

Plastic Film CAPACITORS



Hitachi AIC

Excellence in Capacitors



Hitachi AIC

The benchmark is 100 %. With one of the lowest field failure rate in the market, there is measured reliability behind these words.

This position, which has been developed over decades, is the result of the combination of a Japanese mentality and, especially, the philosophy of Hitachi which is based upon the pursuit of the highest quality and 100 % reliability. The resulting longest product live possible accompanies this mentality, as does our zero tolerance of failures.

AIC Europe

Sales & engineering - AIC Europe is the strong interface between Europe and Japan.

Through direct communication with production in Japan, we process and plan your orders and schedules reliably and without any loss in time. In combination with our safety and consignment stocks, we fulfil the requirement of flexible and reliable just-in-time delivery of capacitors for your production, whether at home or abroad.

Our sales engineers and representatives will support you from the start with our full expertise throughout the duration of your projects. For over 25 years, we have supported the development department of our customers in selecting the best capacitors.

Well-known manufacturers and leading companies in the field of renewable energy, power transmission, drives, medical and railway technology, aerospace and electrical machines rely on our expertise and our excellent products.

Product Line Chart for power electronic devices

Product Line Chart for - general electronic devices
- communication devices
- computer control devices
- power circuits

Cylindrical type (DC)

Cylindrical type (AC)

Resin encased type

UPGRADE!
MLC
Standard
900 ~ 1,500V.DC
70 ~ 2,300 μ F

UPGRADE!
MLC2
Large capacitance
800 ~ 900V.DC
230 ~ 3,800 μ F

E62(AC)
Standard
Aluminium case
420 ~ 4,000V.AC
0.2 ~ 2,000 μ F

NEW!
E62-TAB(AC)
Tab-terminal
Aluminium case
420 ~ 4,000V.AC
0.2 ~ 2,000 μ F

**** MKC**
Automotive Components product
35, 100V.DC
10.0, 3.9 μ F

MKC-JS
High reliability Automotive Components product
100V.DC
0.1 ~ 1.5 μ F

**** MKC-P**
Automotive Components product
250, 450V.DC
1.8, 0.47, 1.0 μ F

E51
Low inductance
Plastic case
1,300 ~ 50,000V.DC
0.2 ~ 700 μ F

E53H
Low inductance
Plastic case
500 ~ 2,000V.DC
22 ~ 400 μ F

E51(AC)
Low inductance
Plastic case
2000 ~ 35,000V.AC
0.13 ~ 5 μ F

UPGRADE!
E62-3HF(AC)
For three phase
Aluminum case
640 ~ 1,200V.AC
3 \times 8 ~ 3 \times 140 μ F

*** MKC-HD**
Automotive Components product
250 ~ 500V.DC
0.1 ~ 50 μ F

*** MKT, MKT-P**
Automotive Components product
35 ~ 450V.DC
1 ~ 50 μ F

E55
Low inductance
Plastic case
800 ~ 5,000V.DC
10 ~ 250 μ F

NEW!
E61
Low inductance
Plastic case
500 ~ 4,000V.DC
4.5 ~ 190 μ F

E53(AC)
Low inductance
Plastic case
280 ~ 2,450V.AC
0.22 ~ 310 μ F

Resin dip type

MDD-HF
high temperature product
100, 250V.DC
0.01 ~ 0.33 μ F

MDDSA
Standard product
100 ~ 630V.DC
0.01 ~ 10 μ F

MDD-P
For high frequency
250 ~ 630V.DC
0.027 ~ 1.0 μ F

MDD-P(4)
High ripple, small-sized product
450V.DC
0.47 ~ 2.2 μ F

MDD-HD(4HS)
Low noise small-sized product
450V.DC
0.47 ~ 2.2 μ F

MDD-HD(4)
High ripple, Ultra small-sized product
450V.DC
0.47 ~ 2.2 μ F

PCB mount type

UPGRADE!
MKCP4
Standard
Plastic case
300 ~ 1,300V.DC
7 ~ 180 μ F

Box type

E59
Custom design
Metal case
500 ~ 25,000V.DC
200 ~ 17,000V.AC

Tape wrapped type

MTBS, MTB
Standard product
100 ~ 630V.DC
0.022 ~ 10 μ F

MTB-P
For high frequency
250 ~ 630V.DC
0.027 ~ 1.0 μ F

WMTB
For large current
630V.DC
0.22 ~ 2.2 μ F

WMTB-P
High frequency, Large current
1,200 V.DC
0.1 ~ 1.0 μ F

* not printed in this catalogue, please contact us about this form type separately.
** For ratings that are not described in the tables, please contact us for further information.

Product Table

Table of plastic film capacitor types

Series	Features	Operating temperature range	Standard product	Small-sized product	High-reliability product	Thin-shaped product	Rated voltage V	Capacitance range μF	Page
MLC <i>UPGRADE!</i>	Standard, For DC, Aluminium encased type	-40 ~ +85°C	○		○		900~1,500	70~2,300	12
MLC2 <i>UPGRADE!</i>	Large capacitance, For DC, Aluminium encased type	-40 ~ +85°C		○	○		800~900	230~3,800	18
MKCP4 <i>UPGRADE!</i>	Standard, For DC, Resin encased type	-40 ~ +85°C (105°C)	○	○	○		300~1,300	7~180	22
E51	Standard, For DC, Resin encased type	-25 ~ +70°C	○		○		1,300~50,000	0.2~700	26
E51 (AC)	Standard, For AC, Resin encased type	-25 ~ +70°C	○		○		2,000~35,000	0.13~500	26
E53 (AC)	Low inductance, For AC, Resin encased type	-40 ~ +85°C	○		○		280~2,450	0.22~310	29
E53H	Low inductance, For DC, Resin encased type	-25 ~ +85°C	○		○		500~2,000	22~400	32
E55	Low inductance, For DC, Resin encased type	-40 ~ +85°C	○		○		800~5,000	10~250	34
E59	Custom design, Metal case	-55 ~ +85°C			○		—	—	36
E61 <i>NEW!</i>	Low inductance, For DC, Resin encased type	-25 ~ +85°C	○		○		500~4,000	4.5~190	39
E62 (AC)	Standard, For AC, Aluminium encased type	-40 ~ +85°C	○		○		420~4,000	0.2~2,000	41
E62-TAB (AC) <i>NEW!</i>	Standard, For AC, Aluminium encased type	-40 ~ +85°C	○		○		420~4,000	0.2~2,000	49
E62-3HF (AC) <i>UPGRADE!</i>	Standard, For three phase, Aluminium encased type	-50 ~ +85°C	○		○		640~1,200	3×8~3×140	57
MKC	Metallized polyester, resin encased type	-40 ~ +105 (+125°C)			○		35, 100	10.0, 3.9	64
MKC-P	Metallized polypropylene, resin encased type	-40 ~ +105°C			○		250, 450	1.8, 0.47, 1.0	64
MKC-JS	Metallized polyester, resin encased type	-40 ~ +85°C (+105°C)		○	○		100	0.1~1.5	65
MDDSA	Metallized polyester, resin dip type, small-sized product	-40 ~ +85°C (+105°C)		○	○		100~630	0.01~10.0	68
MDD-HD (4)	Metallized polyester, resin dip type, for PFC circuit	-40 ~ +85°C (+105°C)		○	○		450	0.47~2.2	70
MDD-HD (4HS)	Metallized polyester, resin dip type, for PFC circuit	-40 ~ +85°C (+105°C)		○	○		450	0.47~2.2	71
MDD-P (4)	Metallized polypropylene, resin dip type, for PFC circuit	-40 ~ +85°C		○	○		450	0.47~2.2	72
MDD-HF	Metallized PPS film capacitor, resin dip type	-40 ~ +105°C (+125°C)	○		○		100, 250	0.01~0.33	73
MDD-P	Metallized polypropylene, resin dip type	-40 ~ +85°C	○		○		250, 400, 630	0.027~1.0	74
MTB-P	Metallized polypropylene, tape wrapped type	-40 ~ +85°C	○		○		250, 400, 630	0.027~1.0	74
MTBS MTB	Metallized polyester, tape wrapped type	-40 ~ +85°C	○		○		100~630	0.022~10.0	76
WMTB	Tape wrapped type for large current	-40 ~ +85°C	○		○		630	0.22~2.2	77
WMTB-P	Tape wrapped type for high frequency and large current	-40 ~ +85°C	○		○		1200	0.1~1.0	77

General Safety Recommendations

1. Environment

- (1) Water, salt water, oil, and other electro conductive liquid adhered to the capacitors may cause capacitor failure. Capacitors wetted with liquid must never not be operated.
- (2) Capacitors must never be stored or operated in corrosive atmospheres, particularly not where chlorides, sulfides, acids, alkalis, salts, organic solvents or similar substances are present.
- (3) Capacitors must not be operated in ozone or where ultra violet radiation or radio active rays are irradiating.
- (4) In dust and dirt-prone environments, regular checks and maintenance (particularly of the terminals and insulators) are absolutely necessary to prevent creation of creepage distances between live parts and/or the protective conductor/ground. Dust and dirt shall be cleaned with paper or towel wetted with ethanol, not detergent.
- (5) Excessive vibration and/or shock may cause capacitor failure.

2. Mounting Location

2-1. Precaution

- (1) Mechanically or electrically damaged, leaky or otherwise damaged capacitors may not be used or continue to be used.
- (2) Do not place the capacitors directly above or nest to heat sources such as detuning or tuning reactors, bus bars, etc.
- (3) Enough creepage distances and air clearance have to be kept when connecting capacitors, bus bars and housings.

2-2. Mounting

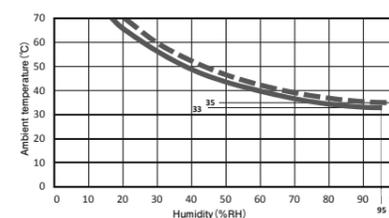
- (1) Keep the torque described in catalog or data sheet. Toothed washer has to be used for fixing stud bolt.
- (2) Stud bolt

Series	Stud bolt	Torque
MLC/MLC2	M12	7 ± 1Nm
Others	M8	5 ± 1Nm
	M12	15 ± 1Nm

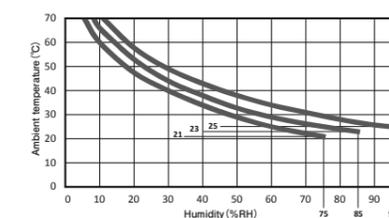
- (3) Three terminal type capacitors are equipped with Torx (T20). Use of improper screwdrivers may damage the screws and impair reliable fixation.
- (4) Improper connection may cause local heat generation, and rupture and ignite. Don't apply excessive stress to terminals and stud bolt.
- (5) The useful life of a capacitor may be reduced dramatically if exposed at excessive heat.
- (6) The permitted max temperature of the capacitor must not be exceeded even under the most critical ambient circumstances.
- (7) The inner temperature of capacitors must be verified not to exceed the maximum operating temperature specified in data sheet at the worst operating condition. Capacitors with thermo sensor (PT100) are available depending of requests. Under force cooled condition, current over value specified in data sheet could be applied to capacitor. Please contact us when bus bars have high temperature and / or capacitors are placed with narrow space between them. They may cause increase in temperature of capacitors.
- (8) It should be noted that the internal heat balance of large capacitors is only reached after a couple of hours when verifying inner temperature rise of capacitors.
- (9) Capacitors with liquid or viscous filling shall be installed upright with terminals facing upwards. Capacitors with gas or solid resin filling can be mounted in any position without restriction.

3. Humidity

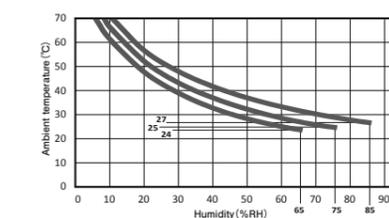
Capacitors may not be stored or operated outside the specified humidity ranges.



E59/E62/E62-3HF series
 max. relative humidity : 95% annual means
 : 100% occasional
 condensation : permitted



MLC/MLC2/E51/E53H/E55 series
 max. relative humidity : 75% annual means
 : 95% 30 days/year
 condensation : not permitted



E53 series
 max. relative humidity : 75% annual means
 : 95% 30 days/year
 condensation : not permitted

4. Use condition

4-1. Ambient temperature / Current

- (1) Capacitors must be operated according to the specification in catalog and/or data sheets.
- (2) Overvoltage or thermal overload may cause rupture, ignition, and internal faults. When the highest temperature in capacitor is higher than 70°C, voltage derating has to be applied. For MLC and MLC2 series, permissible ripple current can be calculated from ambient temperature, operating voltage and information in data sheet or catalog.
Even if operating current is lower than permissible value, the current over permissible terminal current may cause excessive terminal heat generation.
- (3) Ambient temperature is measured at point a point approximately 0.1m away from the capacitor housing and at two-third of the height from its base.
- (4) It has to be noted that capacitors themselves generate heat.
- (5) Permissible current decrease with the increase of ambient temperature. Therefore, It should be considered that capacitors must be selected by considering the operation at maximum ambient temperature.
- (6) Frequency may affect electric load. Capacitors have to be selected by considering the effect of frequency.
- (7) It should be noted that resonance by inductance of external circuit may affect capacitor's performance.
- (8) It should be noted that parallel connection may cause current unbalance because of the difference of circuit impedance.
- (9) Harmonics current may cause excessive heat generation because of dielectric loss at low frequency, or skin effect at high frequency. When harmonics current includes frequencies under 50Hz and/or over 10kHz components, the inner temperature of capacitors must be verified. We recommend to check the following characteristics before proceeding evaluation.
Please consult us for individual support if any of the following conditions apply.
 - a. Total current harmonic distortion based on the data computed exceed 200%
 - b. Ratio between total current power losses and total dielectric power losses exceed 150%
 Capacitors with thermo sensor are not for endurance test, just for testing inner temperature rise. After the test, please scrap them. The internal temperature should be measured after the inner temperature reaches saturation (approx. five hours) .

4-2. Cooling

- (1) Give at least 40mm for MLC/MLC2 series or 20mm for the others of clearance between the capacitors for natural or forced ventilation for effective heat dissipation of capacitors.

4-3. Voltage / Other use condition

- (1) Dielectric breakdown may cause severe internal fault such as short circuit, ignition and rupture.
Capacitors must be operated inside the specified range specified in catalog and/or data sheets.
For overvoltage within short period may not shorten service life time of capacitors.
- (2) Capacitors must be operated under rated voltage. Surge voltage specified in data sheet is just for capacitor evaluation, and does not guarantee the continuous operation of capacitors.
- (3) Inrush current may cause internal faults.
- (4) Film capacitors have finite service life.
- (5) DC capacitors must not be operated under AC condition. When ripple voltage over 20% of rated voltage is applied to DC capacitors, it may cause capacitor failure. In this case, please contact us.

5. Vibration / Shock

- (1) Vibration and shock mainly affect fixing materials and terminals. It is important to measure the degree of vibration and shock at mounting location.
- (2) The capacitors comply with test standard (IEC60068-2-6) as follows.

capacitor weight	test duration	frequency range	max. acceleration	max. displacement amplitude
< 0.5 kg	30 cycles	10 ~ 500 Hz	50 m/s ²	0.35 mm
0.5 ~ 3.0 kg	30 cycles	10 ~ 500 Hz	50 m/s ²	0.075 mm
> 3.0 kg	information available on request			

6. Capacitors with over pressure disconnecter

In the event of an increasing number of self-healing breakdowns, the pressure inside the capacitor may rise.

To prevent it from bursting, the capacitors of series E62, E63 and E65 are fitted with an obligatory break-action mechanism.

With rising pressure the case begins to expand and pushing the lid upwards. As a result, the prepared connecting wire is separated at the attenuated spot, and the current path is interrupted irreversibly.

- Sufficient clearance (min35mm) for expansion of the capacitor case must be accommodated above the terminals.
- The capacitors shall only be connected with flexible cables or elastic copper bands.
- The capacitor lid must not be pressed.
- The terminals must not be damaged.
- Do not hit the border crimping and the connecting terminals with heavy or sharp objects or tools.

7. Safety of self-healing type film capacitors

In the event of a voltage breakdown the metal layers around the breakdown channel are evaporated by the temperature of the electric arc that forms between the electrodes. An insulation area is formed which is reliably resistive and voltage proof for all operating requirements of the capacitor. The capacitor remains fully functional during and after the breakdown.

Surge voltages and surge currents within rated values induced by switching or faults of the system or any part of it are also permitted.

8. Mind hazards of explosion and fire

- (1) Capacitors consist mainly of polypropylene (up to 50%), i.e. their energy content is relatively high. They may rupture and ignite as a result of internal faults or external overload (e.g. temperature, overvoltage, harmonic distortion) .
- (2) It must therefore be ensured, by appropriate measures, that they do not form any hazard to their environment in the event of failure or malfunction of the safety device.

9. Discharge

In any event, the poles of the capacitors must be discharged with 1kOhm or larger resistance before being touched.

Note that capacitors with nominal voltages above 750Vac or 2000Vdc in particular may regenerate new voltage at their terminals after having been short-circuited just for short periods. This condition will be avoided by storing them permanently short circuited.

10. Earthing

Capacitors with a metal case must be earthed at the metal part or by means of a separate metal strap or clamp.

11. Environmental Compatibility

- (1) Our capacitors do not contain PCB, solvents or any other toxic or banned materials.
- (2) Our capacitors comply with RoHS directive.

12. Storage

Capacitors must be stored indoors in -40°C to +35°C with maximum RH75% without condensation. The storage period is maximum two years.

Capacitors must not be stored or used outside the specified temperature ranges. When capacitors stored over two years are used, please confirm that the electric characteristics are within specifications, capacitor case are not covered with stains, and terminals are not covered with oxide film.

13. Fumigation treatment

Fumigation treatment may be performed during transportation for insect proofing.

Halide such as methyl bromide may cause corrosion inside capacitors, and lead to failure.

Insecticide also may cause capacitor failure.

14. Disposal

- (1) We recommend disposing of the capacitors through professional recycling centers for electric/electronic waste.
- (2) After incineration of capacitors, metal parts such as terminal, aluminum case, lid and internal wirings will be remained.
- (3) Please consider that disposed capacitors should not put on the market.

15. Others

- (1) In case of fire, dried powder, carbon dioxide or foam fire extinguishing agent has to be used.
- (2) Please comply with transportation and exporting regulation in each nation.
- (3) Capacitors usually have design life of approx. 15 to 20 years under proper operating condition. In order to maintain the reliability of equipment, it is recommend to replace the capacitors after ten years operation.

16. Important notice before use

Hitachi AIC does not accept responsibility for whatever damage may arise out of a non-observance, or caused by capacitors without agreement on detail of use condition, evaluation condition etc.

Service life of plastic film capacitor for power electronics

17. Formula for estimating service life (MLC, MLC2)

(1) Estimating from the core temperature of the capacitor and applied voltage Formula for calculating the service life of our capacitors in mid-to-high voltage applications (filters).

$$L = L_0 \times 2^{\frac{(T_0 - T)}{10}} \times \left(\frac{V_0}{V} \right)^{10}$$

Where,

To : Maximum core temperature setting when subjected to the maximum allowable ripple load at the maximum operating temperature

Lo : Standard service life when core temperature is T_0 and rated voltage is (WV)

L : Estimated service life when core temperature is T and applied voltage is (V)

If $V/WV < 0.6$, use $V/WV = 0.6$.

(2) Estimating core temperature of a capacitor from load ripple current

We recommend that you estimate service life by measuring the core temperature of the capacitor with a thermocouple. We can manufacture samples with inserted thermocouples according to customer requests.

If for some reason it is impossible to measure the core temperature, you can estimate the service life by making a rough estimate of the core temperature of the capacitor from the load ripple current. As shown below, assuming the rise in temperature and the square of load current to be nearly proportionate, obtain the core temperature of the capacitor that occurs when the capacitor is loaded with a ripple current.

$$T = T_a + I^2 \cdot ESR \cdot R_{th}$$

Where,

T : Core temperature of the capacitor when ripple current I is loaded (°C)

Ta : Ambient temperature (°C)

I : Ripple current (Arms)

ESR : Equivalent series resistance of capacitor (mΩ)

Rth : Thermal resistance (K/W)

※ Ripple current (I) is limited by maximum current (Imax) specified for each capacitor.

Glossary

Rated capacitance C_N

Capacitance value rated at 20°C / 50 Hz.

Rated Voltage U_N

The maximum or peak voltage of either polarity of a reversing or nonreversing type wave form for which the capacitor has been designed and rated (unlike other standards for AC capacitors, the rated voltage is not the rms value).

Non repetitive peak (surge) voltage U_S

Voltages beyond the rated voltage induced by switching or faults of the system or any part of it. Maximum count 1000 times with a duration of not more than 50 ms each.

rms voltage U_{rms}

Root mean square of the max. permissible value of sinusoidal AC voltage in continuous operation.

Ripple voltage U_r

The peak-to-peak alternating component of the unidirectional voltage.

