specified value
	Leakage current	200% of the initial specified value

■ PART NUMBERING SYSTEM

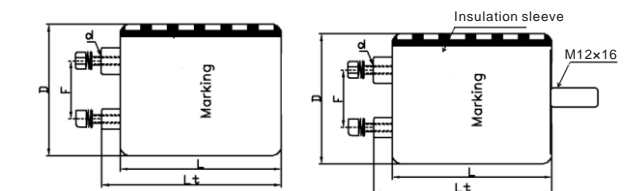


Terminal code	Internal code	Specification
A	00	Ring clip mounting Standard design
B	00	threaded stud Standard design
S	00	Ring clip mounting Special design
T	00	threaded stud Special design

■ DIMENSIONS(Screw-Mount)[mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max



■ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency correction factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4

**NL series**

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/85°C,120Hz)	Part Number
350	1500	51.6×80	0.20	57	98	6.0	ENL2VM152S80*00C
	2200	51.6×105	0.20	45	78	7.8	ENL2VM222SA5*00C
	3300	64.3×115	0.20	36	53	10.5	ENL2VM332TB5*00C
	3900	64.3×130	0.20	32	47	12.6	ENL2VM392TD0*00C
	4700	76.9×105	0.20	30	43	14.0	ENL2VM472UA5*00C
	5600	76.9×115	0.20	27	37	15.5	ENL2VM562UB5*00C
	6800	76.9×130	0.20	23	34	18.1	ENL2VM682UD0*00C
	8200	76.9×155	0.20	20	28	21.5	ENL2VM822UF5*00C
	10000	91×157	0.20	16	24	24.6	ENL2VM103VF7*00C
	12000	91×196	0.20	14	22	29.0	ENL2VM123VJ6*00C
15000	91×220	0.20	11	18	34.1	ENL2VM153VM0*00C	
400	1500	51.6×80	0.20	58	89	6.1	ENL2GM152S80*00C
	1800	51.6×108	0.20	56	87	7.0	ENL2GM182SA8*00C
	2200	51.6×115	0.20	56	81	8.2	ENL2GM222SB5*00C
	2600	64.3×108	0.20	54	79	8.5	ENL2GM262TA8*00C
	3300	64.3×130	0.20	37	55	11.6	ENL2GM332TD0*00C
	3800	76.9×105	0.20	36	54	13.6	ENL2GM332UA5*00C
	3900	64.3×155	0.20	29	49	15.5	ENL2GM392TF5*00C
	4700	76.9×115	0.20	26	43	19.4	ENL2GM472UB5*00C
	5600	76.9×130	0.20	25	40	21.3	ENL2GM562UD0*00C
	6800	76.9×155	0.20	20	34	23.4	ENL2GM682UF5*00C
	8200	91×157	0.20	19	29	24.2	ENL2GM822VF7*00C
	10000	91×168	0.20	13	23	30.3	ENL2GM103VG8*00C
12000	91×196	0.20	11	19	35.5	ENL2GM123VJ6*00C	
450	1500	51.6×115	0.20	56	97	7.1	ENL2WM152SB5*00C
	2200	64.3×115	0.20	43	65	10.5	ENL2WM222TB5*00C
	3300	64.3×143	0.20	33	49	14.8	ENL2WM332TE3*00C
	3900	64.3×155	0.20	29	41	16.5	ENL2WM392TF5*00C
	4700	76.9×143	0.20	22	39	19.8	ENL2WM472UE3*00C
	5600	76.9×168	0.20	20	35	21.9	ENL2WM562UG8*00C
	6800	76.9×196	0.20	18	30	26.4	ENL2WM682UJ6*00C
	8200	91×168	0.20	16	24	29.6	ENL2WM822VG8*00C
	10000	91×196	0.20	15	21	31.8	ENL2WM103VJ6*00C

Specifications subject to change without notice.