Voltage test between terminals U_{TT}

Routine test of all capacitors conducted at room temperature, prior to delivery.

A further test with 80% of the test voltage stated in the data sheet may be carried out once at the user's location.

Voltage test between terminals and case U_{TC}

Routine test of all capacitors between short-circuited terminals and case, conducted at room temperature. May be repeated at the user's location.

Maximum current I_{max}

Maximum rms value of permissible current in continuous operation. The values given in the data sheets are related to either the specified maximum power dissipation or the current limits of the connection terminals.

Peak current \hat{I}

Maximum permitted repetitive current amplitude during continuous operation.

Non-repetitive peak current (surge) I_S

Maximum current that may occur non-repetitively and briefly in the event of a fault.

Maximum count 1000 times with a duration of not more than 50 ms each.

Equivalent series resistance R_S

Equivalent resistance representing the sum of all Ohmic resistances occurring inside the capacitor. Essential for calculation of the current dependent losses.

Self-inductance L_e

Represents the sum of all inductive elements which are – for mechanical and construction reasons – contained in any capacitor.

Resonant frequency f_{res}

The capacitance and self-inductance of any capacitor form a series resonant circuit.

Above the resonant frequency, the inductive part of this LC-circuit prevails.

The capacitor would then behave as an inductor.

Dielectric dissipation factor $\tan \delta_0$

Constant dissipation factor of the dielectric material for all capacitors in their rated frequency.

Thermal resistance R_{th}

The thermal resistance indicates by how many degrees the capacitor temperature at the hotspot rises in relation to the dissipation losses.

Maximum power dissipation P_{max}

Maximum permitted power dissipation for the capacitor's operation at a certain ambient temperature.

Ambient temperature θ_U

Temperature of the surrounding air, measured 10 cm away and at 2/3 of the case height of the capacitor.

Lower category temperature θ_{min}

Lowest permissible ambient temperature at which a capacitor may be used.

Upper category temperature θ_{max}

Highest permissible capacitor temperature during operation, i.e. temperature at the hottest point of the case.

Hotspot temperature $\theta_{HOTSPOT}$

Temperature at the hottest spot inside the capacitor.

Rated energy contents E_N

Energy stored in the capacitor when charged at rated voltage.

Clearance in air L

The shortest distance between conducting parts of the terminals or between terminals and case.

Creepage distance K

The shortest distance along an insulated surface between conducting parts of the terminals or between terminals and case.

UPGRADE!

MLC Series (Cylindrically-Shaped Metallized Polypropylene Film Capacitors)

Features

- Cylindrically-shaped capacitor with big capacitance for wind & solar power inverters, other inverters, chopper control and charge-discharge.
- High reliability of withstanding voltage due to using of our original segmented metallized film.
- UL 810 standard option compliant. (Series : MLCU)

Specifications

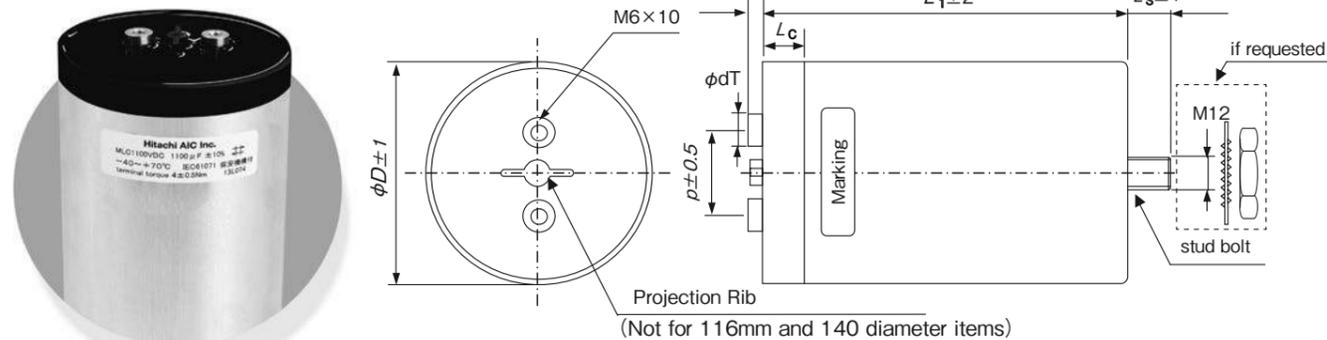
Items	Characteristics
Operating Temperature range *	-40 ~ +85°C at 0.7 U_N
	-40 ~ +80°C at 0.8 U_N
	-40 ~ +75°C at 0.9 U_N
	-40 ~ +70°C at 1.0 U_N
Rated Voltage U_N	900 ~ 1,500Vdc
Voltage test between terminals U_{TT}	1.5 × U_N / 10s
Voltage test terminals to case U_{TC}	3,200Vac / 10s
Terminals (permitted Torque)	M6 × 10 (4 ± 0.5Nm)
Stud Bolt (permitted Torque)	M12 × 16 / 18 (7 ± 1Nm)
Life Time Test / Standard	IEC 61071 : 2007
Dielectric	Polypropylene
Electrode	Segmented Metal with Fuse Function
Cap	PBT UL94V-0 listed
impregnants	Epoxy / Urethane Resin UL94V-0 listed
Case material	Aluminium
Humidity	ClassF : 75% annual average, 95% 30days / year

Dimensions (mm)	P ϕd_T	ϕD				
		$\phi 85$	$\phi 88.5$	$\phi 100$	$\phi 116$	$\phi 140$
L_1	$\phi 12$	$\phi 12$	$\phi 12$	$\phi 14$	$\phi 19$	
L_2	5	5	5	5	5	
L_c	15	15	15	20	20	
L_s	16	16	16	18	18	
Clearance distance (mm)	20	20	20	36	31	
Creepage distance (mm)	28	28	28	36	31	
Terminal allowance current	60Arms	60Arms	60Arms	80Arms	100Arms	

I_{Max} Multiplier (1kHz ~ 10kHz)

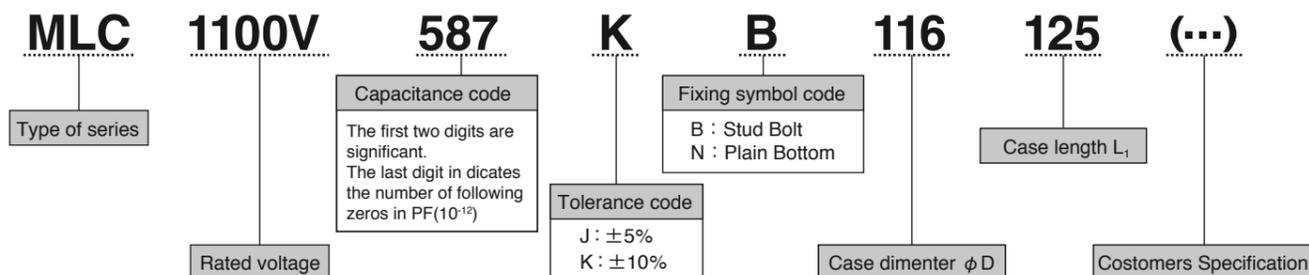
T_a Ambient Temperature	U_N			
	0.7 × U_N	0.8 × U_N	0.9 × U_N	1.0 × U_N
50°C	1.3	1.2	1.1	1.0
60°C	1.1	1.0	0.9	0.7
70°C	0.9	0.7	0.5	0.0
80°C	0.5	0.0		
85°C	0.0			

Outline of drawings and dimensions



Part number

Example : MLC, 1100V, 580 μ F, \pm 10%, D = ϕ 116, L = 125, with stud bolt
MLC1100V587KB116125



Standard Products Table

Rated d.c voltage U_N : 900Vdc	Max.ripple voltage U_r : 200V Non repetitive surge voltage U_s : 1,350V Voltage test between terminals U_{TT} : 1,350Vdc/10s Voltage test terminals to case. U_{TC} : 3,200Vac/10s										
	Nominal Capacitance C_N [μ F]	Dimensions		Maximum ripple current (Arms) I_{max}^* [Arms/at50°C, 1k ~ 10kHz]	Maximum peak current I^{\wedge} [kA]	Maximum Surge current I_s [kA]	Charge energy W [J]	Equivalent Series Resistance ESR [m Ω]	Equivalent Series Inductance ESL [nH]	Thermal resistance R_{th} [K/W]	Part number
180	85	70	Standard size	28	4	12	73	2.9	60	8.4	MLC900V187KB8570
200	85	75		28	4	12	81	3.1	65	7.9	MLC900V207KB8575
210	88.5	70	Standard size	31	5	15	85	2.6	60	7.8	MLC900V217KB8570
230	88.5	75		30	5	15	93	2.8	65	7.7	MLC900V237KB8575
	85	80		28	4	12	93	3.3	65	7.4	MLC900V237KB8580
250	88.5	80		30	4	12	101	3.1	65	7.0	MLC900V257KB8580
260	85	87		28	4	12	105	3.7	75	6.8	MLC900V267KB8587
270	100	70	Standard size	37	6	18	109	2.2	60	6.5	MLC900V277KB10070
280	88.5	87		28	4	12	113	3.4	75	6.8	MLC900V287KB8587
290	85	95	Standard size	27	4	12	117	4.1	80	6.4	MLC900V297KB8595
300	100	75		37	6	18	122	2.3	65	6.1	MLC900V307KB10075
320	88.5	95	Standard size	29	4	12	130	3.8	80	6.1	MLC900V327KB8595
330	100	80		36	6	18	134	2.5	65	5.9	MLC900V337KB10080
	85	106		27	4	12	134	4.8	90	5.6	MLC900V337KB85106
360	88.5	106		28	4	12	146	4.4	90	5.7	MLC900V367KB85106
370	100	87		36	6	18	150	2.8	75	5.4	MLC900V377KB10087
	85	125	Standard size	52	8	24	150	1.5	40	4.8	MLC900V377KB85125
380	116	70	Standard size	43	8	24	154	1.7	60	6.0	MLC900V387KB11670
390	85	120		26	4	12	158	5.5	100	5.2	MLC900V397KB85120
410	116	75		43	8	24	166	1.9	65	5.6	MLC900V417KB11675
	85	135		52	8	24	166	1.6	40	4.5	MLC900V417KB85135
420	88.5	125	Standard size	56	9	27	170	1.4	40	4.5	MLC900V427KB85125
	100	95	Standard size	34	6	18	170	3.1	80	5.4	MLC900V427KB10095
430	88.5	120		28	5	15	174	5.1	100	4.9	MLC900V437KB85120
	88.5	135		56	9	27	186	1.5	40	4.2	MLC900V467KB85135
460	116	80		43	8	24	186	2.0	65	5.2	MLC900V467KB11680
	85	145		52	8	24	186	1.7	45	4.1	MLC900V467KB85145
480	100	106		34	6	18	194	3.5	90	4.7	MLC900V487KB100106
510	88.5	145		55	9	27	207	1.6	45	4.0	MLC900V517KB85145
520	116	87		42	8	24	211	2.2	75	5.0	MLC900V527KB11687
	85	159		52	8	24	211	1.9	50	3.8	MLC900V527KB85159
540	100	125	Standard size	60	12	36	219	1.1	40	3.9	MLC900V547KB100125
560	100	120		33	6	18	227	4.1	100	4.3	MLC900V567KB100120
	88.5	159		55	9	27	231	1.8	50	3.6	MLC900V577KB85159
570	140	70	Standard size	46	12	36	231	1.4	60	6.6	MLC900V577KB14070
	116	95	Standard size	42	8	24	239	2.4	80	4.5	MLC900V597KB11695
590	85	175	Standard size	52	8	24	239	2.1	55	3.4	MLC900V597KB85175
600	100	135		60	12	36	243	1.2	40	3.6	MLC900V607KB100135
630	140	75		46	12	36	255	1.4	65	6.6	MLC900V637KB14075
650	88.5	175	Standard size	55	9	27	263	2.0	55	3.2	MLC900V657KB85175
660	116	106		41	8	24	267	2.8	90	4.2	MLC900V667KB116106
	85	197		51	8	24	267	2.5	60	3.0	MLC900V667KB85197
670	100	145		60	12	36	271	1.3	45	3.5	MLC900V677KB100145
700	140	80		46	12	36	284	1.6	65	5.8	MLC900V707KB14080
730	88.5	197		54	9	27	296	2.3	60	2.9	MLC900V737KB85197
750	100	159		60	12	36	304	1.5	50	3.2	MLC900V757KB100159
760	116	125	Standard size	77	16	48	308	0.9	40	3.5	MLC900V767KB116125
	116	120		41	8	24	316	3.2	100	3.6	MLC900V787KB116120
780	140	87		46	12	36	316	1.7	75	5.4	MLC900V787KB14087
	85	225		50	8	24	316	2.9	70	2.7	MLC900V787KB85225
830	116	135		77	16	48	336	1.0	40	3.3	MLC900V837KB116135
850	100	175	Standard size	60	12	36	344	1.6	55	2.8	MLC900V857KB100175
870	88.5	225		54	9	27	352	2.6	70	2.6	MLC900V877KB85225
890	140	95	Standard size	45	12	36	360	1.9	80	5.1	MLC900V897KB14095
930	116	145		77	16	48	377	1.1	45	3.1	MLC900V937KB116145
960	100	197		60	12	36	389	1.9	60	2.5	MLC900V967KB100197
	116	159		76	16	48	405	1.2	50	2.8	MLC900V108KB116159
1,000	140	106		44	12	36	405	2.1	90	4.8	MLC900V108KB140106
1,100	100	225		60	11	33	446	2.2	70	2.2	MLC900V118KB100225
	116	175	Standard size	75	15	45	446	1.4	55	2.5	MLC900V118KB116175
	140	120		43	11	33	446	2.5	100	4.2	MLC900V118KB140120
	140	125	Standard size	80	24	72	446	0.8	40	3.8	MLC900V118KB140125
1,200	140	135		80	23	69	486	0.8	40	3.8	MLC900V128KB140135
1,300	116	197		75	16	48	527	1.5	60	2.3	MLC900V138KB116197
1,400	140	145		81	24	72	567	0.8	45	3.7	MLC900V148KB140145
1,500	116	225		74	16	48	608	1.8	70	2.0	MLC900V158KB116225
	140	159		80	23	69	608	0.9	50	3.4	MLC900V158KB140159
1,700	140	175	Standard size	79	23	69	689	1.0	55	3.2	MLC900V178KB140175
2,000	140	197		80	24	72	810	1.2	60	2.6	MLC900V208KB140197
2,300	140	225		79	24	72	932	1.3	70	2.3	MLC900V238KB140225

* Please inquire us in case low frequency (commercial frequency) or frequency above 10kHz is included in ripple current.
 • Maximum permissible ripple current is calculated by the value in this table with frequency and temperature correction factors.
 Also the maximum current must be controlled below the permissible terminal current.
 Please refer useful life graph based on ambient temperature and voltage.

$$\theta_{HOTSPOT} = T_a + I^2 \times ESR \times R_{th}$$

Standard Products Table

Rated d.c voltage $U_N : 1,100Vdc$	Max.ripple voltage $U_r : 250V$ Non repetitive surge voltage $U_s : 1,650V$ Voltage test between terminals $U_{TT} : 1,650Vdc/10s$ Voltage test terminals to case. $U_{TC} : 3,200Vac/10s$										
	Dimensions			Maximum ripple current (Arms) I_{max}^* [Arms/at50°C, 1k ~ 10kHz]	Maximum peak current I^{\wedge} [kA]	Maximum Surge current I_s [kA]	Charge energy W [J]	Equivalent Series Resistance ESR [mΩ]	Equivalent Series Inductance ESL [nH]	Thermal resistance R_{th} [K/W]	Part number
	Diameter ϕD [mm]	Length of the case L_1 [mm]	Remarks								
140	85	70	Standard size	26	3	9	85	3.3	60	8.6	MLC1100V147KB8570
160	85	75		27	4	12	97	3.5	65	7.6	MLC1100V167KB8575
170	88.5	70	Standard size	29	4	12	103	2.8	60	8.3	MLC1100V177KB88570
180	85	80		27	4	12	109	3.7	65	7.1	MLC1100V187KB8580
	88.5	75		29	4	12	109	3.1	65	7.5	MLC1100V187KB88575
200	85	87		26	4	12	121	4.2	75	6.9	MLC1100V207KB8587
	88.5	80		28	4	12	121	3.4	65	7.3	MLC1100V207KB88580
210	100	70	Standard size	34	5	15	127	2.4	60	6.9	MLC1100V217KB10070
230	85	95	Standard size	26	4	12	139	4.6	80	6.2	MLC1100V237KB8595
	88.5	87		28	4	12	139	3.7	75	6.7	MLC1100V237KB88587
260	100	75		34	5	15	139	2.6	65	6.4	MLC1100V237KB10075
	85	106		25	4	12	157	5.3	90	5.8	MLC1100V267KB85106
290	88.5	95	Standard size	28	4	12	157	4.1	80	6.1	MLC1100V267KB88595
	100	80		33	5	15	157	2.8	65	6.3	MLC1100V267KB10080
310	85	125	Standard size	50	7	21	175	1.7	40	4.7	MLC1100V297KB85125
	88.5	106		27	4	12	175	4.8	90	5.6	MLC1100V297KB885106
320	100	87		33	5	15	175	3.1	75	5.8	MLC1100V297KB10087
	116	70	Standard size	41	7	21	175	1.9	60	6.0	MLC1100V297KB11670
330	85	120		25	4	12	188	6.1	100	5.1	MLC1100V317KB85120
	85	135		50	7	21	194	1.8	40	4.3	MLC1100V327KB85135
350	116	75		41	7	21	194	2.1	65	5.6	MLC1100V327KB11675
	88.5	125	Standard size	53	8	24	200	1.5	40	4.6	MLC1100V337KB885125
360	100	95	Standard size	33	5	15	200	3.4	80	5.2	MLC1100V337KB10095
	88.5	120		27	4	12	212	5.5	100	4.9	MLC1100V357KB885120
370	85	145		49	7	21	218	1.9	45	4.2	MLC1100V367KB85145
	116	80		41	7	21	218	2.2	65	5.2	MLC1100V367KB11680
380	88.5	135		54	8	24	224	1.6	40	4.2	MLC1100V377KB885135
400	100	106		32	5	15	230	3.9	90	4.8	MLC1100V387KB100106
	85	159		49	7	21	242	2.2	50	3.7	MLC1100V407KB85159
410	116	87		40	7	21	242	2.4	75	5.0	MLC1100V407KB11687
	88.5	145		53	8	24	248	1.7	45	4.1	MLC1100V417KB885145
440	100	125	Standard size	60	10	30	266	1.2	40	3.9	MLC1100V447KB100125
450	100	120		32	5	15	272	4.5	100	4.2	MLC1100V457KB100120
	85	175	Standard size	49	7	21	278	2.4	55	3.4	MLC1100V467KB85175
460	88.5	159		53	8	24	278	1.9	50	3.7	MLC1100V467KB885159
	116	95	Standard size	40	7	21	278	2.7	80	4.5	MLC1100V467KB11695
470	140	70	Standard size	45	11	33	278	1.4	60	6.9	MLC1100V467KB14070
	100	135		60	10	30	284	1.4	40	3.6	MLC1100V477KB100135
500	140	75		45	11	33	303	1.6	65	6.0	MLC1100V507KB14075
520	100	145		60	10	30	315	1.5	45	3.4	MLC1100V527KB100145
530	85	197		48	7	21	321	2.7	60	3.1	MLC1100V537KB85197
	88.5	175	Standard size	53	8	24	321	2.1	55	3.3	MLC1100V537KB885175
560	116	106		40	7	21	321	3.0	90	4.0	MLC1100V537KB116106
	140	80		44	11	33	339	1.7	65	5.9	MLC1100V567KB14080
580	100	159		60	10	30	351	1.6	50	3.1	MLC1100V587KB100159
	116	125	Standard size	73	14	42	351	1.0	40	3.6	MLC1100V587KB116125
590	88.5	197		52	8	24	357	2.5	60	2.9	MLC1100V597KB885197
620	85	225		48	7	21	375	3.2	70	2.7	MLC1100V627KB85225
	116	120		39	7	21	375	3.5	100	3.6	MLC1100V627KB116120
630	140	87		44	11	33	381	1.8	75	5.6	MLC1100V637KB14087
650	116	135		74	14	42	393	1.1	40	3.3	MLC1100V657KB116135
690	100	175	Standard size	60	10	30	417	1.7	55	2.9	MLC1100V697KB100175
700	88.5	225		51	8	24	424	2.9	70	2.6	MLC1100V707KB885225
720	116	145		74	14	42	436	1.2	45	3.0	MLC1100V727KB116145
	140	95	Standard size	44	11	33	436	2.0	80	5.0	MLC1100V727KB14095
760	100	197		60	10	30	460	2.0	60	2.5	MLC1100V767KB100197
810	116	159		73	14	42	490	1.3	50	2.8	MLC1100V817KB116159
	140	106		43	11	33	490	2.3	90	4.6	MLC1100V817KB140106
900	100	225		60	10	30	545	2.4	70	2.2	MLC1100V907KB100225
920	116	175	Standard size	73	14	42	557	1.4	55	2.6	MLC1100V927KB116175
	140	125	Standard size	79	22	66	557	0.8	40	3.9	MLC1100V927KB140125
950	140	120		43	11	33	575	2.6	100	4.1	MLC1100V957KB140120
1,000	140	135		79	22	66	605	0.8	40	3.9	MLC1100V108KB140135
	116	197		71	14	42	605	1.7	60	2.3	MLC1100V108KB116197
1,100	140	145		78	22	66	666	0.9	45	3.6	MLC1100V118KB140145
1,200	140	159		77	21	63	726	1.0	50	3.3	MLC1100V128KB140159
	116	225		71	14	42	726	1.9	70	2.0	MLC1100V128KB116225
1,400	140	175	Standard size	78	21	63	847	1.1	55	2.9	MLC1100V148KB140175
1,600	140	197		77	22	66	968	1.2	60	2.8	MLC1100V168KB140197
1,900	140	225		77	22	66	1,150	1.4	70	2.4	MLC1100V198KB140225

* • Please inquire us in case low frequency (commercial frequency) or frequency above 10kHz is included in ripple current.
 • Maximum permissible ripple current is calculated by the value in this table with frequency and temperature correction factors.
 Also the maximum current must be controlled below the permissible terminal current.
 Please refer useful life graph based on ambient temperature and voltage.

$$\theta_{HOTSPOT} = T_a + I^2 \times ESR \times R_{th}$$

Standard Products Table

Rated d.c voltage $U_N : 1,300Vdc$	Max.ripple voltage $U_r : 300V$ Non repetitive surge voltage $U_s : 1,950V$ Voltage test between terminals $U_{TT} : 1,950Vdc/10s$ Voltage test terminals to case. $U_{TC} : 3,200Vac/10s$										
	Dimensions			Maximum ripple current (Arms) I_{max}^* [Arms/at50°C, 1k ~ 10kHz]	Maximum peak current I^{\wedge} [kA]	Maximum Surge current I_s [kA]	Charge energy W [J]	Equivalent Series Resistance ESR [mΩ]	Equivalent Series Inductance ESL [nH]	Thermal resistance R_{th} [K/W]	Part number
	Diameter ϕD [mm]	Length of the case L_1 [mm]	Remarks								
100	85	70	Standard size	25	3	9	85	3.8	60	8.1	MLC1300V107KB8570
110	85	75		25	3	9	93	4.1	65	7.6	MLC1300V117KB8575
	88.5	70	Standard size	26	3	9	93	3.5	60	8.2	MLC1300V117KB88570
120	88.5	75		26	3	9	101	3.8	65	7.6	MLC1300V127KB88575
130	85	80		25	3	9	110	4.2	65	7.3	MLC1300V137KB8580
140	85	87		24	3	9	118	4.8	75	7.0	MLC1300V147KB8587
	88.5	80		26	3	9	118	4.0	65	7.2	MLC1300V147KB88580
150	100	70	Standard size	32	4	12	127	2.7	60	6.9	MLC1300V157KB10070
160	85	95	Standard size	24	3	9	135	5.4	80	6.3	MLC1300V167KB8595
	88.5	87		26	3	9	135	4.3	75	6.7	MLC1300V167KB88587
170	100	75		32	4	12	144	2.9	65	6.5	MLC1300V177KB10075
180	88.5	95	Standard size	26	3	9	152	4.8	80	6.0	MLC1300V187KB88595
	100	80		31	4	12	152	3.3	65	6.2	MLC1300V187KB10080
190	85	106		24	3	9	161	6.0	90	5.6	MLC1300V197KB85106
200	88.5	106		25	3	9	169	5.7	90	5.5	MLC1300V207KB885106
	85	125	Standard size	47	6	18	177	1.9	40	4.7	MLC1300V217KB885125
210	100	87		31	4	12	177	3.5	75	5.8	MLC1300V217KB10087
	116	70	Standard size	39	6	18	177	2.1	60	5.9	MLC1300V217KB11670
220	85	120		23	3	9	186	7.0	100	5.2	MLC1300V227KB885120
	85	135		47	6	18	194	2.0	40	4.3	MLC1300V237KB85135
230	88.5	125	Standard size	50	7	21	194	1.7	40	4.6	MLC1300V237KB885125
	116	75		39	6	18	194	2.3	65	5.5	MLC1300V237KB11675
240	88.5	120		25	3	9	203	6.5	100	4.8	MLC1300V247KB885120
	100	95	Standard size	31	4	12	203	3.8	80	5.2	MLC1300V247KB10095
250	88.5	135		49	7	21	211	1.9	40	4.3	MLC1300V257KB885135
260	85	145		47	6	18	220	2.2	45	4.0	MLC1300V267KB85145
	116	80		39	6	18	220	2.5	65	5.2	MLC1300V267KB11680
270	100	106		30	4	12	228	4.4	90	4.8	MLC1300V277KB100106
280	88.5	145		49	7	21	237	2.0	45	4.1	MLC1300V287KB885145
290	85	159		46	6	18	245	2.4	50	3.8	MLC1300V297KB85159
	116	87		38	6	18	245	2.7	75	4.9	MLC1300V297KB11687
300	100	125	Standard size	59	9	27	254	1.4	40	3.9	MLC1300V307KB100125
310	140	70	Standard size	42	9	27	262	1.7	60	6.5	MLC1300V317KB14070
	88.5	159		49	7	21	270	2.2	50	3.7	MLC1300V327KB885159
320	100	120		30	4	12	270	5.1	100	4.2	MLC1300V327KB100120
	85	175									

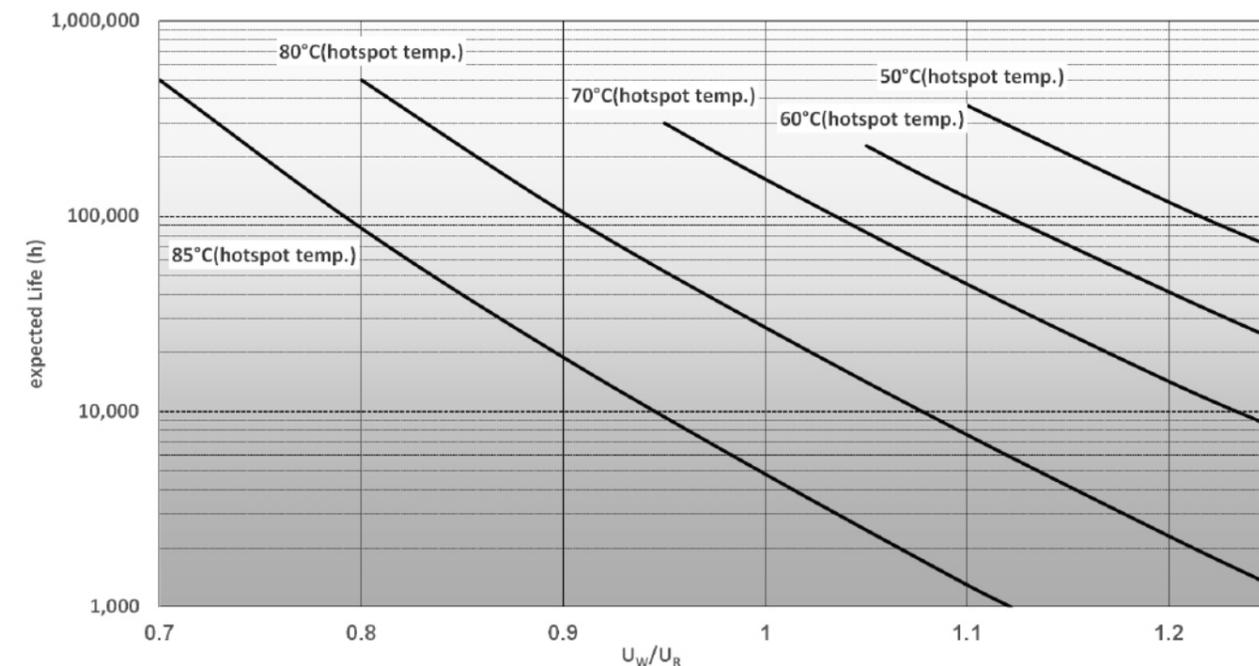
Standard Products Table

Nominal Capacitance C_N (μF)	Dimensions		Remarks	Maximum ripple current (Arms) I_{max}^* [Arms/at50°C, 1k ~ 10kHz]	Maximum peak current I^{\wedge} [kA]	Maximum Surge current I_s [kA]	Charge energy W [J]	Equivalent Series Resistance ESR [mΩ]	Equivalent Series Inductance ESL [nH]	Thermal resistance R_{th} [K/W]	Part number
	Diameter ϕD [mm]	Length of the case L_1 [mm]									
70	85	70	Standard size	23	2	6	79	4.6	60	8.0	MLC1500V706KB8570
80	85	75	Standard size	23	2	6	90	4.8	65	7.7	MLC1500V806KB8575
	88.5	70		25	3	9	90	4.0	60	7.8	MLC1500V806KB88570
90	85	80	Standard size	23	3	9	101	5.1	65	7.1	MLC1500V906KB8580
	88.5	75		25	3	9	101	4.3	65	7.2	MLC1500V906KB88575
100	85	87	Standard size	22	2	6	113	5.7	75	7.0	MLC1500V107KB8587
	88.5	80		24	3	9	113	4.7	65	7.2	MLC1500V107KB88580
110	85	95	Standard size	22	2	6	124	6.5	80	6.1	MLC1500V117KB8595
	88.5	87	Standard size	24	3	9	124	5.2	75	6.5	MLC1500V117KB88587
	100	70		30	4	12	124	3.1	60	6.9	MLC1500V117KB10070
120	100	75	Standard size	30	4	12	135	3.4	65	6.3	MLC1500V127KB10075
	85	106		22	3	9	146	7.3	90	5.5	MLC1500V137KB85106
130	88.5	95	Standard size	24	3	9	146	5.6	80	6.0	MLC1500V137KB88595
	100	80	Standard size	29	4	12	146	3.8	65	6.1	MLC1500V137KB10080
	85	125		43	5	15	169	2.2	40	4.7	MLC1500V157KB85125
150	88.5	106	Standard size	24	3	9	169	6.4	90	5.3	MLC1500V157KB885106
	100	87		29	4	12	169	4.0	75	5.7	MLC1500V157KB10087
	116	70		37	5	15	169	2.5	60	5.7	MLC1500V157KB11670
160	85	120	Standard size	22	3	9	180	8.1	100	4.9	MLC1500V167KB85120
	85	135		43	5	15	180	2.4	40	4.3	MLC1500V167KB85135
	116	75		36	5	15	180	2.7	65	5.5	MLC1500V167KB11675
170	88.5	120	Standard size	23	3	9	191	7.7	100	4.8	MLC1500V177KB885120
	88.5	125		47	6	18	191	2.0	40	4.4	MLC1500V177KB885125
180	100	95	Standard size	29	4	12	191	4.5	80	5.1	MLC1500V177KB10095
	85	145	Standard size	43	5	15	203	2.6	45	4.0	MLC1500V187KB85145
190	88.5	135		46	6	18	203	2.2	40	4.2	MLC1500V187KB885135
	116	80	Standard size	36	5	15	203	2.9	65	5.1	MLC1500V187KB11680
200	100	106		28	4	12	214	5.2	90	4.7	MLC1500V197KB100106
	85	159	Standard size	42	5	15	225	2.9	50	3.8	MLC1500V207KB85159
88.5	145	45		6	18	225	2.4	45	4.0	MLC1500V207KB885145	
116	87	34		5	15	225	3.2	75	5.2	MLC1500V207KB11687	
210	100	125	Standard size	54	7	21	236	1.7	40	3.9	MLC1500V217KB100125
230	85	175	Standard size	42	5	15	259	3.2	55	3.4	MLC1500V237KB85175
	88.5	159	Standard size	46	6	18	259	2.6	50	3.6	MLC1500V237KB885159
	100	120		28	4	12	259	5.9	100	4.2	MLC1500V237KB100120
240	116	95	Standard size	34	5	15	259	3.5	80	4.7	MLC1500V237KB11695
	140	70	Standard size	40	8	24	259	1.8	60	6.8	MLC1500V237KB14070
250	100	135	Standard size	54	7	21	270	1.8	40	3.8	MLC1500V247KB100135
260	88.5	175	Standard size	45	6	18	281	2.0	65	6.2	MLC1500V257KB14075
	100	145		53	7	21	293	2.9	55	3.3	MLC1500V267KB885175
270	85	197	Standard size	42	5	15	304	3.6	60	3.0	MLC1500V277KB85197
	116	106		34	5	15	304	3.9	90	4.3	MLC1500V277KB116106
280	140	80	Standard size	40	8	24	315	2.1	65	5.8	MLC1500V287KB14080
	88.5	197		45	6	18	338	3.3	60	2.9	MLC1500V307KB885197
300	100	159	Standard size	54	7	21	338	2.1	50	3.2	MLC1500V307KB100159
	116	125		66	10	30	338	1.3	40	3.4	MLC1500V307KB116125
	85	225		42	5	15	360	4.2	70	2.6	MLC1500V327KB85225
320	116	120	Standard size	34	5	15	360	4.5	100	3.7	MLC1500V327KB116120
	140	87		40	8	24	360	2.3	75	5.3	MLC1500V327KB14087
330	116	135	Standard size	66	10	30	371	1.4	40	3.2	MLC1500V337KB116135
340	100	175	Standard size	53	7	21	383	2.3	55	3.0	MLC1500V347KB100175
350	88.5	225	Standard size	44	6	18	394	3.8	70	2.7	MLC1500V357KB885225
360	140	95	Standard size	39	8	24	405	2.5	80	5.1	MLC1500V367KB14095
370	116	145	Standard size	65	10	30	416	1.5	45	3.1	MLC1500V377KB116145
390	100	197	Standard size	53	8	24	439	2.7	60	2.6	MLC1500V397KB100197
400	140	106	Standard size	38	8	24	450	2.9	90	4.7	MLC1500V407KB140106
410	116	159	Standard size	65	10	30	461	1.7	50	2.8	MLC1500V417KB116159
	100	225		52	8	24	518	3.1	70	2.3	MLC1500V467KB100225
460	140	125	Standard size	71	16	48	518	1.0	40	3.9	MLC1500V467KB140125
470	116	175	Standard size	65	10	30	529	1.8	55	2.5	MLC1500V477KB116175
480	140	120	Standard size	38	8	24	540	3.3	100	4.1	MLC1500V487KB140120
510	140	135	Standard size	71	16	48	574	1.0	40	3.9	MLC1500V517KB140135
540	116	197	Standard size	64	10	30	608	2.1	60	2.3	MLC1500V547KB116197
570	140	145	Standard size	71	16	48	641	1.1	45	2.5	MLC1500V577KB140145
	116	225		64	10	30	720	2.4	70	2.0	MLC1500V647KB116225
640	140	159	Standard size	71	16	48	720	1.2	50	3.2	MLC1500V647KB140159
720	140	175	Standard size	70	16	48	810	1.3	55	3.1	MLC1500V727KB140175
810	140	197	Standard size	69	16	48	911	1.5	60	2.8	MLC1500V817KB140197
960	140	225	Standard size	69	16	48	1,080	1.8	70	2.3	MLC1500V967KB140225

* Please inquire us in case low frequency (commercial frequency) or frequency above 10kHz is included in ripple current.
 • Maximum permissible ripple current is calculated by the value in this table with frequency and temperature correction factors.
 Also the maximum current must be controlled below the permissible terminal current.
 Please refer useful life graph based on ambient temperature and voltage.

$$\theta_{HOTSPOT} = T_a + I^2 \times ESR \times R_{th}$$

Lifetime expectancy (vs temperature and voltage)



Definitions of specifications

Nominal Capacitance C_N

Capacitance value rated at 20°C/ 1kHz

Rated d.c. Voltage U_R

The peak voltage of either polarity of a reversing or non-reversing type wave form for which the capacitor is designed and rated.

Max.Ripple voltage U_r

The peak-to-peak alternating component of the unidirectional voltage

Non repetitive surge voltage U_S

Voltages beyond the rated voltage occurred by switching or any other causes. Maximum count 1000 times with a duration of not more than 50 ms each.

Charge energy W

Energy accumulated in the capacitor when charged at the rated voltage.

Maximum ripple current I_{max}

Maximum rms value of permissible current in continuous operation. The values given in the data sheets are related to either the specified maximum power dissipation or the current limits of the connection terminals.

Maximum peak current I^{\wedge}

Maximum permitted repetitive current amplitude during continuous operation.

Maximum surge current I_s

Maximum current that may occur non-repetitively and briefly in the event of a fault. Maximum count 1000 times with a duration of not more than 50 ms each.

Equivalent series resistance ESR

Equivalent resistance represents the sum of all Ohmic resistances occurring inside the capacitor. It is essential for calculation of the current dependent losses. Please consult us when low frequencies such as commercial frequencies and/or high frequencies over 10kHz are superimposed on the fundamental frequency of ripple current.

Dielectric dissipation factor $\tan \delta$

Constant dissipation factor of the dielectric material for all capacitors in their rated frequency.

Self discharge time constant $C \times R_{is}$

Time constant of self-discharge

Equivalent series inductance ESL

Shows the sum of all inductive elements that are contained in capacitors.

Minimum operating temperature T_{min}

Lower permissible ambient temperature where a capacitor is used.

Maximum operating temperature T_{max}

Highest permissible capacitor temperature during operation.

Storage temperature $T_{storage}$

Temperature range at no-loaded storage

Ambient temperature T_a

Temperature of the capacitor outside air, measured 10 cm away and at 2/3 of the case height of the capacitor.

Hotspot temperature $\theta_{hotspot}$

Temperature at the hottest spot inside the capacitor.

Thermal resistance R_{th}

The thermal resistance indicates by how many degrees the capacitor temperature at the hotspot rises in relation to the dissipation losses.

Maximum power dissipation P_{max}

Maximum permitted power dissipation for the capacitor's operation

Voltage test between terminals U_{TT}

Test voltage of withstanding between terminals at room temperature

Voltage test between terminals and case U_{TC}

Routine test of all capacitors between short-circuited terminals and case, executed at room temperature.

Clearance in air

The shortest distance between conducting parts of the terminals or between terminals and case.

Creepage distance

The shortest distance along an insulated surface between conducting parts of the terminals or between terminals and case.

Applied voltage U_w

Effective working voltage according to the actual capacitor

UPGRADE!

MLC2 Series (Cylindrically-Shaped Metallized Polypropylene Film Capacitors)

Features

- Approx. 15% smaller than MLC series in volume.
- Cylindrically-shaped capacitor with big capacitance for wind & solar power inverters, other inverters, chopper control and charge-discharge.
- High reliability of withstanding voltage due to using of our original segmented metallized film.