**NE series**

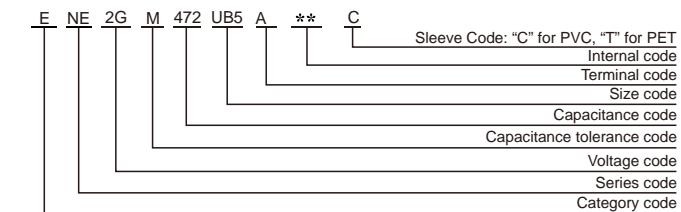
- Endurance with ripple current: 20,000 hours d at 85°C
- Applications: Professional power supplies, solar and wind generator and frequency converters
- Detail specification: IEC 60384-4
- RoHS Compliant



■ SPECIFICATIONS

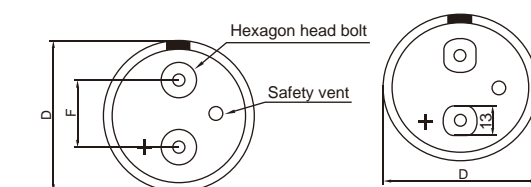
Items	Characteristics
Category Temperature Range	-25~+85°C
Rated Voltage Range	350~450 V <sub>dc</sub>
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 20,000 hours at 85°C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value

■ PART NUMBERING SYSTEM

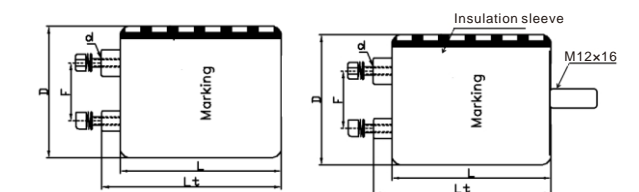


Terminal code	Internal code	Specification
A	0 0	Ring clip mounting Standard design
B	0 0	threaded stud Standard design
S	0 0	Ring clip mounting Special design
T	0 0	threaded stud Special design

■ DIMENSIONS(Screw-Mount)[mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max



■ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency correction factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4

NE series

STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/85°C, 120Hz)	Part Number
350	1500	51.6×96	0.20	67	98	5.4	ENE2VM152S96*00C
	2200	51.6×130	0.20	53	78	7.3	ENE2VM222SD0*00C
	3300	64.3×115	0.20	36	53	11.3	ENE2VM332TB5*00C
	3900	64.3×130	0.20	32	47	13.0	ENE2VM392TD0*00C
	4700	64.3×155	0.20	29	43	15.1	ENE2VM472TF5*00C
	5600	76.9×130	0.20	26	37	17.0	ENE2VM562UD0*00C
	6800	76.9×155	0.20	23	34	20.4	ENE2VM682UF5*00C
	8200	76.9×168	0.20	19	28	23.2	ENE2VM822UG8*00C
	10000	76.9×220	0.20	16	24	26.9	ENE2VM103UM0*00C
	12000	91×196	0.20	14	22	30.3	ENE2VM123VJ6*00C
15000	91×220	0.20	11	18	32.1	ENE2VM153VM0*00C	
400	1500	51.6×105	0.20	71	101	5.9	ENE2GM152SA5*00C
	2200	51.6×130	0.20	56	81	7.2	ENE2GM222SD0*00C
	3300	64.3×130	0.20	37	55	11.9	ENE2GM332TD0*00C
	3900	76.9×115	0.20	34	49	14.1	ENE2GM392UB5*00C
	3900	64.3×130	0.20	36	50	14.0	ENE2GM392TD0*00C
	4700	76.9×130	0.20	29	43	15.7	ENE2GM472UD0*00C
	4700	76.9×115	0.20	30	44	15.5	ENE2GM472UB5*00C
	5600	76.9×155	0.20	27	40	18.3	ENE2GM562UF5*00C
	5600	76.9×130	0.20	28	41	18.0	ENE2GM562UD0*00C
	6800	76.9×155	0.20	22	34	21.1	ENE2GM682UF5*00C
	8200	91×157	0.20	19	29	24.3	ENE2GM822VF7*00C
	10000	91×196	0.20	16	23	27.2	ENE2GM103VJ6*00C
12000	91×220	0.20	14	19	30.2	ENE2GM123VM0*00C	
450	1500	51.6×130	0.20	74	108	5.9	ENE2WM152SD0*00C
	2200	64.3×115	0.20	49	78	9.2	ENE2WM222TB5*00C
	3300	64.3×155	0.20	38	49	12.8	ENE2WM332TF5*00C
	3900	64.3×168	0.20	32	41	14.4	ENE2WM392TG8*00C
	4700	76.9×155	0.20	27	39	16.8	ENE2WM472UF5*00C
	5600	76.9×155	0.20	24	35	20.3	ENE2WM562UJ6*00C
	6800	91×157	0.20	21	30	23.1	ENE2WM682VF7*00C
	8200	91×196	0.20	18	26	26.6	ENE2WM822VJ6*00C
10000	91×220	0.20	15	21	27.8	ENE2WM103VM0*00C	

Specifications subject to change without notice.