Specifications

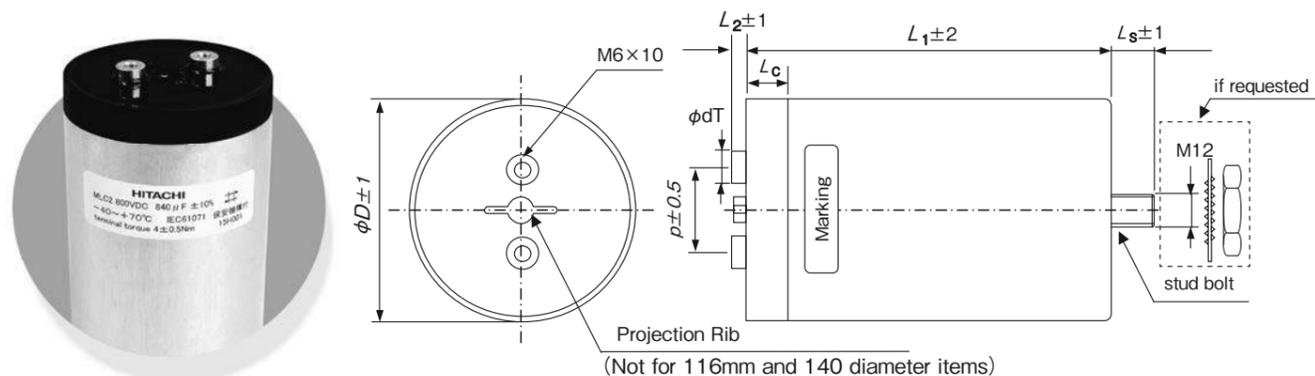
Items	Characteristics
Operating Temperature range *	-40 ~ +85°C at 0.7 UN
	-40 ~ +80°C at 0.8 UN
	-40 ~ +75°C at 0.9 UN
	-40 ~ +70°C at 1.0 UN
Rated Voltage UN	800 ~ 900Vdc
Voltage test between terminals UTT	1.5 × UN / 10s
Voltage test terminals to case UTC	3,200Vac / 10s
Terminals (permitted Torque)	M6 × 10 (4 ± 0.5Nm)
Stud Bolt (permitted Torque)	M12 × 16 / 18 (7 ± 1Nm)
Life Time Test / Standard	IEC 61071 : 2007
Dielectric	Polypropylene
Electrode	Segmented Metal with Fuse Function
Cap	PBT UL94V-0 listed
impregnants	Epoxy / Urethane Resin UL94V-0 listed
Case material	Aluminium
Humidity	Class F : 75% annual average, 95% 30days / year

Dimensions (mm)	P	φD				
		φ 85	φ 88.5	φ 100	φ 116	φ 140
φdτ	φ 12	φ 12	φ 12	φ 14	φ 19	
L2	5	5	5	5	5	
Lc	15	15	15	20	20	
Ls	16	16	16	18	18	
Clearance distance (mm)	20	20	20	36	31	
Creepage distance (mm)	28	28	28	36	31	
Terminal allowance current	60Arms	60Arms	60Arms	80Arms	100Arms	

Imax Multiplier (1kHz ~ 10kHz)

Ta Ambient Temperature	50°C	UN			
		0.7 × UN	0.8 × UN	0.9 × UN	1.0 × UN
50°C	1.3	1.2	1.1	1.0	
60°C	1.1	1.0	0.9	0.7	
70°C	0.9	0.7	0.5	0.0	
75°C	0.7	0.5	0.0		
80°C	0.5	0.0			
85°C	0.0				

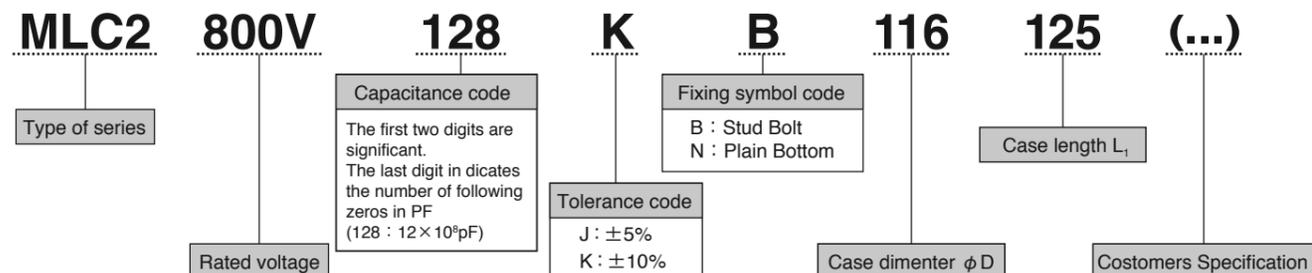
Outline of drawings and dimensions



Part number

Example : MLC2, 800V, 1200 μF, ±10%, D = φ116, L = 125, with stud bolt

MLC2800V128KB116125



Standard Products Table

Rated d.c voltage UN : 800Vdc	Max.ripple voltage Ur : 200V Non repetitive surge voltage Us : 1,200V Voltage test between terminals UTT : 1,200Vdc/10s Voltage test terminals to case. UTC : 3,200Vac/10s										
	Nominal Capacitance CN (μF)	Dimensions			Maximum ripple current (Arms) Imax* [Arms/at50°C, 1k ~ 10kHz]	Maximum peak current I^ [kA]	Maximum Surge current Is [kA]	Charge energy W [J]	Equivalent Series Resistance ESR [mΩ]	Equivalent Series Inductance ESL [nH]	Thermal resistance Rth [K/W]
300	85	70	Standard size	31	5	15	96	2.4	60	8.4	MLC2800V307KB8570
330	85	75		31	5	15	106	2.6	65	7.8	MLC2800V337KB8575
340	88.5	70	Standard size	33	6	18	109	2.2	60	8.1	MLC2800V347KB88570
370	85	80		31	5	15	118	2.8	65	7.2	MLC2800V377KB8580
	88.5	75		33	6	18	118	2.4	65	7.5	MLC2800V377KB88575
410	88.5	80		33	6	18	131	2.6	65	6.9	MLC2800V417KB88580
440	100	70	Standard size	40	7	21	141	1.8	60	6.8	MLC2800V447KB10070
450	85	87		31	5	15	144	3.0	75	6.8	MLC2800V457KB8587
470	88.5	87		33	6	18	150	2.8	75	6.4	MLC2800V477KB88587
480	85	95	Standard size	30	5	15	154	3.4	80	6.4	MLC2800V487KB8595
490	100	75		40	7	21	157	1.9	65	6.4	MLC2800V497KB10075
530	88.5	95	Standard size	32	6	18	170	3.1	80	6.1	MLC2800V537KB88595
540	85	106		30	5	15	173	3.9	90	5.6	MLC2800V547KB85106
	100	80		39	7	21	173	2.1	65	6.1	MLC2800V547KB10080
600	88.5	106		31	6	18	192	3.6	90	5.6	MLC2800V607KB885106
610	85	125	Standard size	57	10	30	195	1.2	40	5.0	MLC2800V617KB85125
	100	87		39	7	21	195	2.3	75	5.6	MLC2800V617KB10087
620	116	70	Standard size	47	10	30	198	1.5	60	5.9	MLC2800V627KB11670
630	85	120		29	5	15	202	4.6	100	5.1	MLC2800V637KB85120
670	85	135		57	10	30	214	1.3	40	4.6	MLC2800V677KB85135
680	88.5	125	Standard size	62	11	33	218	1.1	40	4.6	MLC2800V687KB885125
	116	75		47	10	30	218	1.6	65	5.5	MLC2800V687KB11675
690	100	95	Standard size	39	7	21	221	2.6	80	4.9	MLC2800V697KB10095
700	88.5	120		31	6	18	224	4.2	100	4.9	MLC2800V707KB885120
750	85	145		57	10	30	240	1.4	45	4.3	MLC2800V757KB85145
760	88.5	135		62	11	33	243	1.2	40	4.2	MLC2800V767KB885135
	116	80		46	10	30	243	1.7	65	5.4	MLC2800V767KB11680
780	100	106		38	7	21	250	3.0	90	4.5	MLC2800V787KB100106
830	88.5	145		61	11	33	266	1.3	45	4.1	MLC2800V837KB885145
840	85	159		57	10	30	269	1.6	50	3.8	MLC2800V847KB85159
850	116	87		46	10	30	272	1.9	75	4.9	MLC2800V857KB11687
890	100	125	Standard size	71	15	45	285	1.0	40	3.9	MLC2800V897KB100125
920	100	120		37	7	21	294	3.4	100	4.2	MLC2800V927KB100120
930	140	70	Standard size	49	15	45	298	1.2	60	6.8	MLC2800V937KB14070
940	88.5	159		61	12	36	301	1.5	50	3.5	MLC2800V947KB885159
960	85	175	Standard size	56	10	30	307	1.8	55	3.5	MLC2800V967KB85175
970	116	95	Standard size	45	10	30	310	2.1	80	4.6	MLC2800V977KB11695
980	100	135		71	15	45	314	1.0	40	3.9	MLC2800V987KB100135
1,000	85	197		54	10	30	320	2.2	60	3.1	MLC2800V108KB85197
	88.5	175	Standard size	59	11	33	320	1.7	55	3.3	MLC2800V108KB885175
	100	145		69	14	42	320	1.2	45	3.4	MLC2800V108KB100145
	116	106		44	10	30	320	2.5	90	4.0	MLC2800V108KB116106
1,100	140	75		49	15	45	320	1.3	65	6.2	MLC2800V108KB14075
	140	80		49	15	45	352	1.4	65	5.8	MLC2800V118KB14080
	85	225		54	10	30	384	2.5	70	2.7	MLC2800V128KB85225
	88.5	197		60	12	36	384	1.9	60	2.9	MLC2800V128KB885197
1,200	100	159		70	15	45	384	1.2	50	3.3	MLC2800V128KB100159
	116	120		43	10	30	384	2.8	100	3.8	MLC2800V128KB116120
	116	125	Standard size	83	20	60	384	0.8	40	3.6	MLC2800V128KB116125
	140	87		48	15	45	384	1.5	75	5.6	MLC2800V128KB14087
1,300	100	175	Standard size	69	14	42	416	1.4	55	3.0	MLC2800V138KB100175
	116	135		83	20	60	416	0.9	40	3.2	MLC2800V138KB116135
1,400	88.5	225		59	11	33	448	2.2	70	2.6	MLC2800V148KB885225
	140	95	Standard size	48	15	45	448	1.7	80	5.0	MLC2800V148KB14095
1,500	100	197		68	14	42	480	1.6	60	2.7	MLC2800V158KB100197
	116	145		83	20	60	480	0.9	45	3.2	MLC2800V158KB116145
1,600	140	106		47	15	45	512	1.9	90	4.7	MLC2800V168KB140106
1,700	116	159		83	21	63	544	1.0	50	2.9	MLC2800V178KB116159
1,800	100	225		68	15	45	576	1.8	70	2.4	MLC2800V188KB100225
	140	125	Standard size	86	30	90	576	0.7	40	3.8	MLC2800V188KB140125
1,900	116	175		83	20	60	608	1.1	55	2.6	MLC2800V198KB116175
	140	120	Standard size	47	15	45	608	2.1	100	4.2	MLC2800V198KB140120
2,000	140	135		86	30	90	640	0.7	40	3.8	MLC2800V208KB140135
2,100	116	197		80	20	60	672	1.3	60	2.4	MLC2800V218KB116197
2,300	140	145		87	31	93	736	0.8	45	3.2	MLC2800V238KB140145
2,500	116	225		80	20	60	800	1.5	70	2.1	MLC2800V258KB116225
	140	159		86	30	90	800	0.8	50	3.3	MLC2800V258KB140159
2,900	140	175	Standard size	86	31	93	928	0.9	55	3.0	MLC2800V298KB140175
3,300	140	197		86	31	93	1056	1.0	60	2.7	MLC2800V338KB140197
3,800	140	225		85	30	90	1216	1.2	70	2.3	MLC2800V388KB140225

* Please inquire us in case low frequency (commercial frequency) or frequency above 10kHz is included in ripple current.
 • Maximum permissible ripple current is calculated by the value in this table with frequency and temperature correction factors.
 Also the maximum current must be controlled below the permissible terminal current .
 Please refer useful life graph based on ambient temperature and voltage.

$$\theta_{HOTSPOT} = T_a + I^2 \times ESR \times R_{th}$$

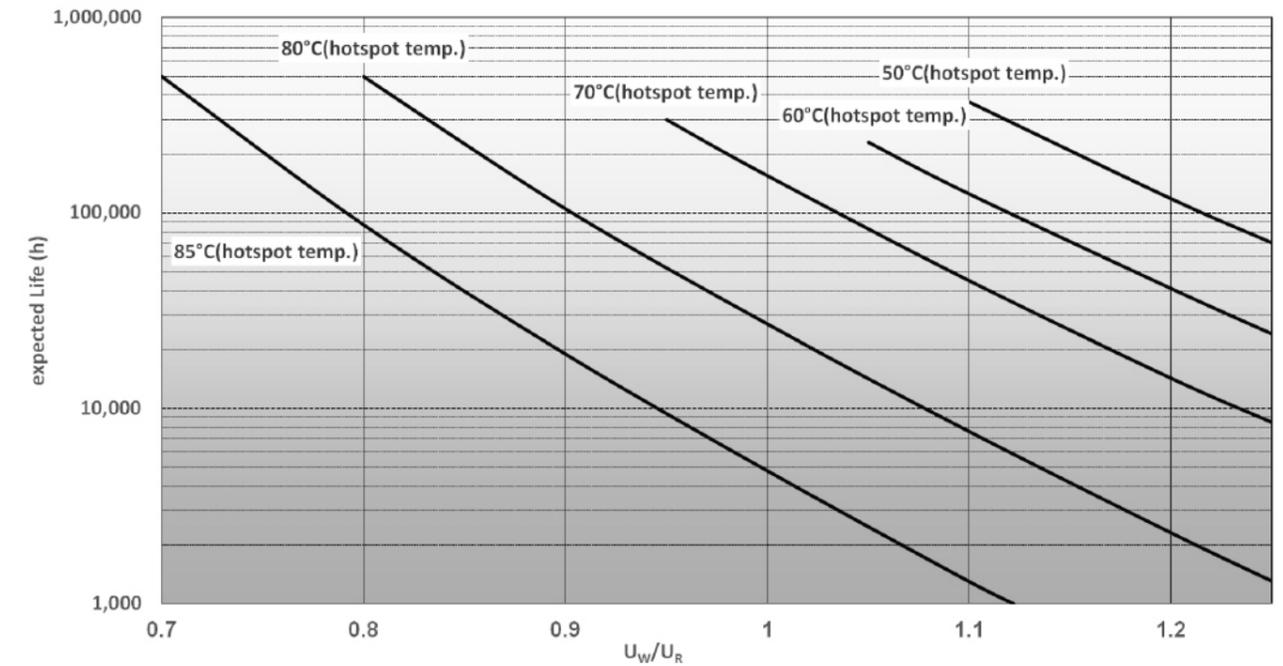
Standard Products Table

Rated d.c. voltage U_N : 900Vdc	Max.ripple voltage U_r : 200V Non repetitive surge voltage U_S : 1,350V Voltage test between terminals U_{TT} : 1,350Vdc/10s Voltage test terminals to case. U_{TC} : 3,200Vac/10s										
	Nominal Capacitance C_N [μF]	Dimensions			Maximum ripple current (Arms) I_{max}^* [Arms/at50°C, 1k ~ 10kHz]	Maximum peak current I^{\wedge} [kA]	Maximum Surge current I_s [kA]	Charge energy W [J]	Equivalent Series Resistance ESR [mΩ]	Equivalent Series Inductance ESL [nH]	Thermal resistance R_{th} [K/W]
Diameter ϕD [mm]		Length of the case L_1 [mm]	Remarks								
230	85	70	Standard size	30	4	12	74	2.6	60	8.3	MLC2900V237KB8570
250	85	75	Standard size	29	4	12	80	2.9	65	8.0	MLC2900V257KB8575
	88.5	70		31	5	15	80	2.5	60	8.1	MLC2900V257KB88570
280	85	80	Standard size	29	4	12	90	3.1	65	7.5	MLC2900V287KB8580
	88.5	75		31	5	15	90	2.6	65	7.8	MLC2900V287KB88575
310	88.5	80	Standard size	31	5	15	99	2.9	65	7.0	MLC2900V317KB88580
320	85	87	Standard size	29	5	15	102	3.4	75	6.8	MLC2900V327KB8587
350	88.5	87	Standard size	31	5	15	112	3.2	75	6.3	MLC2900V357KB88587
	100	70		39	7	21	112	2.0	60	6.5	MLC2900V357KB10070
360	85	95	Standard size	28	4	12	115	3.8	80	6.5	MLC2900V367KB8595
390	100	75	Standard size	38	7	21	125	2.1	65	6.4	MLC2900V397KB10075
400	88.5	95	Standard size	30	5	15	128	3.5	80	6.2	MLC2900V407KB88595
410	85	106	Standard size	28	5	15	131	4.4	90	5.7	MLC2900V417KB85106
430	100	80	Standard size	38	7	21	138	2.3	65	6.0	MLC2900V437KB10080
450	88.5	106	Standard size	30	5	15	144	4.1	90	5.3	MLC2900V457KB885106
460	85	125	Standard size	55	9	27	147	1.4	40	4.6	MLC2900V467KB85125
470	100	87	Standard size	37	7	21	150	2.6	75	5.6	MLC2900V477KB10087
	116	70		45	9	27	150	1.6	60	6.0	MLC2900V477KB11670
480	85	120	Standard size	27	4	12	154	5.1	100	5.3	MLC2900V487KB85120
510	85	135	Standard size	55	9	27	163	1.5	40	4.3	MLC2900V517KB85135
	88.5	125		59	10	30	163	1.3	40	4.3	MLC2900V517KB885125
530	116	75	Standard size	45	9	27	163	1.7	65	5.7	MLC2900V517KB11675
	88.5	120		29	5	15	170	4.7	100	4.9	MLC2900V537KB885120
540	100	95	Standard size	37	7	21	173	2.8	80	5.1	MLC2900V547KB10095
570	85	145	Standard size	54	9	27	182	1.6	45	4.2	MLC2900V577KB85145
	88.5	135		59	10	30	182	1.4	40	4.0	MLC2900V577KB885135
590	116	80	Standard size	44	9	27	182	1.9	65	5.3	MLC2900V577KB11680
	100	106		36	6	18	189	3.3	90	4.6	MLC2900V597KB100106
630	88.5	145	Standard size	57	10	30	202	1.5	45	4.0	MLC2900V637KB885145
640	85	159	Standard size	54	9	27	205	1.8	50	3.7	MLC2900V647KB85159
650	116	87	Standard size	44	9	27	208	2.0	75	5.0	MLC2900V657KB11687
690	100	120	Standard size	34	6	18	221	3.8	100	4.4	MLC2900V697KB100120
	100	125		69	13	39	221	1.0	40	4.0	MLC2900V697KB100125
710	88.5	159	Standard size	57	10	30	227	1.6	50	3.8	MLC2900V717KB885159
	140	70		48	14	42	227	1.3	60	6.5	MLC2900V717KB14070
730	85	175	Standard size	54	9	27	234	2.0	55	3.4	MLC2900V737KB85175
	116	95		43	9	27	234	2.3	80	4.6	MLC2900V737KB11695
780	100	135	Standard size	69	13	39	250	1.1	40	3.7	MLC2900V787KB100135
	140	75		48	14	42	250	1.4	65	6.0	MLC2900V787KB14075
810	88.5	175	Standard size	57	10	30	259	1.8	55	3.4	MLC2900V817KB885175
820	85	197	Standard size	53	9	27	262	2.3	60	3.0	MLC2900V827KB885197
830	116	106	Standard size	43	9	27	266	2.6	90	4.1	MLC2900V837KB116106
860	100	145	Standard size	68	13	39	275	1.2	45	3.5	MLC2900V867KB100145
870	140	80	Standard size	47	14	42	278	1.5	65	5.9	MLC2900V877KB14080
910	88.5	197	Standard size	56	10	30	291	2.1	60	3.0	MLC2900V917KB885197
930	100	159	Standard size	68	13	39	298	1.4	50	3.0	MLC2900V937KB100159
940	116	125	Standard size	80	18	54	301	0.9	40	3.4	MLC2900V947KB116125
960	85	225	Standard size	52	9	27	307	2.7	70	2.7	MLC2900V967KB85225
970	116	120	Standard size	42	9	27	310	3.0	100	3.7	MLC2900V977KB116120
980	140	87	Standard size	47	14	42	314	1.6	75	5.5	MLC2900V987KB14087
	88.5	225		54	9	27	320	2.6	70	2.6	MLC2900V108KB885225
1,000	100	175	Standard size	66	12	36	320	1.6	55	2.8	MLC2900V108KB100175
	116	135		79	17	51	320	0.9	40	3.5	MLC2900V108KB116135
1,100	100	197	Standard size	64	13	39	352	1.8	60	2.7	MLC2900V118KB100197
	116	145		78	17	51	352	1.0	45	3.2	MLC2900V118KB116145
1,200	140	95	Standard size	46	13	39	352	1.8	80	5.1	MLC2900V118KB14095
	140	106		45	13	39	384	2.0	90	4.8	MLC2900V128KB140106
1,300	116	159	Standard size	79	18	54	416	1.1	50	2.9	MLC2900V138KB116159
1,400	100	225	Standard size	66	13	39	448	2.0	70	2.3	MLC2900V148KB100225
	116	175		78	17	51	448	1.3	55	2.5	MLC2900V148KB116175
1,500	140	120	Standard size	45	13	39	448	2.4	100	4.0	MLC2900V148KB140120
	140	125		84	27	81	448	0.7	40	4.0	MLC2900V148KB140125
1,600	140	135	Standard size	83	26	78	480	0.8	40	3.6	MLC2900V158KB140135
1,700	116	197	Standard size	77	17	51	512	1.4	60	2.4	MLC2900V168KB116197
1,900	140	145	Standard size	83	26	78	544	0.8	45	3.6	MLC2900V178KB140145
	116	225		77	18	54	608	1.6	70	2.1	MLC2900V198KB116225
2,200	140	159	Standard size	84	26	78	608	0.9	50	3.1	MLC2900V198KB140159
	140	175		84	27	81	704	1.0	55	2.8	MLC2900V228KB140175
2,500	140	197	Standard size	83	27	81	800	1.1	60	2.6	MLC2900V258KB140197
2,900	140	225	Standard size	81	27	81	928	1.3	70	2.3	MLC2900V298KB140225

* Please inquire us in case low frequency (commercial frequency) or frequency above 10kHz is included in ripple current.
 • Maximum permissible ripple current is calculated by the value in this table with frequency and temperature correction factors.
 Also the maximum current must be controlled below the permissible terminal current.
 Please refer useful life graph based on ambient temperature and voltage.

$$\theta_{HOTSPOT} = T_a + I^2 \times ESR \times R_{th}$$

Lifetime expectancy (vs temperature and voltage)



Definitions of specifications

Nominal Capacitance C_N

Capacitance value rated at 20°C/ 1kHz

Rated d.c. Voltage U_R

The peak voltage of either polarity of a reversing or non-reversing type wave form for which the capacitor is designed and rated.

Max. Ripple voltage U_r

The peak-to-peak alternating component of the unidirectional voltage

Non repetitive surge voltage U_S

Voltages beyond the rated voltage occurred by switching or any other causes. Maximum count 1000 times with a duration of not more than 50 ms each.

Charge energy W

Energy accumulated in the capacitor when charged at the rated voltage.

Maximum ripple current I_{max}

Maximum rms value of permissible current in continuous operation. The values given in the data sheets are related to either the specified maximum power dissipation or the current limits of the connection terminals.

Maximum peak current I^{\wedge}

Maximum permitted repetitive current amplitude during continuous operation.

Maximum surge current I_s

Maximum current that may occur non-repetitively and briefly in the event of a fault. Maximum count 1000 times with a duration of not more than 50 ms each.

Equivalent series resistance ESR

Equivalent resistance represents the sum of all Ohmic resistances occurring inside the capacitor. It is essential for calculation of the current dependent losses. Please consult us when low frequencies such as commercial frequencies and/or high frequencies over 10kHz are superimposed on the fundamental frequency of ripple current.

Dielectric dissipation factor $\tan \delta \theta$

Constant dissipation factor of the dielectric material for all capacitors in their rated frequency.

Self discharge time constant $C \times R_{is}$

Time constant of self-discharge

Equivalent series inductance ESL

Shows the sum of all inductive elements that are contained in capacitors.

Minimum operating temperature T_{min}

Lower permissible ambient temperature where a capacitor is used.

Maximum operating temperature T_{max}

Highest permissible capacitor temperature during operation.

Storage temperature $T_{storage}$

Temperature range at no-loaded storage

Ambient temperature T_a

Temperature of the capacitor outside air, measured 10 cm away and at 2/3 of the case height of the capacitor.

Hotspot temperature $\theta_{hotspot}$

Temperature at the hottest spot inside the capacitor.

Thermal resistance R_{th}

The thermal resistance indicates by how many degrees the capacitor temperature at the hotspot rises in relation to the dissipation losses.

Maximum power dissipation P_{max}

Maximum permitted power dissipation for the capacitor's operation

Voltage test between terminals U_{TT}

Test voltage of withstanding between terminals at room temperature

Voltage test between terminals and case U_{TC}

Routine test of all capacitors between short-circuited terminals and case, executed at room temperature.

Clearance in air

The shortest distance between conducting parts of the terminals or between terminals and case.

Creepage distance

The shortest distance along an insulated surface between conducting parts of the terminals or between terminals and case.

Applied voltage U_w

Effective working voltage according to the actual capacitor

UPGRADE!

MKC-P4-Series (Resin-encased Metallized Polypropylene Film Capacitors)

Features

- Suitable for DC filter and DC link circuit
- Plastic case and filling resin materials conform to UL94V-0

Specifications

Items	Description
Operating Temperature range ⁽¹⁾	-40 ~ +105°C (voltage derating is required at ≥ +85°C)
Rated Voltage U_N	450, 700, 800, 900, 1100 V.DC
Voltage test between terminals	1.5 X U_N /10s
Maximum ripple voltage U_{AC} (peak to peak)	0,2 X $U_{N,85°C}$
Terminals	Tinned wired leads
Life Time Test /Standard	IEC 61071: 2007
Dielectric	Polypropylene
Electrode	No internal safety device (optional: segmented metallization design)
Case	UL94V-0
Filling material	UL94V-0
Environmental regulations	Comply with RoHS
Useful Life	> 170,000 hrs (at U_N , 75°C hotspot)

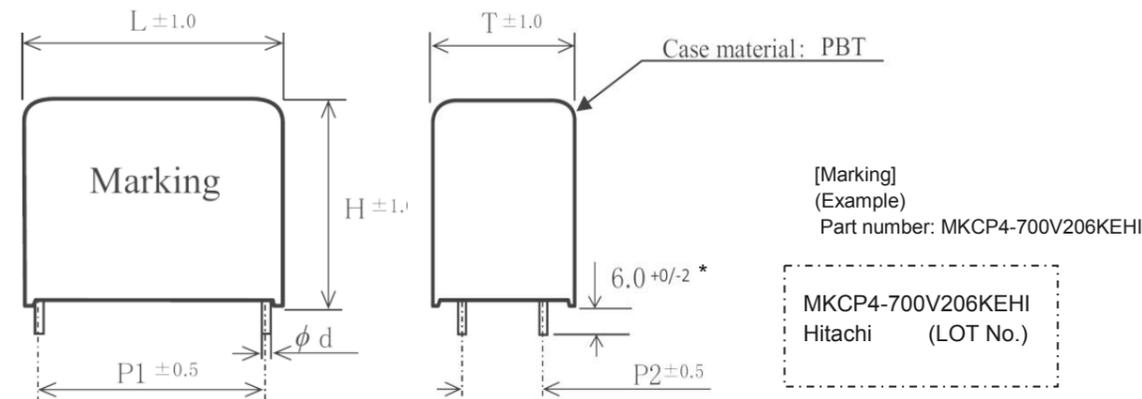
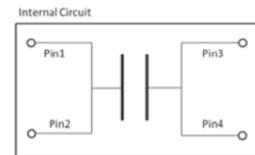
Dimension

Case (mm)			Terminal (mm)			Case dimension code
T	H	L	P1	P2	ød	
18.0	32.0	42.0	37.5	10.2	1.0	DGI
21.5	38.5	43.0	37.5	10.2	1.0	EHI
24.0	44.0	42.0	37.5	10.2	1.0	EII
25.0	45.0	57.5	52.5	10.2	1.2	FJL
30.0	45.0	42.0	37.5	20.3	1.0	GJI
30.0	45.0	57.5	52.5	20.3	1.2	GJL
30.0	55.0	42.0	37.5	20.3	1.0	GLI
35.0	50.0	57.5	52.5	20.3	1.2	HKL
35.0	60.0	57.5	52.5	20.3	1.2	HML
35.0	65.0	57.5	52.5	20.3	1.2	HNL
35.0	80.0	57.5	52.5	20.3	1.2	HQL
43.0	22.0	57.5	52.5	20.3	1.2	IEL
45.0	57.0	57.5	52.5	20.3	1.2	JLL
45.0	65.0	57.5	52.5	20.3	1.2	JNL
60.0	45.0	57.5	52.5	20.3	1.2	MJL

Part number: MKC-P4 Series 700 V.DC 20 µF ±10%
MKC-P4 700V 206 K EHI

Type of series ——— Case Dimension Code
 ——— Cap. tolerance code
 ——— Capacitance code
 ——— Rated voltage code

Outline of drawings and dimensions



* 6mm is standard length. Shorter length of 3.5mm is available on request. Part number suffix: "C".

Nominal capacitance C_N ⁽²⁾ (µF)	Dimensions						dv/dt (V/µs)	Maximum peak current \hat{i} ⁽³⁾ (A)	I_{rms} [Arms] ⁽⁴⁾	ESR ⁽⁵⁾ (typ.) (mΩ)	ESL ⁽⁶⁾ (typ.) (nH)	R_{th} ⁽⁷⁾ (K/W)	Part number ⁽⁸⁾
	T (mm)	H (mm)	L (mm)	P1 (mm)	P2 (mm)	Ød (mm)							
20	21.5	38.5	43.0	37.5	10.2	1.0	40	800	12.0	6.0	18	13.0	MKCP4-450V206KEHI
25	24.0	44.0	42.0	37.5	10.2	1.0	40	1000	13.0	5.5	19	12.0	MKCP4-450V256KEII
30	21.5	38.5	43.0	37.5	10.2	1.0	40	800	12.0	6.0	18	13.0	MKCP4-450V306KEHI
35	30.0	45.0	42.0	37.5	20.3	1.0	40	1400	18.5	3.5	19	9.5	MKCP4-450V356KGJI
40	30.0	55.0	42.0	37.5	20.3	1.0	40	1600	18.5	3.5	21	9.5	MKCP4-450V406KGLI
40	25.0	45.0	57.5	52.5	10.2	1.2	20	800	13.5	6.0	19	11.0	MKCP4-450V406KFJL
45	25.0	45.0	57.5	52.5	10.2	1.2	20	900	13.5	6.0	19	11.0	MKCP4-450V456KFJL
50	30.0	45.0	57.5	52.5	20.3	1.2	20	1000	15.5	5.0	19	9.5	MKCP4-450V506KGJL
55	35.0	50.0	57.5	52.5	20.3	1.2	20	1300	20.5	4.0	21	8.0	MKCP4-450V556KHKL
60	35.0	50.0	57.5	52.5	20.3	1.2	20	1200	18.0	4.5	20	8.0	MKCP4-450V606KHKL
65	35.0	50.0	57.5	52.5	20.3	1.2	20	1300	20.5	4.0	21	8.0	MKCP4-450V656KHKL
70	35.0	50.0	57.5	52.5	20.3	1.2	20	1400	19.0	4.0	20	8.0	MKCP4-450V706KHKL
80	35.0	50.0	57.5	52.5	20.3	1.2	20	1600	20.5	3.5	21	8.0	MKCP4-450V806KHKL
85	35.0	60.0	57.5	52.5	20.3	1.2	20	1700	20.5	3.5	21	8.0	MKCP4-450V856KHML
90	35.0	60.0	57.5	52.5	20.3	1.2	20	1800	22.0	3.0	21	8.0	MKCP4-450V906KHML
180	35.0	80.0	57.5	52.5	20.3	1.2	14	2500	22.0	3.0	28	8.0	MKCP4-450V187KHQLP

Rated Voltage U_N : 700Vdc (70° C: 800Vdc, 85° C: 700Vdc, 105° C: 500Vdc)									Voltage test between terminals U_{TT} : 1050 Vdc /10s				
10	18.0	32.0	42.0	37.5	10.2	1.0	40	400	8.0	12.0	17	15.5	MKCP4-700V106KDGI
20	21.5	38.5	43.0	37.5	10.2	1.0	40	800	12.0	6.0	18	13.0	MKCP4-700V206KEHI
22	24.0	44.0	42.0	37.5	10.2	1.0	40	880	13.5	5.5	19	12.0	MKCP4-700V226KEII
30	30.0	45.0	42.0	37.5	20.3	1.0	40	1200	17.0	4.0	19	9.5	MKCP4-700V306KGJI
30	25.0	45.0	57.5	52.5	10.2	1.2	20	600	12.0	8.0	19	11.0	MKCP4-700V306KFJL
35	30.0	45.0	42.0	37.5	20.3	1.0	40	1400	18.5	3.5	19	9.5	MKCP4-700V356KGJI
35	25.0	45.0	57.5	52.5	10.2	1.2	20	700	12.5	7.0	19	11.0	MKCP4-700V356KFJL
40	25.0	45.0	57.5	52.5	10.2	1.2	20	800	13.5	6.0	19	11.0	MKCP4-700V406KFJL
45	30.0	45.0	57.5	52.5	20.3	1.2	20	900	15.0	5.5	19	9.5	MKCP4-700V456KGJL
50	25.0	65.0	57.5	52.5	10.2	1.2	20	1000	17.3	4.0	22	11.0	MKCP4-700V506KFNLR
50	30.0	45.0	57.5	52.5	20.3	1.2	20	1000	14.2	5.5	20	9.5	MKCP4-700V506KGJL
55	35.0	50.0	57.5	52.5	20.3	1.2	20	1100	18.0	4.5	20	8.0	MKCP4-700V556KHKL
60	35.0	50.0	57.5	52.5	20.3	1.2	20	1200	19.0	4.0	20	8.0	MKCP4-700V606KHKL
65	35.0	50.0	57.5	52.5	20.3	1.2	20	1300	20.5	3.5	20	8.0	MKCP4-700V656KHKL
70	35.0	60.0	57.5	52.5	20.3	1.2	20	1400	20.5	3.5	21	8.0	MKCP4-700V706KHML
80	35.0	60.0	57.5	52.5	20.3	1.2	20	1600	21.5	3.0	21	8.0	MKCP4-700V806KHML
85	35.0	65.0	57.5	52.5	20.3	1.2	20	1700	22.0	3.0	22	8.0	MKCP4-700V856KHNL
90	45.0	57.0	57.5	52.5	20.3	1.2	20	1800	22.0	3.0	21	7.5	MKCP4-700V906KHNL
100	35.0	80.0	57.5	52.5	20.3	1.2	20	2000	22.0	3.0	28	8.0	MKCP4-700V107KHQL
100	45.0	65.0	57.5	52.5	20.3	1.2	20	2000	22.0	2.5	22	7.5	MKCP4-700V107KJNL
100	60.0	45.0	57.5	52.5	20.3	1.2	20	2000	22.0	2.5	19	6.0	MKCP4-700V107KMJL
120	35.0	80.0	57.5	52.5	20.3	1.2	20	2400	22.0	3.0	28	8.0	MKCP4-700V127KHQLP

Rated Voltage U_N : 800Vdc (70° C: 960Vdc, 85° C: 800Vdc, 105° C: 560Vdc)									Voltage test between terminals U_{TT} : 1200 Vdc /10s				
70	45.0	57.0	57.5	52.5	20.3	1.2	20	1400	22.0	3.0	21	7.5	MKCP4-800V706KJLL
70	35.0	65.0	57.5	52.5	20.3	1.2	20	1400	22.0	3.0	22	8.0	MKCP4-800V706KHNL

- (2) Nominal capacitance at 1kHz, Capacitance tolerance ±10%
- (3) Maximum permitted repetitive current amplitude during continuous operation
- (4) Maximum ripple current (rms) at 1k -10 kHz, ambient 85° C
- (5) Equivalent series resistance typical values at 10 kHz
- (6) Equivalent series inductance typical values at 1 MHz
- (7) Thermal resistance
- (8) "Long-Life" respective "High-Humidity" THB-type (85° C/85% RH) available on request. Part number suffix: "T".

Rated Voltage U_N : 900Vdc (70° C: 1100Vdc, 85° C: 900Vdc, 105° C: 650Vdc)								Voltage test between terminals U_{TT} : 1350 Vdc /10s					
Nominal capacitance C_N (2) (μF)	Dimensions						dv/dt (V/μs)	Maximum peak current I (3) (A)	Irms [Arms] (4)	ESR (5) (mΩ)	ESL (6) (nH)	Rth (7) (K/W)	Part number (8)
10	21.5	38.5	43.0	37.5	10.2	1.0	40	400	9.0	11.0	18	13.0	MKCP4-900V106KEHI
12	21.5	38.5	43.0	37.5	10.2	1.0	40	480	10.0	9.0	18	13.0	MKCP4-900V126KEHI
15	24.0	44.0	42.0	37.5	10.2	1.0	40	600	12.0	7.0	19	12.0	MKCP4-900V126KEII
15	25.0	45.0	57.5	52.5	10.2	1.2	20	300	9.5	12.0	19	11.0	MKCP4-900V156KFJL
17	43.0	22.0	57.5	52.5	20.3	1.2	20	340	8.6	12.0	19	8.0	MKCP4-900V176KIELS
20	30.0	45.0	42.0	37.5	20.3	1.0	40	800	15.5	5.0	19	9.5	MKCP4-900V206KGJI
20	25.0	45.0	57.5	52.5	10.2	1.2	20	400	10.0	11.0	19	11.0	MKCP4-900V206KFJL
25	30.0	45.0	57.5	52.5	20.3	1.2	20	500	11.5	9.0	19	9.5	MKCP4-900V256KGJL
35	35.0	50.0	57.5	52.5	20.3	1.2	20	700	15.5	6.0	20	8.0	MKCP4-900V356KHKL
40	35.0	50.0	57.5	52.5	20.3	1.2	20	800	17.0	5.0	20	8.0	MKCP4-900V406KHKL
45	35.0	60.0	57.5	52.5	20.3	1.2	20	900	16.5	5.0	21	8.0	MKCP4-900V456KHML
50	35.0	60.0	57.5	52.5	20.3	1.2	20	1000	18.5	4.0	21	8.0	MKCP4-900V506KHML
55	35.0	65.0	57.5	52.5	20.3	1.2	20	1100	19.0	4.0	22	8.0	MKCP4-900V556KHNL
55	45.0	57.0	57.5	52.5	20.3	1.2	20	1100	19.6	4.0	21	7.5	MKCP4-900V556KJLL
60	60.0	45.0	57.5	52.5	20.3	1.2	20	1200	22.0	3.5	19	6.0	MKCP4-900V606KMJL
60	35.0	80.0	57.5	52.5	20.3	1.2	20	1200	20.5	3.5	28	8.0	MKCP4-900V606KHQL
65	45.0	65.0	57.5	52.5	20.3	1.2	20	1300	22.0	3.0	22	7.5	MKCP4-900V656KJNL

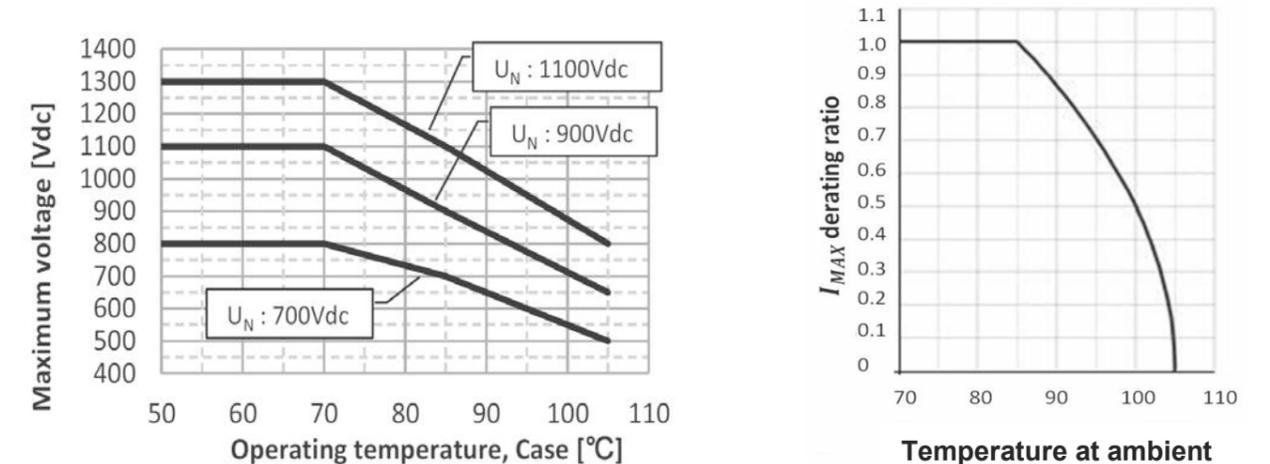
Rated Voltage U_N : 1100Vdc (70° C: 1300Vdc, 85° C: 1100Vdc, 105° C: 800Vdc)								Voltage test between terminals U_{TT} : 1650 Vdc /10s					
	Dimensions						dv/dt (V/μs)	Maximum peak current I (3) (A)	Irms [Arms] (4)	ESR (5) (mΩ)	ESL (6) (nH)	Rth (7) (K/W)	Part number (8)
7	21.5	38.5	43.0	37.5	10.2	1.0	45	310	8.5	11.5	18	13.0	MKCP4-1100V705KEHI
8	21.5	38.5	43.0	37.5	10.2	1.0	45	360	9.5	10.0	18	13.0	MKCP4-1100V805KEHI
10	24.0	44.0	42.0	37.5	10.2	1.0	45	459	11.0	8.0	19	12.0	MKCP4-1100V106KEII
10	25.0	45.0	57.5	52.5	10.2	1.2	23	230	8.5	16.0	19	11.0	MKCP4-1100V106KFJL
12	30.0	45.0	42.0	37.5	20.3	1.0	45	540	13.5	6.5	19	9.5	MKCP4-1100V126KGJL
15	25.0	45.0	57.5	52.5	10.2	1.2	23	340	10.5	10.5	19	11.0	MKCP4-1100V156KFJL
15	30.0	55.0	42.0	37.5	20.3	1.0	45	670	15.0	5.5	21	9.5	MKCP4-1100V156KGLI
20	30.0	45.0	57.5	52.5	20.3	1.2	23	460	12.5	8.0	19	9.5	MKCP4-1100V206KGJL
22	35.0	50.0	57.5	52.5	20.3	1.2	23	500	14.5	7.0	20	8.0	MKCP4-1100V226KHKL
25	35.0	50.0	57.5	52.5	20.3	1.2	23	550	15.0	6.5	20	8.0	MKCP4-1100V256KHKL
30	35.0	60.0	57.5	52.5	20.3	1.2	23	690	16.5	5.0	21	8.0	MKCP4-1100V306KHML
35	35.0	65.0	57.5	52.5	20.3	1.2	23	800	18.0	4.5	22	8.0	MKCP4-1100V356KHNL
35	45.0	57.0	57.5	52.5	20.3	1.2	23	800	18.0	4.5	21	7.5	MKCP4-1100V356KJLL
40	60.0	45.0	57.5	52.5	20.3	1.2	23	920	22.0	4.0	19	6.0	MKCP4-1100V406KMJL
40	35.0	80.0	57.5	52.5	20.3	1.2	23	920	19.0	4.0	29	8.0	MKCP4-1100V406KHQL
45	45.0	65.0	57.5	52.5	20.3	1.2	23	1000	19.5	4.0	22	7.5	MKCP4-1100V456KJNL

- (2) Nominal capacitance at 1kHz, Capacitance tolerance ±10%
- (3) Maximum permitted repetitive current amplitude during continuous operation
- (4) Maximum ripple current (rms) at 1k -10 kHz, ambient 85° C
- (5) Equivalent series resistance typical values at 10 kHz
- (6) Equivalent series inductance typical values at 1 MHz
- (7) Thermal resistance
- (8) "Long-Life" respective "High-Humidity" THB-type (85° C/85% RH) available on request. Part number suffix: "T".