NT series

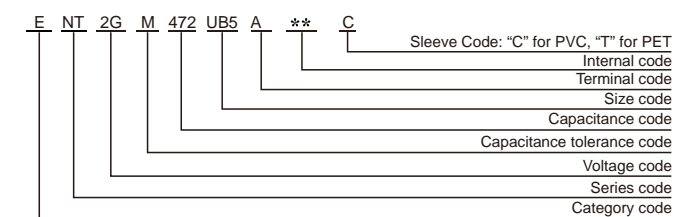
- Endurance with ripple current: 3,000 hours at 105°C
- Applications: Uninterruptible power supplies and frequency converters
- Detail specification: IEC 60384-4
- RoHS Compliant



SPECIFICATIONS

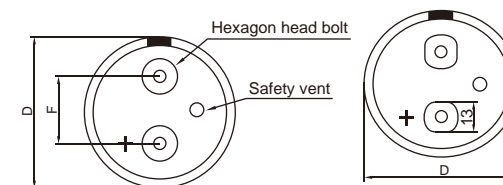
Items	Characteristics
Category Temperature Range	-25~+105°C
Rated Voltage Range	350~450 V <sub>dc</sub>
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 3,000 hours at 105°C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value

PART NUMBERING SYSTEM

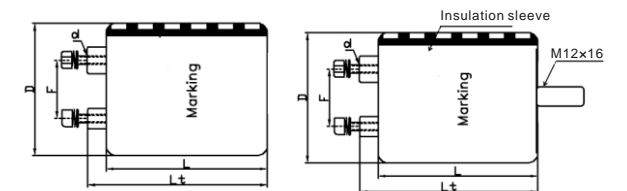


Terminal code	Internal code	Specification
A	00	Ring clip mounting Standard design
B	00	threaded stud Standard design
S	00	Ring clip mounting Special design
T	00	threaded stud Special design

DIMENSIONS(Screw-Mount)[mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max



RATED RIPPLE CURRENT MULTIPLIERS

- Frequency correction factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4



# NT series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/105°C,120Hz)	Part Number
350	1000	51.6x80	0.20	108	157	2.4	ENT2VM102S80*00C
	1500	51.6x80	0.20	79	116	3.0	ENT2VM152S80*00C
	2200	51.6x96	0.20	57	81	4.1	ENT2VM222S96*00C
	3300	64.3x105	0.20	43	59	4.8	ENT2VM332TA5*00C
	3900	64.3x115	0.20	39	54	6.5	ENT2VM392TB5*00C
	4700	64.3x130	0.20	35	48	7.0	ENT2VM472TD0*00C
	5600	76.9x130	0.20	30	40	8.5	ENT2VM562UD0*00C
	6800	76.9x143	0.20	27	36	10.0	ENT2VM682UE3*00C
	8200	76.9x168	0.20	23	31	11.4	ENT2VM822UG8*00C
	10000	91x170	0.20	19	28	14.1	ENT2VM103VH0*00C
12000	91x220	0.20	17	25	16.2	ENT2VM123VM0*00C	
400	1000	51.6x80	0.20	109	158	3.0	ENT2GM102S80*00C
	1500	51.6x96	0.20	75	107	3.7	ENT2GM152S96*00C
	2200	64.3x105	0.20	35	76	4.6	ENT2GM222TA5*00C
	3300	64.3x130	0.20	31	53	6.4	ENT2GM332TD0*00C
	3900	76.9x115	0.20	28	46	7.9	ENT2GM392UB5*00C
	4700	76.9x130	0.20	23	40	8.0	ENT2GM472UD0*00C
	5600	76.9x143	0.20	21	36	9.8	ENT2GM562UE3*00C
	6800	76.9x155	0.20	14	31	10.5	ENT2GM682UF5*00C
	8200	91x155	0.20	12	30	13.3	ENT2GM822VF5*00C
	10000	91x170	0.20	11	23	18.0	ENT2GM103VH0*00C
12000	91x196	0.20	10	21	22.6	ENT2GM123VJ6*00C	
450	1000	51.6x105	0.20	95	153	4.3	ENT2WM102SA5*00C
	1500	51.6x115	0.20	63	102	5.8	ENT2WM152SB5*00C
	2200	64.3x115	0.20	40	70	7.6	ENT2WM222TB5*00C
	3300	76.9x115	0.20	25	48	10.5	ENT2WM332UB5*00C
	3900	76.9x130	0.20	22	42	11.3	ENT2WM392UD0*00C
	4700	76.9x155	0.20	20	40	12.7	ENT2WM472UF5*00C
	5600	91x130	0.20	17	36	16.0	ENT2WM562VD0*00C
	6800	91x155	0.20	14	32	16.9	ENT2WM682VF5*00C
	8200	91x196	0.20	10	22	17.5	ENT2WM822VJ6*00C
	10000	91x220	0.20	8	20	18.1	ENT2WM103VM0*00C