Type test

No.	Item	Performance	Test method
1	Robustness of Terminal	Tensile strength	No abnormality such as breaking or loosening of terminal Force: 20N Duration: 10 ±1s
		Bending strength	No abnormality such as breaking or loosening of terminal Force: 20N Duration: 2s-3s /bend Bending: 90° x 4 times
2	Resistance to soldering heat	Capacitance: within ±0.5% of the initial value measured Tanδ (at 10kHz): initial value measured + 0.5% or less Appearance: no remarkable abnormality	No pre drying, method 1A Solder bath: 260 ± 5° C Duration: 10 ± 1s
3	Vibration	Capacitance: within ±0.5% of the initial value measured Tanδ (at 10kHz): initial value measured + 0.5% or less Appearance: no remarkable abnormality	Frequency range: from 10 to 55 Hz Sweep time: 1 octave/min. Amplitude: ± 0.35mm Test duration: 10 frequency cycle per axis Direction: 3 axes offset from each other by 90°
4	Shock of impact	Capacitance: within ± 0.5% of the initial value measured Tanδ (at 10kHz): initial value measured + 0.5% or less Appearance: no remarkable abnormality	Pulse shape: Half-sine Acceleration: 490 m/s ² Duration of pulse: 11ms
5	Voltage test between terminal	Capacitance: within ± 0.5% of the initial value measured Tanδ (at 10kHz): initial value measured + 0.5% or less	$U_N \times 1.5$ for 60s
6	Self-healing test	Capacitance: within ± 0.5% of the initial value measured Tanδ (at 10kHz): initial value measured x 1.2 + 0.01% or less Appearance: no remarkable abnormality	Applied $U_N \times 1.5$ for 10s. If fewer than 5 clearings occur during 10s, Applied voltage is increased at 100 V/s until 5 clearings have occurred or until the voltage has reached $U_N \times 2.5$. Clearing = voltage drop of 5%
7	Change of temperature	Capacitance: within ± 2% of the initial value measured Tanδ (at 10kHz): initial value measured x 1.5 or less Dielectric strength: no puncturing of flashover Self-healing punctures are permitted Appearance: no remarkable abnormality	T_{MAX} : 105° C T_{MIN} : - 40° C Transition time: 1h Number of cycle: 5
8	Damp heat steady state	Capacitance: within ± 2% of the initial value measured Tanδ (at 10kHz): initial value measured x 1.5 or less Dielectric strength: no puncturing of flashover Self-healing punctures are permitted Appearance: no remarkable abnormality	Ambient temperature: 40+ 2° C Humidity: RH 93 ± 3% Duration: 56 days
9	Endurance	Capacitance: within ± 3% of the initial value measured Tanδ (at 10kHz): initial value measured x 1.5 or less	Step1: Applied voltage : $U_N \times 1.4$ Ambient temperature : 85° C Duration : 250h Step2: Discharge 1000 times at $1.4 \times I_{peak}$ Ambient temperature: room temp. Step3: Applied voltage : $U_N \times 1.4$ Ambient temperature : 85° C Duration : 250h

Voltage and current derating curves



E51 (DC) / E51 (AC) Series

(Cylindrical Metallized Polypropylene Film Capacitors)

Features

- High voltage range and low inductance capacitors.
- E51 series are made in dry technology.
- Capacitors both for AC/DC application are available.

Specifications

E51 (DC) Series (for DC)

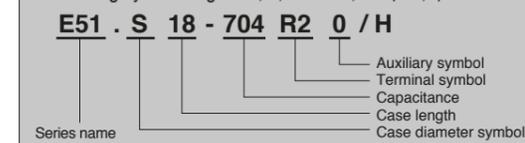
Item	Specification
Category temperature range	-25 ~ +70°C (Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U _N)	1,300 ~ 50,000Vdc
Terminal (torque)	M8 × 12 (7Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	—
Impregnant	Solid resin based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS

E51 (AC) Series (for AC)

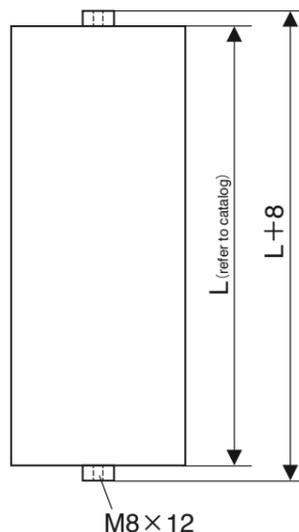
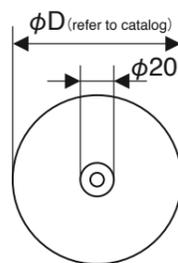
Item	Specification
Category temperature range	-25 ~ +70°C (Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U _N)	2,350 ~ 20,000Vac (3,200 ~ 50,000Vdc)
Terminal (torque)	M8 × 12 (7Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	—
Impregnant	Solid resin based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS

Item	Specification
Terminal code	R2
Can material	Plastic (UL94V-0)
Terminal	Axial thread M8×12
	Torque : 7Nm
	I _{max} (terminal) : 100A
Degree of protection	IP00
Humidity class	F
Clearance in air	L + D - 20mm
Creepage distance	L + D - 20mm

Numbering system: e.g. E51, 1,300VDC, 700μ F, φ 140×175Lmm, R2 terminal



Dimensions



Standard Value and Case Size (E51Series(DC))

Rated DC Voltage U _N (DC) [Vdc]	Rated Capacitance C _N [μF]	Case size		Rated ripple voltage U _r [V]	Surge voltage U _s [V]	Energy Contents W [J]	Series resistance (reference) R _s [mΩ]	Thermal resistance (reference) R _{th} [K/W]	Max current I _{max} [Arms]	Max peak current i [kA]	Max surge current I _s [kA]	Self inductance (reference) ESL [nH]	Weight [kg]	Part number
		Diameter φD [mm]	Length L [mm]											
Rated DC voltage U_N(DC) : 1,300 ~ 2,700Vdc														
1,300	700	140	175	300	1,950	592	0.39	3	80	9.30	28.00	30	2.8	E51.S18-704R20/H
2,300	80	64	355	400	4,100	212	1.3	3.6	50	4.00	13.00	80	1.2	E51.L35-803R20/H
2,300	170	90	355	400	4,100	450	0.6	2.4	90	6.00	17.00	100	2.4	E51.P35-174R20/H
2,500	25	90	130	800	3,750	78	0.96	6.4	70	3.10	9.30	30	0.9	E51.P13-253R20/H
2,500	50	90	170	800	3,750	156	1.3	4.9	70	3.10	9.30	50	1.1	E51.P17-503R20/H
2,700	40	140	125	500	4,050	146	0.85	2.55	40	5.00	15.00	20	2.0	E51.S12-403R20/H
Rated DC voltage U_N(DC) : 3,000 ~ 3,600Vdc														
3,000	18	90	150	600	4,500	81	0.62	5.5	65	2.80	8.40	50	1.1	E51.P15-183R20/H
3,000	80	90	255	700	4,500	360	1.9	3.2	60	3.20	9.60	60	1.7	E51.P25-803R20/H
3,000	350	140	355	600	4,500	1575	1.5	1.5	75	8.40	25.20	100	5.7	E51.S35-354R20/H
3,000	400	140	460	600	4,500	1,800	0.85	1.2	100	15.40	46.20	120	7.4	E51.S46-404R20/H
3,100	86	90	355	500	5,600	413	1.5	2.4	65	4.50	13.00	100	2.4	E51.P35-863R20/H
3,200	15	64	200	700	4,800	77	2.3	5.8	35	1.00	3.00	50	0.7	E51.L20-153R20/H
3,200	33	90	200	700	4,800	169	0.7	4.1	70	2.50	7.50	50	1.3	E51.P20-333R20/H
3,500	500	140	710	600	5,250	3,063	1.2	0.75	100	13.90	41.70	200	11.5	E51.S71-504R20/H
3,600	80	116	245	600	5,400	518	0.71	2.6	90	6.00	18.00	40	2.1	E51.R24-803R20/H
3,600	220	140	300	800	5,400	1426	0.6	1.1	40	4.40	13.20	40	5.0	E51.S30-224R20/H
Rated DC voltage U_N(DC) : 4,000 ~ 5,600Vdc														
4,000	8	116	170	2,850	6,000	64	1.40	3.8	25	2.10	6.30	100	1.9	E51.R17-802R20/H
4,000	16	140	170	2,850	6,000	128	1.10	3.1	30	3.80	11.40	100	2.7	E51.S17-163R20/H
4,000	215	140	565	800	6,000	1,720	0.70	0.95	100	11.90	35.70	60	9.0	E51.S56-224R20/H
4,200	8	64	138	800	6,300	71	4.30	8.3	15	0.69	2.07	60	0.5	E51.L14-802R20/H
4,200	45	90	355	800	6,300	397	1.60	2.4	50	4.20	12.60	80	2.4	E51.P35-453R20/H
4,400	8	64	180	950	6,600	77	4.20	6.5	20	0.85	2.55	60	0.6	E51.L18-802R20/H
4,400	8	90	130	950	6,600	77	1.40	6.4	20	1.70	5.10	50	0.9	E51.P13-802R20/H
4,500	300	140	710	850	6,750	3,038	1.10	0.75	100	16.50	49.50	200	11.5	E51.S71-304R20/H
4,700	187.5	140	430	1,000	7,050	2,071	3.20	0.7	50	4.25	12.75	40	7.0	E51.S43-194R20/H
5,000	4.55	64	150	1,000	7,500	57	6.50	7.8	15	0.47	1.41	60	0.5	E51.L15-462R20/H
5,600	1	64	120	1,100	8,400	16	4.60	9.7	20	0.70	2.20	20	1.0	E51.L12-102R20/H
Rated DC voltage U_N(DC) : 6,000 ~ 9,300Vdc														
6,000	30	116	200	700	9,000	540	2.3	3.2	30	2.10	6.30	80	2.2	E51.R20-303R20/H
6,200	6.8	64	255	1,200	9,300	131	10	4.6	20	0.60	2.00	50	0.9	E51.L25-682R20/H
6,200	15	90	255	1,200	9,300	288	4.6	3.2	35	1.50	4.50	50	1.7	E51.P25-153R20/H
6,300	20	90	355	1,200	9,450	397	6.8	2.4	25	1.80	8.00	100	2.4	E51.P35-203R20/H
6,300	51.25	140	355	1,200	9,450	1,017	2.7	1.5	40	4.30	20.00	80	5.7	E51.S35-513R20/H
8,000	5	90	220	1,400	12,000	160	1.7	3.76	50	1.80	5.00	80	1.5	E51.P22-502R20/H
8,000	10	90	320	1,400	12,000	320	2.3	2.59	50	1.90	6.00	100	2.2	E51.P32-103R20/H
8,000	40	140	355	1,400	12,000	1,280	3.5	1.5	40	2.70	8.10	100	5.7	E51.S35-403R20/H
8,500	0.22	64	165	1,400	12,750	8	6.9	7.1	20	0.90	2.90	50	0.6	E51.L16-221R20/H
8,500	0.5	64	165	3,950	12,750	18	3.9	7.1	20	0.54	1.62	60	0.6	E51.L16-501R20/H
8,500	1	90	165	1,400	12,750	36	2.5	5	25	1.70	5.10	50	1.1	E51.P16-102R20/H
9,300	9	90	355	1,500	13,950	389	8	2.3	20	1.00	4.00	100	2.4	E51.P35-902R20/H
9,300	25	140	355	1,500	13,950	1,081	2.7	1.5	40	4.00	11.00	100	5.7	E51.S35-253R20/H
Rated DC voltage U_N(DC) : 10,000 ~ 50,000Vdc														
10,000	0.25	64	165	2,000	15,000	13	15.2	7.1	10	1.1	3.3	80	0.6	E51.L16-251R20/H
10,000	4	116	320	2,000	15,000	200	3.5	2	50	1.5	4.5	60	3.5	E51.R32-402R20/H
10,000	4.5	140	480	3,000	15,000	225	1.8	1.1	50	8.8	26.4	100	8.0	E51.S48-452R20/H
10,000	10	90	355	2,500	15,000	500	7	2.3	25	1.3	3.9	100	2.4	E51.P35-103R20/H
12,000	24	140	565	2,100	18,000	1,728	4.2	0.95	25	4.2	12.6	60	9.0	E51.S56-243R20/H
12,500	0.22	64	200	2,100	18,750	17	14	5.8	20	0.5	1.4	80	0.7	E51.L20-221R20/H
12,500	0.25	64	200	2,100	18,750	20	14	5.8	20	0.5	1.5	80	0.7	E51.L20-251R20/H
12,500	1	116	200	2,100	18,750	78	3.6	3.2	35	2	6	80	2.2	E51.R20-102R20/H
13,000	0.25	64	285	3,000	19,500	21	17.7	4.1	10	0.6	1.7	100	1.0	E51.L28-251R20/H
14,000	5	116	355	2,400	21,000	490	3.6	1.8	30	2.5	7.5	100	4.0	E51.R35-502R20/H
14,000	10	140	355	2,400	21,000	980	2.4	1.5	40	4.3	12.9	120	5.7	E51.S35-103R20/H
15,000	1	64	285	3,600	22,500	113	15.1	4.1	15	0.49	1.47	100	1.0	E51.L28-102R20/H
15,000	2	90	285	3,600	22,500	225	7.2	2.9	20	1.1	3.3	200	1.9	E51.P28-202R20/H
15,000	10	140	385	3,600	22,500	1,125	2.7	1.4	40	3.8	11.4	120	6.2	E51.S38-103R20/H
15,000	15	140	460	3,600	22,500	1,688	2.8	1.2	40	4.6	13.8	120	7.4	E51.S46-153R20/H
15,000	20	140	565	3,600	22,500	2,250	3.7	0.94	40	3.8	11.4	120	9.1	E51.S56-203R20/H
20,000	1.25	90	355	4,000	30,000	250	11.7	2.3	20	0.9	2.7	100	2.4	E51.P35-132R20/H
20,000	1.5	90	355	4,000	30,000	300	10.4	2.3	34	1.8	5.4	100	2.4	E51.P35-152R20/H
25,000	10	140	710	4,600	37,500	3125	3.9	0.75	35	4.3	12.9	200	11.5	E51.S71-103R20/H
30,000	1	90	435	4,800	45,000	450	11	1.9	20	1	3	80	2.9	E51.P44-102R20/H
30,000	5	140	710	4,800	45,000	2,250	7	0.75	35	2.8	8.4	200	11.5	E51.S71-502R20/H
35,000	0.2	90	435	5,600	52,500	123	13.4	1.9	20	1	3	80	2.9	E51.P44-201R20/H
35,000	5	140	785	4,800	52,500	3,063	5.5	0.7	25	3.2	9.6	200	12.7	E51.S78-502R20/H
40,000	2.2	140	630	8,700	60,000	1,760	5.3	0.84	35	2.8	8.4	180	10.2	E51.S63-222R20/H
50,000	0.5	140	710	10,000	60,000	625	5.8	0.75	35	2.9	8.7	200	11.5	E51.S71-501R20/H

Standard Value and Case Size (E51series (AC))