Specifications subject to change without notice.

# NF series

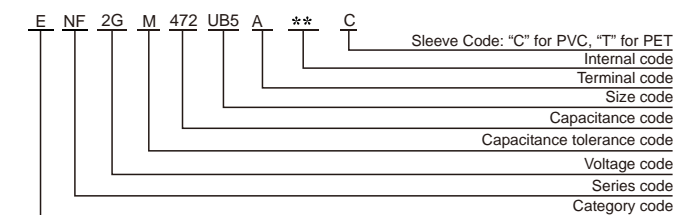
- Endurance with ripple current: 5,000 hours at 105°C
- Applications: professional power supplies, frequency converters and traction
- Detail specification: IEC 60384-4
- RoHS Compliant



SPECIFICATIONS

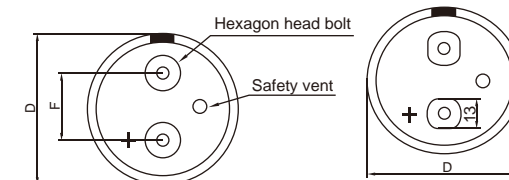
Items	Characteristics
Category Temperature Range	-25~+105°C
Rated Voltage Range	350~450 V <sub>dc</sub>
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)
Dissipation Factor (tan δ)	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 5,000 hours at 105°C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value

PART NUMBERING SYSTEM

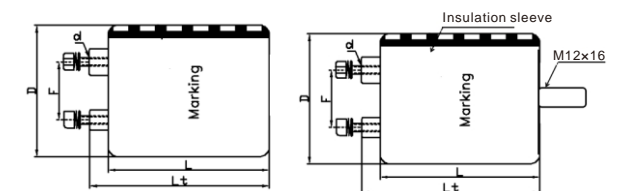


Terminal code	Internal code	Specification
A	00	Ring clip mounting Standard design
B	00	threaded stud Standard design
S	00	Ring clip mounting Special design
T	00	threaded stud Special design

DIMENSIONS [mm]



D	51.6	64.3	76.9	91
F	22.2	28.5	31.7	31.7
d	M5	M5	M6orM5	M6orM5
L	L+3Max			
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max



RATED RIPPLE CURRENT MULTIPLIERS

- Frequency correction factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4

**NF series**

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/105°C,120Hz)	Part Number
350	1000	51.6×80	0.20	99	148	4.2	ENF2VM102S80*00C
	1500	51.6×96	0.20	71	107	5.3	ENF2VM152S96*00C
	2200	51.6×105	0.20	49	72	7.2	ENF2VM222SA5*00C
	3300	64.3×115	0.20	34	50	10.0	ENF2VM332TB5*00C
	3900	64.3×130	0.20	30	45	11.7	ENF2VM392TD0*00C
	4700	64.3×143	0.20	26	39	12.6	ENF2VM472TE3*00C
	5600	76.9×143	0.20	21	32	14.9	ENF2VM562UE3*00C
	6800	76.9×168	0.20	19	28	17.0	ENF2VM682UG8*00C
	8200	76.9×196	0.20	15	25	19.8	ENF2VM822UJ6*00C
	10000	76.9×220	0.20	13	20	23.2	ENF2VM103UM0*00C
12000	91×196	0.20	11	16	26.9	ENF2VM123VJ6*00C	
15000	91×220	0.20	9	13	30.9	ENF2VM153VM0*00C	
400	1000	51.6×80	0.20	101	151	4.4	ENF2GM102S80*00C
	1500	51.6×96	0.20	67	98	5.9	ENF2GM152S96*00C
	2200	64.3×105	0.20	48	68	7.4	ENF2GM222TA5*00C
	3300	64.3×130	0.20	30	45	10.5	ENF2GM332TD0*00C
	3900	76.9×115	0.20	27	39	11.3	ENF2GM392UB5*00C
	4700	76.9×130	0.20	22	32	14.0	ENF2GM472UD0*00C
	5600	76.9×143	0.20	20	28	15.1	ENF2GM562UE3*00C
	6800	76.9×168	0.20	17	23	18.0	ENF2GM682UG8*00C
	8200	76.9×196	0.20	15	21	21.3	ENF2GM822UJ6*00C
	10000	76.9×220	0.20	13	19	22.1	ENF2GM103UM0*00C
12000	91×220	0.20	9	13	27.6	ENF2GM123VM0*00C	
450	1000	51.6×105	0.20	97	145	4.3	ENF2WM102SA5*00C
	1500	51.6×130	0.20	65	97	6.1	ENF2WM152SD0*00C
	2200	64.3×115	0.20	45	67	7.8	ENF2WM222TB5*00C
	3300	76.9×100	0.20	29	43	10.8	ENF2WM332UA0*00C
	3900	76.9×115	0.20	25	37	12.9	ENF2WM392UB5*00C
	4700	76.9×130	0.20	22	32	14.3	ENF2WM472UD0*00C
	5600	76.9×155	0.20	19	28	14.7	ENF2WM562UF5*00C
	6800	76.9×220	0.20	16	23	18.1	ENF2WM682UM0*00C
	8200	91×196	0.20	12	17	19.7	ENF2WM822VJ6*00C
	10000	91×220	0.20	10	15	23.5	ENF2WM103VM0*00C

Specifications subject to change without notice.

**NK series**

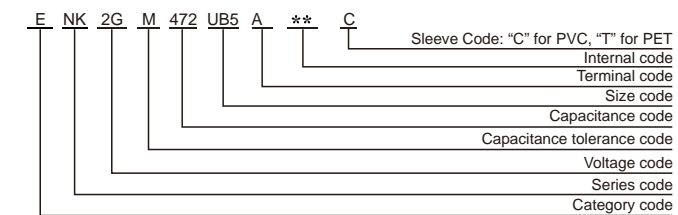
- Endurance with ripple current: 5,000 hours at 105°C
- High ripple and long life series
- Detail specification: IEC 60384-4
- RoHS Compliant



■ SPECIFICATIONS

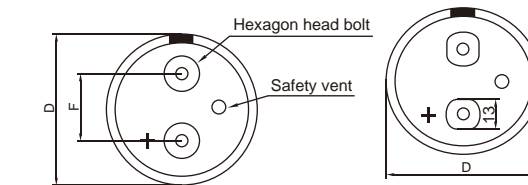
Items	Characteristics
Category Temperature Range	-25~+105°C
Rated Voltage Range	350~450 V <sub>dc</sub>
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)
Leakage Current	I=0.02CV [μA] or 5mA, whichever is smaller. Where, I: Max.leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)
Dissipation Factor (tan )	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics	Capacitance Change C(-25°C)/C(+20°C) 0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 5,000 hours at 105°C.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 200% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.
	Capacitance Change ±20% of the initial value
	Dissipation Factor 150% of the initial specified value