Rated AC Voltage $U_N(AC)$ [Vdc]	Rated DC Voltage $U_N(DC)$ [Vdc]	Rated Capacitance C_N [μF]	Case size		Rated ripple voltage U_r [V]	Surge voltage U_s [V]	Energy Contents W [J]	Series resistance (reference) R_s [mΩ]	Thermal resistance (reference) R_{th} [K/W]	Max current I_{max} [Arms]	Max peak current i [kA]	Max surge current I_s [kA]	Self inductance (reference) ESL [nH]	Weight [kg]	Part number
			Diameter $φD$ [mm]	Length L [mm]											
Rated AC voltage $U_N(AC)$: 2,000 ~ 3,250Vac U_{rms} : 1,650 ~ 2,300V_{rms}															
2,350	4,500	1.5	64	150	1,650	6,750	15	5.4	7.8	20	0.7	2	20	0.5	E51.L15-152R20/H
2,350	-	3	64	250	1,650	3,525	8.3	3	4.7	15	1.1	3.3	60	1.0	E51.L25-302R20/H
2,500	6,000	1	90	130	1,770	9,000	18	3.2	6.4	28	0.98	2.94	30	0.9	E51.P13-102R20/H
2,550	3,200	1	64	120	1,800	4,800	5	1.8	9.7	40	2	5	40	0.4	E51.L12-102R21/H
2,700	4,400	4	116	110	1,910	6,600	39	0.62	5.8	90	2.2	7	15	1.5	E51.R11-402R20/H
2,900	5,000	3	116	110	2,050	7,500	38	0.74	5.8	80	2	6	15	1.2	E51.R11-302R20/H
3,000	-	0.47	64	100	2,100	6,450	2.1	3.2	11.6	15	1.1	3.3	60	0.3	E51.L10-471R20/H
3,000	-	5	116	260	2,200	7,000	22.5	3.8	2.5	10	2	6	80	2.9	E51.R26-502R20/H
3,250	-	0.75	64	165	2,300	4,875	4.0	4.9	7.1	20	0.9	2.8	100	0.6	E51.L16-751R20/H
3,200	7,280	0.5	64	130	2,260	10,920	13.2	5	9	25	0.62	1.86	60	0.4	E51.L13-501R20/H
Rated AC voltage $U_N(AC)$: 3,500Vac U_{rms} : 2,500V_{rms}															
3,500	6,000	0.22	64	120	2,500	9,000	4.0	4.8	9.7	20	0.7	2.1	60	0.4	E51.L12-221R20/H
3,500	6,000	0.25	64	120	2,500	9,000	4.5	5.4	9.7	15	0.8	2.4	60	0.4	E51.L12-251R20/H
3,500	6,000	0.33	64	120	2,500	9,000	5.9	3	9.7	20	1	2.9	60	0.4	E51.L12-331R20/H
3,500	6,000	0.5	64	120	2,500	9,000	9.0	5.6	9.7	20	1	3	60	0.4	E51.L12-501R20/H
3,200	5,450	0.68	64	120	2,250	9,000	10.1	4.6	9.7	20	1	2.9	60	0.4	E51.L12-681R20/H
3,500	6,000	0.75	90	100	2,500	9,000	13.5	1.6	8.3	40	1.8	5.4	60	0.6	E51.P10-751R20/H
3,500	6,000	1.25	90	130	2,500	9,000	22.5	2.2	6.4	45	1.4	4.2	60	0.9	E51.P13-132R20/H
3,500	6,000	1.5	90	130	2,500	9,000	27.0	2.1	6.4	45	1.5	4.4	60	0.9	E51.P13-152R20/H
2,450	6,000	2	90	140	1,700	9,000	36.0	2.8	5.9	45	1.5	4.4	60	1.0	E51.P14-202R20/H
Rated AC voltage $U_N(AC)$: 3,850 ~ 4,300Vac U_{rms} : 2,700 ~ 3,050V_{rms}															
3,850	-	2.5	90	285	2,700	5,775	18.5	4.1	2.9	25	2	6	100	1.9	E51.P28-252R20/H
4,200	-	1.1	90	150	3,000	6,300	9.7	2.7	5.5	20	1.6	4.8	50	1.0	E51.P15-112R20/H
4,300	-	0.5	64	165	3,050	6,450	4.6	5.3	7.1	15	0.8	2.3	100	0.6	E51.L16-501R21/H
4,300	-	0.8	64	200	3,050	6,450	7.4	7.5	5.8	15	0.9	2.7	100	0.7	E51.L20-801R20/H
Rated AC voltage $U_N(AC)$: 4,550Vac U_{rms} : 3,200V_{rms}															
4,550	7,280	0.22	64	130	3,200	10,920	5.8	8.9	9	15	0.34	1.02	60	0.5	E51.L13-221R20/H
4,550	7,280	0.33	64	130	3,200	10,920	8.7	6.7	9	20	0.46	1.38	60	0.5	E51.L13-331R20/H
3,150	7,280	0.75	90	130	2,200	10,920	19.9	3	6.4	40	1	3	60	0.9	E51.P13-751R20/H
2,500	6,000	1	90	130	1,770	9,000	18.0	3.2	6.4	28	0.98	2.94	30	0.9	E51.P13-102R20/H
4,400	6,800	1.5	90	150	3,100	10,200	34.7	2.3	5.5	25	1	3	50	1.0	E51.P15-152R21/H
4,550	-	1.1	90	275	3,200	6,825	11.4	3.6	3	20	2.4	7.2	80	1.9	E51.P27-112R20/H
2,800	4,400	1.25	90	140	2,000	10,920	12.1	4.5	6.4	40	1.2	3.6	60	1.0	E51.P14-132R20/H
4,550	7,280	1.5	116	130	3,200	10,920	39.7	2	4.9	50	2.1	6.3	60	1.1	E51.R13-152R20/H
4,550	7,280	2	116	130	3,200	10,920	53.0	1.8	4.9	55	2.4	7.2	60	1.1	E51.R13-202R20/H
Rated AC voltage $U_N(AC)$: 4,700 ~ 5,850Vac U_{rms} : 3,300 ~ 4,150V_{rms}															
4,700	-	0.75	64	250	3,300	7,050	8.3	7.5	4.7	15	0.9	2.7	60	1.0	E51.L25-751R20/H
5,000	-	0.47	64	210	3,500	10,750	5.9	5.8	5.5	16	1	3	40	0.8	E51.L21-471R20/H
5,000	10,000	0.5	90	200	3,540	15,000	25.0	5.7	4.1	1	3	50	50	1.3	E51.P20-501R20/H
5,000	-	1	90	255	3,540	7,500	12.5	5.8	3.25	25	1.2	3.6	50	1.7	E51.P25-102R20/H
5,100	-	1.6	116	355	3,600	9,500	20.8	4	1.8	25	5	15	120	3.9	E51.R35-162R20/H
5,100	-	2.4	90	200	3,600	10,965	31.2	3	4.1	35	1.4	4.2	60	1.3	E51.P20-242R21/H
5,100	-	2.6	116	460	3,600	9,500	33.8	3.8	1.4	25	5	15	120	4.9	E51.R46-262R20/H
5,200	-	1.1	90	200	3,700	7,800	14.9	3.1	4.1	20	5.1	3.1	60	1.3	E51.P20-112R20/H
5,850	-	0.47	90	165	4,150	12,580	8.0	3.5	5	20	2.2	6.6	60	1.2	E51.P16-471R20/H
Rated AC voltage $U_N(AC)$: 6,000 ~ 9,620Vac U_{rms} : 4,600 ~ 6,800V_{rms}															
6,300	9,000	0.13	64	165	4,450	13,500	5.3	5.5	7.1	20	0.8	2.4	100	0.6	E51.L16-131R20/H
6,300	9,000	0.14	64	200	4,450	13,500	5.7	17.6	5.8	14	0.3	0.9	50	0.7	E51.L20-141R20/H
6,500	-	4	140	355	4,600	9,500	84.5	1.7	1.5	12	7	21	150	5.7	E51.S35-402R20/H
7,500	-	1.33	140	355	5,300	11,250	37.4	3.9	1.5	10	2.5	7.5	100	5.7	E51.S35-132R20/H
8,900	-	0.24	90	210	6,300	13,350	9.5	5	3.94	20	2	6	60	1.4	E51.P21-241R20/H
9,200	-	0.5	90	275	6,510	13,800	21.2	3.9	3	10	1.7	5.1	80	1.9	E51.P27-501R20/H
9,620	-	0.5	116	250	6,800	14,430	23.1	3	2.6	40	3.7	11.1	60	2.9	E51.R25-501R20/H
Rated AC voltage $U_N(AC)$: 10,000 ~ 35,000Vac U_{rms} : 7,100 ~ 25,000V_{rms}															
10,000	14,000	1	116	390	7,100	15,000	98.0	3.4	1.7	25	3.7	11.1	100	4.0	E51.R39-102R20/H
10,000	14,000	1.9	140	390	7,100	15,000	186.2	2.1	1.4	25	6.2	18.6	100	6.0	E51.S39-192R20/H
12,750	-	0.2	90	355	9,000	27,400	16.3	7	2.3	20	2.3	6.9	100	2.4	E51.P35-201R20/H
10,000	-	0.5	90	355	7,070	15,000	25.0	7.2	1.44	10	1	3	100	2.4	E51.P35-501R20/H
20,000	26,000	0.3	116	355	14,000	30,000	101.4	3.1	1.8	10	8	20	100	3.9	E51.R35-301R20/H
20,000	30,000	1	140	710	14,140	45,000	450.0	5.7	0.7	10	4.9	14.7	200	11.5	E51.S71-102R20/H
20,000	50,000	0.5	140	710	14,140	60,000	625.0	6.2	0.7	10	8.5	20	200	11.5	E51.S71-501R20/H

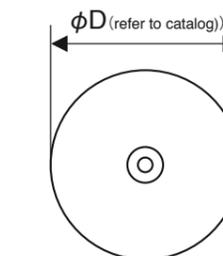
E53 (AC) Series (AC Cylindrical Metallized Polypropylene Film Capacitors)

Features

- High voltage range and ultra low inductance capacitors.
- E53 (AC) series are made in dry technology.
- For AC application.

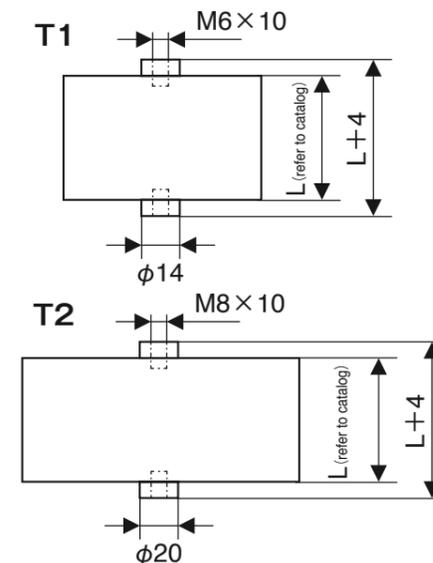
Specifications

Item	Specification
Category temperature range	-25 ~ +70°C (+85°C / Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U_N)	280 ~ 2,450Vac (550 ~ 7,200Vdc)
Terminal (torque)	M6 × 10 (4Nm) / M8 × 10 (7Nm)
Standards	Standards IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor ($\tan \delta_o$)	2×10^{-4}
Capacitance tolerance	±10% (optional ±5%)
Safety devices	-
Impregnant	Solid resin based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS

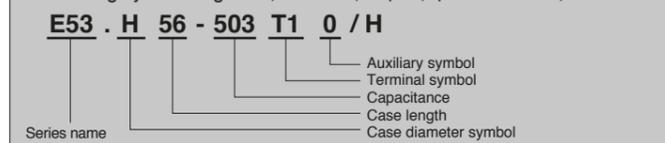


Dimensions

Item	Specification
Terminal code	T1 / T2
Can material	Plastic (UL94V-0)
Terminal	T1 Axial thread M6×10 Torque : 4Nm I_{max} (terminal) : 60A
	T2 Axial thread M8×10 Torque : 7Nm I_{max} (terminal) : 100A
Degree of protection	IP00
Humidity class	G



Numbering system: e.g. E53, 280VAC, 50μF, φ55×56Lmm, T1 terminal



Standard Value and Case Size

Rated Capacitance C_N [μF]	Case size		Energy Contents W [J]	Series resistance (reference) R_s [mΩ]	Thermal resistance (reference) R_{th} [K/W]	Max current I_{max} [Arms]	Max peak current I [kA]	Max surge current I_s [kA]	Self inductance (reference) ESL [nH]	Terminal	Clearance in air L [mm]	Creepage distance K [mm]	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]												
Rated voltage U_N : 550Vdc / 280Vac U_{rms} : 200V_{rms} U_s : 825V U_{TT} : 825Vdc														
50	55	56	7.6	0.8	8.5	60	0.83	2.5	15	T1	97	97	0.18	E53.H56-503T10/H
100	75	56	15	0.4	6.3	80	1.7	5	15	T2	111	111	0.33	E53.M56-104T20/H
200	95	56	30	0.2	4.9	80	3.3	9.9	15	T2	131	131	0.52	E53.P56-204T20/H
250	105	56	38	0.15	4.5	80	3.3	10	15	T2	141	141	0.64	E53.P56-204T20/H
270	115	56	41	0.15	4.1	100	3.3	10	15	T2	151	151	0.77	E53.R56-274T20/H
380	115	100	57	0.31	2.3	100	3	10	15	T2	195	195	1.37	E53.R10-384T20/H
Rated voltage U_N : 700Vdc / 350Vac U_{rms} : 250V_{rms} U_s : 1,050V U_{TT} : 1,050Vdc														
33	55	56	8.1	0.95	8.5	55	0.68	2.1	15	T1	97	97	0.18	E53.H56-333T10/H
68	75	56	17	0.5	6.3	80	1.4	4.2	15	T2	111	111	0.33	E53.M56-683T20/H
120	95	56	29	0.3	4.9	80	2.5	7.4	15	T2	131	131	0.52	E53.P56-124T20/H
150	105	56	37	0.25	4.5	100	3.1	9.3	15	T2	141	141	0.64	E53.Q56-154T20/H
200	115	56	49	0.2	4.1	100	3.1	10	15	T2	151	151	0.77	E53.R56-204T20/H
310	115	100	76	0.3	2.3	100	3	10	15	T2	195	195	1.37	E53.R10-314T20/H
Rated voltage U_N : 900Vdc / 350Vac U_{rms} : 250V_{rms} U_s : 1,350V U_{TT} : 1,350Vdc														
30	55	56	12	0.85	8.5	60	0.68	2.1	15	T1	97	97	0.18	E53.H56-303T10/H
60	75	56	24	0.5	6.3	80	1.4	4.1	15	T2	111	111	0.33	E53.M56-603T20/H
100	95	56	41	0.35	4.9	80	2.3	6.8	15	T2	131	131	0.52	E53.P56-104T20/H
120	105	56	49	0.2	4.5	100	2.8	9	15	T2	141	141	0.64	E53.Q56-124T20/H
140	115	56	57	0.2	4.1	100	3.1	10	15	T2	151	151	0.77	E53.R56-144T20/H
265	115	100	107	0.35	2.3	110	3	9	15	T2	195	195	1.37	E53.R10-274T20/H
Rated voltage U_N : 1,100Vdc / 350Vac U_{rms} : 250V_{rms} U_s : 1,650V U_{TT} : 1,650Vdc														
12	55	56	7.3	1.7	8.5	40	0.4	1.2	15	T1	97	97	0.18	E53.H56-123T10/H
15	55	56	9.1	1.1	8.5	40	0.5	1.5	15	T1	97	97	0.18	E53.H56-153T10/H
25	75	56	15	0.71	6.3	70	0.83	2.5	15	T2	111	111	0.33	E53.M56-253T20/H
50	95	56	30	0.34	4.9	80	1.7	5	15	T2	131	131	0.52	E53.P56-503T20/H
60	105	56	36	0.35	4.5	100	2.0	6	15	T2	141	141	0.64	E53.Q56-603T20/H
80	115	56	48	0.21	4.1	100	3.0	10	15	T2	151	151	0.77	E53.R56-803T20/H
175	115	100	106	0.41	2.3	100	2.6	8	15	T2	195	195	1.37	E53.R10-184T20/H
Rated voltage U_N : 1,400Vdc / 350Vac U_{rms} : 250V_{rms} U_s : 2,100V U_{TT} : 2,100Vdc														
8	55	56	7.8	2	8.5	38	0.33	1	15	T1	97	97	0.18	E53.H56-802T10/H
16	75	56	16	1	6.3	80	0.66	2	15	T2	111	111	0.33	E53.M56-163T20/H
30	95	56	29	0.55	4.9	80	1.2	3.7	15	T2	131	131	0.52	E53.P56-303T20/H
40	105	56	39	0.4	4.5	100	1.7	5	15	T2	141	141	0.64	E53.Q56-403T20/H
50	115	56	49	0.3	4.1	100	2.2	10	15	T2	151	151	0.77	E53.R56-503T20/H
110	115	100	108	0.52	2.3	100	2	6	15	T2	195	195	1.37	E53.R10-114T20/H
Rated voltage U_N : 1,700Vdc / 700Vac U_{rms} : 500V_{rms} U_s : 2,550V U_{TT} : 2,550Vdc														
4.7	55	56	6.8	1.3	8.5	45	0.5	1.6	15	T1	97	97	0.18	E53.H56-472T10/H
10	75	56	14	0.6	6.3	80	1.1	3.5	15	T2	111	111	0.33	E53.M56-103T20/H
16	95	56	23	0.37	4.9	80	1.8	5.5	15	T2	131	131	0.52	E53.P56-163T20/H
22	105	56	32	0.27	4.5	100	2.5	7.5	15	T2	141	141	0.64	E53.Q56-223T20/H
33	115	56	48	0.2	4.1	100	3.5	10	15	T2	151	151	0.77	E53.R56-333T20/H
68	115	100	98	0.35	2.3	100	3.1	9.3	15	T2	195	195	1.37	E53.R10-683T20/H
Rated voltage U_N : 2,000Vdc / 700Vac U_{rms} : 500V_{rms} U_s : 3,000V U_{TT} : 3,000Vdc														
3.3	55	56	6.6	1.6	8.5	40	0.42	1.2	15	T1	97	97	0.18	E53.H56-332T10/H
8	75	56	16	0.65	6.3	80	1	3	15	T2	111	111	0.33	E53.M56-802T20/H
14	95	56	28	0.35	4.9	80	1.8	5.5	15	T2	131	131	0.52	E53.P56-143T20/H
18	105	56	36	0.3	4.5	100	2.3	7	15	T2	141	141	0.64	E53.Q56-183T20/H
24	115	56	48	0.2	4.1	100	3	10	15	T2	151	151	0.77	E53.R56-243T20/H
52.5	115	100	105	0.39	2.3	100	2.8	8	15	T2	195	195	1.37	E53.R10-533T20/H
Rated voltage U_N : 2,250Vdc / 700Vac U_{rms} : 500V_{rms} U_s : 3,375V U_{TT} : 3,375Vdc														
2.5	55	56	6.3	1.8	8.5	40	0.37	1.1	15	T1	97	97	0.18	E53.H56-252T10/H
6	75	56	15	0.76	6.3	70	0.88	2.6	15	T1	111	111	0.33	E53.M56-602T20/H
10	95	56	25	0.46	4.9	80	1.5	4.5	15	T2	131	131	0.52	E53.P56-103T20/H
15	105	56	38	0.27	4.5	100	2.1	6.2	15	T2	141	141	0.64	E53.Q56-153T20/H
18	115	56	46	0.25	4.1	100	2.6	10	15	T2	151	151	0.77	E53.R56-183T20/H
40	115	100	101	0.45	2.3	100	2.4	7	15	T2	195	195	1.37	E53.R10-403T20/H
Rated voltage U_N : 2,800Vdc / 700Vac U_{rms} : 500V_{rms} U_s : 4,200V U_{TT} : 4,200Vdc														
1.5	55	56	5.9	2.4	8.5	32	0.27	1.35	15	T1	97	97	0.18	E53.H56-152T10/H
3.3	75	56	13	1.1	6.3	60	0.6	3	15	T2	111	111	0.33	E53.M56-332T20/H
7.5	95	56	29	0.5	4.9	80	1.5	7.5	15	T2	131	131	0.52	E53.P56-752T20/H
10	105	56	39	0.4	4.5	100	1.8	9	15	T2	141	141	0.64	E53.Q56-103T20/H
12	115	56	47	0.3	4.1	100	2.2	12	15	T2	151	151	0.77	E53.R56-123T20/H
25	115	100	98	0.57	2.3	100	1.9	6	15	T2	195	195	1.37	E53.R10-253T20/H
Rated voltage U_N : 3,200Vdc / 1,050Vac U_{rms} : 750V_{rms} U_s : 4,800V U_{TT} : 4,800Vdc														
1	55	56	5.1	1.6	8.5	40	0.35	1.75	15	T1	97	97	0.18	E53.H56-102T10/H
2.5	75	56	13	0.65	6.3	75	0.9	4.5	15	T2	111	111	0.33	E53.M56-252T20/H
4	95	56	20	0.4	4.9	80	1.5	7.5	15	T2	131	131	0.52	E53.P56-402T20/H
6	105	56	31	0.28	4.5	100	2.2	11	15	T2	141	141	0.64	E53.Q56-602T20/H
7	115	56	36	0.25	4.1	100	3	12	15	T2	151	151	0.77	E53.R56-702T20/H

Standard Value and Case Size

Rated Capacitance C_N [μF]	Case size		Energy Contents W [J]	Series resistance (reference) R_s [mΩ]	Thermal resistance (reference) R_{th} [K/W]	Max current I_{max} [Arms]	Max peak current I [kA]	Max surge current I_s [kA]	Self inductance (reference) ESL [nH]	Terminal	Clearance in air L [mm]	Creepage distance K [mm]	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]												
Rated voltage U_N : 2,450Vdc / 1,400Vac U_{rms} : 1,000V_{rms} U_s : 3,675V U_{TT} : 3,675Vdc														
1.16	55	56	3.5	1.2	8.5	20	0.7	2.2	15	T1	97	97	0.18	E53.H56-122T10/H
2.4	75	56	7.2	0.56	6.3	60	1.5	5	15	T2	111	111	0.33	E53.M56-242T20/H
4.2	95	56	13	0.32	4.9	80	2.6	8	15	T2	131	131	0.52	E53.P56-422T20/H
5.2	105	56	16	0.26	4.5	100	3	10	15	T2	141	141	0.64	E53.Q56-522T20/H
6.4	115	56	19	0.21	4.1	100	4	12	15	T2	151	151	0.77	E53.R56-642T20/H
Rated voltage U_N : 3,600Vdc / 1,400Vac U_{rms} : 1,000V_{rms} U_s : 5,400V U_{TT} : 5,400Vdc														
8	115	100	52	0.52	2.3	100	2.3	6.9	15	T2	195	195	1.37	E53.R10-802T20/H
10	115	100	65	0.94	2.3	100	2.5	7.5	15	T2	195	195	1.37	E53.R10-103T20/H
Rated voltage U_N : 3,750Vdc / 2,100Vac U_{rms} : 1,500V_{rms} U_s : 5,625V U_{TT} : 5,625Vdc														
0.47	55	56	3.3	2.9	8.5	20	0.7	2.1	15	T1	97	97	0.18	E53.H56-471T10/H
1.1	75	56	7.7	1.2	6.3	60	1.6	5	15	T2	111	111	0.33	E53.M56-112T20/H
1.7	95	56	12	0.8	4.9	80	2.5	8	15	T2	131	131	0.52	E53.P56-172T20/H
2.15	105	56	15	0.64	4.5	100	3	10	15	T2	141	141	0.64	E53.Q56-222T20/H
2.7	115	56	19	0.51	4.1	100	4	12	15	T2	151	151	0.77	E53.R56-272T20/H
Rated voltage U_N : 5,000Vdc / 2,100Vac U_{rms} : 1,500V_{rms} U_s : 7,500V U_{TT} : 7,500Vdc														
3	115	100	38	1.2	2.3	125	2.1	6.3	15	T2	195	195	1.37	E53.R10-302T21/H
4	115	100	50	1	2.3	125	2.5	7.5	15	T2	195	195	1.37	E53.R10-402T21/H
Rated voltage U_N : 5,600Vdc / 2,450Vac U_{rms} : 1,750V_{rms} U_s : 8,400V U_{TT} : 8,400Vdc														
0.22	55	97	3.4	13.7	4.9	25	0.2	0.7	15	T1	138	138	0.31	E53.H97-221T10/H
0.25	55	97	3.9	12.1	4.9	25	0.3	0.8	15	T1				

UPGRADE!

E53H (DC) Series (DC Cylindrical Metallized Polypropylene Film Capacitors)

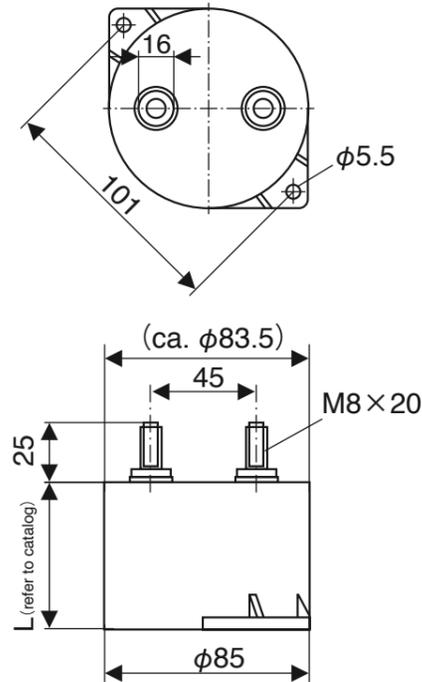
Features

- High voltage range and ultra low inductance capacitors.
- E53H (DC) series are made in dry technology.
- Robust studs with M8 thread allows for radial connection.