■ PART NUMBERING SYSTEM

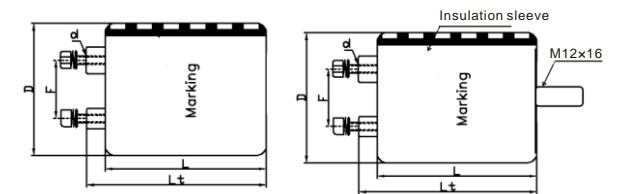


Terminal code	Internal code	Specification
A	00	Ring clip mounting Standard design
B	00	threaded stud Standard design
S	00	Ring clip mounting Special design
T	00	threaded stud Special design

■ DIMENSIONS [mm]



D	51.6	64.3	76.9	91	100
F	22.2	28.5	31.7	31.7	41.4
d	M5	M5	M6orM5	M6orM5	M6
L	L+3Max				
Lt	L+7.5Max	L+7.5Max	L+7.5Max	L+7.5Max	L+11.1Max



■ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency correction factor for ripple current

Frequency(Hz)	50	120	300	1k	10k
Coefficient	0.8	1.0	1.1	1.3	1.4

**NK series**

■ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size D×L(mm)	tan	ESR typ. 120Hz 20°C m	ESR max. 120Hz 20°C m	Rated ripple current (Arms/105°C,120Hz)	Part Number
350	1000	51.6×80	0.20	88	140	5.3	ENK2VM102S80*00C
	1500	51.6×80	0.20	65	99	7.9	ENK2VM152S80*00C
	2200	51.6×105	0.20	40	68	10.2	ENK2VM222SA5*00C
	3300	64.3×115	0.20	26	45	14.5	ENK2VM332TB5*00C
	3900	64.3×130	0.20	23	41	16.4	ENK2VM392TD0*00C
	4700	64.3×155	0.20	20	36	19.2	ENK2VM472TF5*00C
	5600	76.9×143	0.20	18	29	21.9	ENK2VM562UE3*00C
	6800	76.9×168	0.20	15	25	26.3	ENK2VM682UG8*00C
	8200	76.9×196	0.20	13	23	30.2	ENK2VM822UJ6*00C
	10000	76.9×220	0.20	11	18	33.7	ENK2VM103UM0*00C
	12000	100×196	0.20	10	14	38.0	ENK2VM123AJ6*00C
15000	100×250	0.20	8	12	47.9	ENK2VM153VP0*00C	
400	1000	51.6×80	0.20	90	141	5.2	ENK2GM102S80*00C
	1500	51.6×96	0.20	61	92	7.1	ENK2GM152S96*00C
	2200	64.3×105	0.20	45	61	10.4	ENK2GM222TA5*00C
	3300	64.3×130	0.20	29	42	15.2	ENK2GM332TD0*00C
	3900	76.9×130	0.20	25	35	18.0	ENK2GM392UD0*00C
	4700	76.9×143	0.20	20	29	20.6	ENK2GM472UE3*00C
	5600	76.9×168	0.20	19	26	23.9	ENK2GM562UG8*00C
	6800	76.9×196	0.20	16	21	27.5	ENK2GM682UJ6*00C
	8200	91×196	0.20	13	19	30.8	ENK2GM822VJ6*00C
	10000	100×196	0.20	11	17	34.9	ENK2GM103AJ6*00C
12000	100×220	0.20	7	11	40.0	ENK2GM123AM0*00C	
450	1000	51.6×105	0.20	87	138	5.3	ENK2WM102SA5*00C
	1500	51.6×115	0.20	60	92	7.1	ENK2WM152SB5*00C
	2200	64.3×115	0.20	41	62	11.9	ENK2WM222TB5*00C
	3300	76.9×130	0.20	25	39	16.7	ENK2WM332UD0*00C
	3900	76.9×143	0.20	23	34	18.9	ENK2WM392UE3*00C
	4700	76.9×168	0.20	20	29	21.9	ENK2WM472UG8*00C
	5600	76.9×196	0.20	17	26	24.4	ENK2WM562UJ6*00C
	6800	76.9×220	0.20	13	20	28.0	ENK2WM682UM0*00C
	8200	91×196	0.20	10	15	32.3	ENK2WM822VJ6*00C
	10000	100×220	0.20	8	13	36.9	ENK2WM103AM0*00C

Specifications subject to change without notice.