Specifications

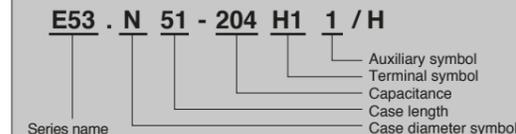
Item	Specification
Category temperature range	-25 ~ +70°C (+85°C / Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U _N)	600 ~ 2,200Vdc
Terminal (torque)	M8 × 20 (4Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	—
Impregnant	Solid resin based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS

Dimensions



Item	Specification
Terminal code	H1
Can material	Plastic (UL94V-0)
Terminal	Radial thread M8×20
	Torque : 4Nm
	I _{max} (terminal) : 100A
Degree of protection	IP00
Humidity class	F

Numbering system: e.g. E53H, 600VDC, 200μF, φ85×51Lmm, H1 terminal



Standard Value and Case Size

Rated Capacitance C _N [μF]	Case size		Rated ripple voltage U _r [V]	Energy Contents W [J]	Series resistance (reference) R _s [mΩ]	Thermal resistance (reference) R _{th} [K/W]	Max current I _{max} [Arms]	Max peak current i [kA]	Max surge current I _s [kA]	Self inductance (reference) ESL [nH]	Clearance in air L [mm]	Creepage distance K [mm]	Weight [kg]	Part number
	Diameter φD ₁ [mm]	Length L ₁ [mm]												
Rated voltage U_N : 600Vdc Us : 900V U_{TT} : 900Vdc														
200	85	51	100	36	0.75	6.1	60	3.3	9.9	30	29	33	0.36	E53.N51-204H11/H
280	85	64	100	50	0.84	4.8	60	3.5	10.5	35	29	33	0.45	E53.N64-284H10/H
400	85	76	100	72	1.1	4.1	60	3.3	9.9	40	29	29	0.53	E53.N76-404H11/H
Rated voltage U_N : 700Vdc Us : 1,050V U_{TT} : 1,050Vdc														
150	85	51	160	37	0.7	6.1	60	2.9	8.7	30	29	33	0.36	E53.N51-154H11/H
200	85	64	160	49	0.92	4.8	60	2.9	8.7	35	29	33	0.45	E53.N64-204H10/H
300	85	76	160	74	1.2	4.1	60	2.9	8.7	40	29	29	0.53	E53.N76-304H11/H
Rated voltage U_N : 900Vdc Us : 1,350V U_{TT} : 1,350Vdc														
120	85	51	200	49	0.84	6.1	60	2.6	7.9	30	29	33	0.36	E53.N51-124H11/H
150	85	64	200	61	1	4.8	60	2.5	7.5	35	29	33	0.45	E53.N64-154H11/H
240	85	76	200	97	1.3	4.1	60	2.6	7.8	40	29	29	0.53	E53.N76-244H11/H
Rated voltage U_N : 1,100Vdc Us : 1,650V U_{TT} : 1,650Vdc														
75	85	51	250	45	1.0	6.1	60	2.0	6	30	29	33	0.36	E53.N51-753H11/H
100	85	64	250	61	0.9	4.8	60	2.0	6.2	35	29	33	0.45	E53.N64-104H10/H
150	85	76	250	91	1.5	4.1	75	2.0	6.1	40	29	29	0.53	E53.N76-154H11/H
Rated voltage U_N : 1,300Vdc Us : 1,950V U_{TT} : 1,950Vdc														
50	85	51	300	42	1.1	6.1	70	1.6	4.8	30	29	33	0.36	E53.N51-503H11/H
68	85	64	300	57	1.3	4.8	70	1.7	5.1	35	29	33	0.45	E53.N64-683H10/H
100	85	76	300	85	1.5	4.1	60	1.6	4.8	40	29	29	0.53	E53.N76-104H11/H
Rated voltage U_N : 1,500Vdc Us : 2,250V U_{TT} : 2,250Vdc														
37.5	85	51	300	42	1.2	6.1	60	1.4	4	30	29	33	0.36	E53.N51-383H11/H
50	85	64	300	56	1.5	4.8	60	1.4	4.2	35	29	33	0.45	E53.N64-503H10/H
75	85	76	300	84	2	4.1	60	1.4	4.2	40	29	29	0.53	E53.N76-753H11/H
Rated voltage U_N : 1,800Vdc Us : 2,700V U_{TT} : 2,700Vdc														
30	85	51	400	49	0.73	6.1	60	1.3	3.9	30	29	33	0.36	E53.N51-303H11/H
40	85	64	400	65	1.6	4.8	60	1.3	3.9	35	29	33	0.45	E53.N64-403H10/H
60	85	76	400	97	2.1	4.1	50	1.3	3.9	40	29	29	0.53	E53.N76-603H11/H
Rated voltage U_N : 2,000Vdc Us : 3,000V U_{TT} : 3,000Vdc														
13	85	51	400	26	1.6	6.1	55	0.64	1.92	30	29	33	0.36	E53.N51-133H10/H
30	85	64	400	60	1.3	4.8	55	1.1	3.3	35	29	33	0.45	E53.N64-303H10/H
43	85	76	400	86	1.8	4.1	50	1	3	40	29	29	0.53	E53.N76-433H10/H
Rated voltage U_N : 2,200Vdc Us : 3,300V U_{TT} : 3,300Vdc														
24.5	85	64	600	59	1.4	4.8	55	0.99	2.97	35	29	33	0.45	E53.N64-253H10/H
35	85	76	600	85	1.9	4.1	50	0.94	2.82	40	29	29	0.53	E53.N76-353H10/H

E55 (DC) Series (DC Cylindrical Metallized Polypropylene Film Capacitors)

Features

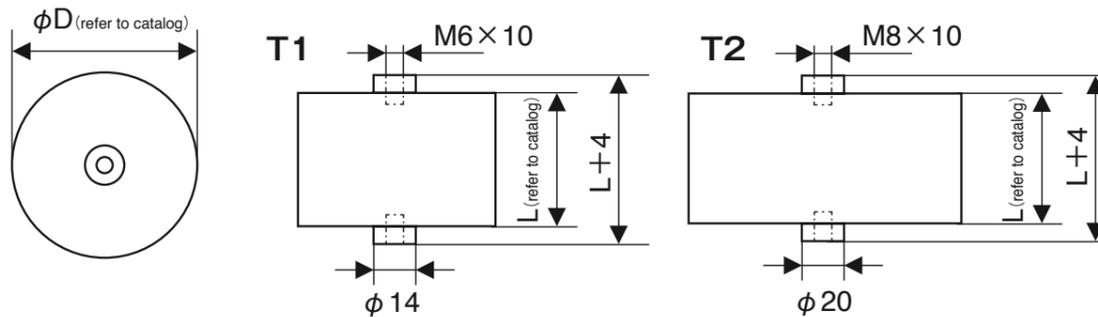
- High voltage range and ultra low inductance capacitors.
- E55 series are made in dry technology.
- For DC application.

Specifications

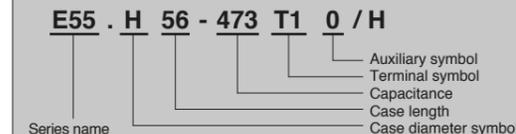
Item	Specification
Category temperature range	-25 ~ +70°C (+85°C / Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U _N)	900 ~ 5,000Vdc
Terminal (torque)	M6×10 (4Nm) / M8×10 (7Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	-
Impregnant	Solid resin based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS

Dimensions

Item	Specification	
Terminal code	T1 / T2	
Can material	Plastic (UL94V-0)	
Terminal	T1	Axial thread M6×10 Torque : 4Nm I _{max} (terminal) : 60A
	T2	Axial thread M8×10 Torque : 7Nm I _{max} (terminal) : 100A
Degree of protection	IP00	
Humidity class	G	



Numbering system: e.g. E55, 900VDC, 47 μ F, φ55×56Lmm, T1 terminal



Standard Value and Case Size

Rated Capacitance C _N [μF]	Case size		Rated ripple voltage U _r [V]	Energy Contents W [J]	Series resistance (reference) R _s [mΩ]	Thermal resistance (reference) R _{th} [K/W]	Max current I _{max} [Arms]	Max peak current i [kA]	Max surge current I _s [kA]	Self inductance (reference) ESL [nH]	Terminal	Clearance in air L [mm]	Creepage distance K [mm]	Weight [kg]	Part number
	Diameter φD [mm]	Length L [mm]													
Rated voltage U_N : 900Vdc Us : 1,350V U_{TT} : 1,350Vdc															
47	55	56	200	19	0.58	8.5	45	0.8	2.3	15	T1	97	97	0.18	E55.H56-473T10/H
250	105	56	280	101	0.35	4.5	100	8.3	24.9	15	T2	141	141	0.64	E55.Q56-254T20/H
Rated voltage U_N : 1,300Vdc Us : 1,950V U_{TT} : 1,950Vdc															
50	75	56	400	42	0.98	6.3	65	2.4	7.2	15	T2	111	111	0.33	E55.M56-503T20/H
90	95	56	400	76	0.55	4.9	80	4.3	12.9	15	T2	131	131	0.52	E55.P56-903T20/H
Rated voltage U_N : 1,800Vdc Us : 2,700V U_{TT} : 2,700Vdc															
22	75	56	600	36	1.5	6.3	40	1.6	4.8	15	T2	111	111	0.33	E55.M56-223T20/H
80	115	56	600	130	0.45	4.1	100	5.2	15.6	15	T2	151	151	0.77	E55.R56-803T20/H
Rated voltage U_N : 2,000Vdc Us : 3,000V U_{TT} : 3,000Vdc															
50	115	56	650	100	0.55	4.1	100	4.1	12.3	15	T2	151	151	0.77	E55.R56-803T20/H
Rated voltage U_N : 2,400Vdc Us : 3,600V U_{TT} : 3,600Vdc															
30	115	56	700	86	0.34	4.1	100	3	10	15	T2	151	151	0.77	E55.R56-303T20/H
Rated voltage U_N : 2,800Vdc Us : 4,200V U_{TT} : 4,200Vdc															
18	105	56	800	71	0.6	4.5	90	4.5	13.5	15	T2	141	141	0.64	E55.Q56-183T20/H
Rated voltage U_N : 3,200Vdc Us : 4,800V U_{TT} : 4,800Vdc															
10	115	56	1,000	51	0.71	4.1	100	2.8	8.4	15	T2	151	151	0.77	E55.R56-103T20/H
Rated voltage U_N : 5,000Vdc Us : 7,500V U_{TT} : 7,500Vdc															
10	115	100	1,500	125	1.3	2.3	100	1.9	1.6	15	T2	195	195	1.37	E55.R10-103T20/H

E59 Series (Custom Designed AC/DC Capacitors in Rectangular Case)

Features

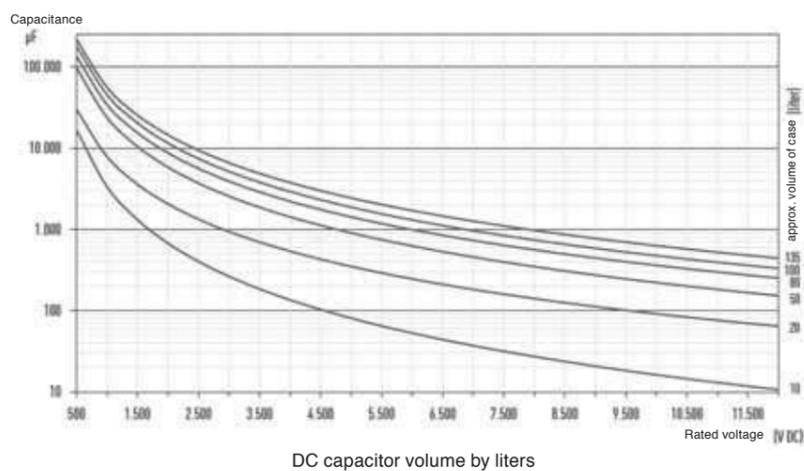
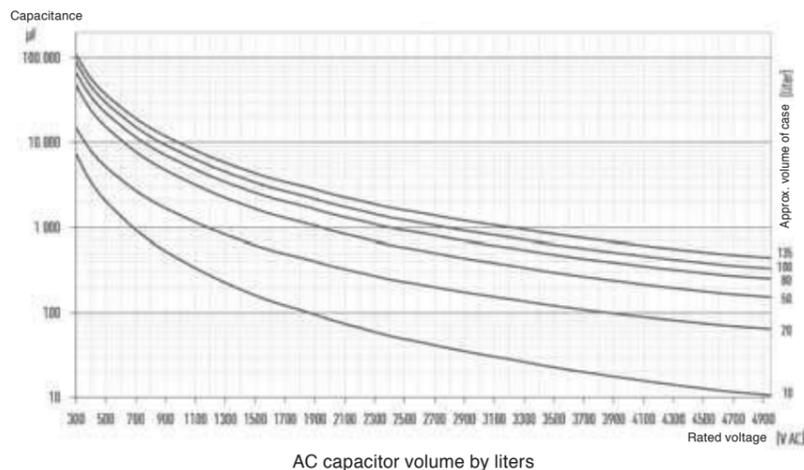
- Custom designed AC/DC capacitor in rectangular case.
- An irreversible pressure switch can be used for external monitoring of the internal pressure. (optional)

Specifications

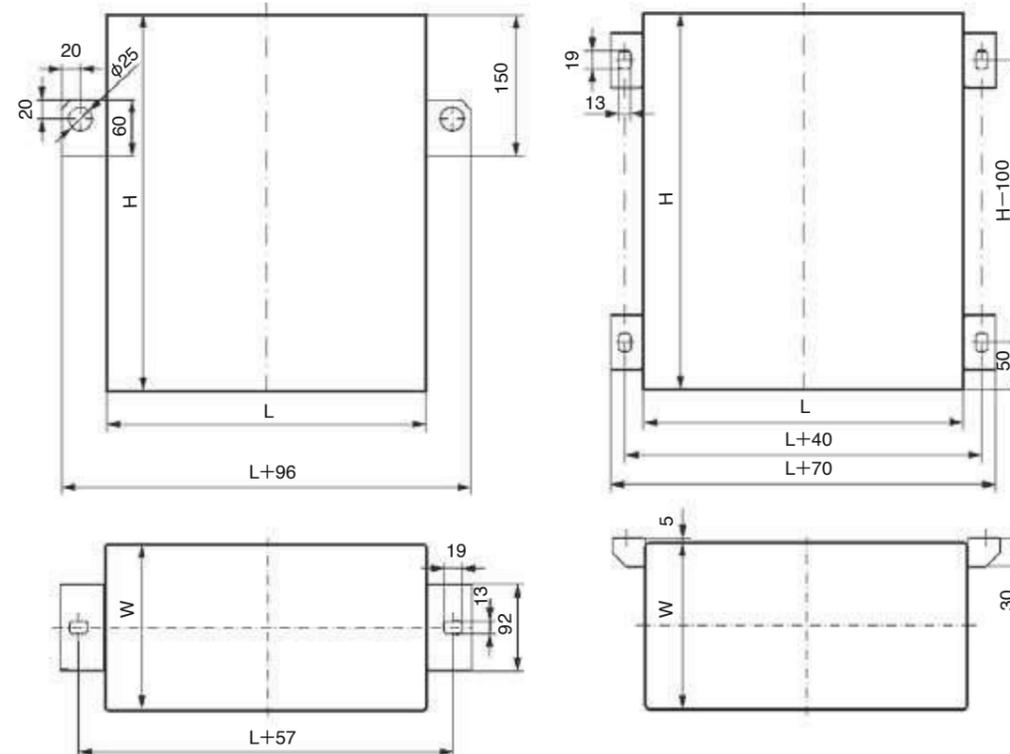
Item	Specification
Category temperature range	-55 ~ +70°C (+85°C / Includes self temperature rise)
Storage temperature	-55 ~ +85°C
Rated voltage (UN)	500 ~ 25,000V DC/200 ~ 17,000V AC
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	Optional pressure switch for external monitoring of the internal pressure (hermetical construction only)
Impregnant	Solid polyurethane
Material of case	Aluminum or Stainless steel
Environmental regulations	Comply with RoHS



Volume by liters per capacitance and rated voltage



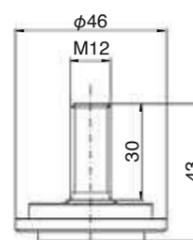
Standard fixing brackets



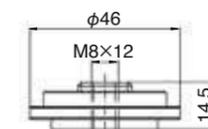
Standard terminal dimensions

F1 terminals

Clearance in air : 17mm
Creepage distance : 26mm



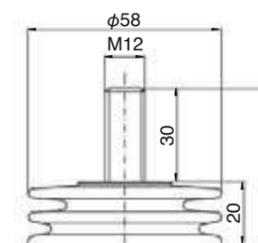
F1 M12×30



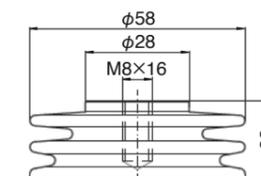
F1 iM8×12

F4 terminals

Clearance in air : 32mm
Creepage distance : 60mm



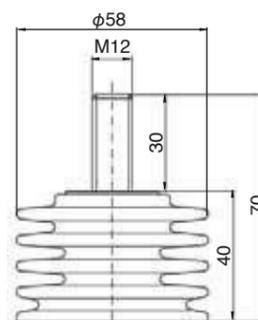
F4 M12×30



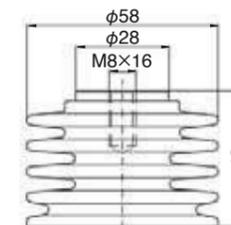
F4 iM8×16

F5 terminals

Clearance in air : 51mm
Creepage distance : 129mm



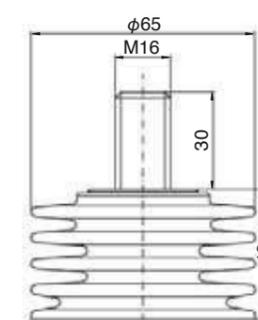
F5 M12×30



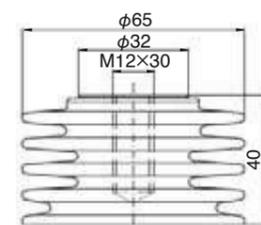
F5 iM8×16

F6 terminals

Clearance in air : 51mm
Creepage distance : 140mm



F6 M16×30



F6 iM12×30

Irreversible Pressure Switch

Type
Mechanical pressure switch with a diaphragm of EPDM or stainless steel, and a change-over contact for converting pressure into an electrical switching signal, RoHS-compliant.

Contacts
Cable-plugs 6.3mm x 0.8mm; we recommend using insulated cable plugs if operating the switch without protective cap.
Recommended cable size: $\geq 0.75\text{mm}^2$

Functions
The pressure switch just provides a signal for information about the rising pressure inside the capacitor.
The pressure switch does NOT have the following functions.
• provide detailed data about the exact pressure inside the capacitor
• interrupt the current path and disconnect the capacitor from its supply

Table. The switch can be used for the following signal currents :

Type of load	Type of current	Maximum voltage	Maximum current
Inductive	AC	250V rms	2A
	DC	24V	1A
Ohmic	AC	250V rms	4A
	DC	24V	2A

Our pressure switch is designed as an SPDT (Single Pole, Double Throw) device. It can therefore be used for the following options.

Table. Options for the pressure switches :

Option	Advantage	Disadvantage
Opening switch	Monitoring of the conductor	power losses by permanent current risk of electrochemical corrosion
Closing switch	No current, no power losses No electrochemical corrosion	No conductor monitoring, risk of monitoring failure going unnoticed
Change-over switch	Additional verification of the switching contact, minimization of false alarms	Risk of incorrect cable connection during assembly process

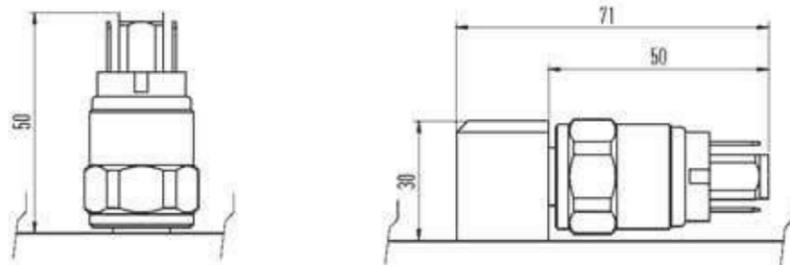


Fig. Dimension of pressure switch

Protective cap (optional, IP54)

A protection cap made of NBT can be ordered as an accessory. The cap can be used for additional protection of the pressure switch from environmental impact, for insulation and protection from accidental contact.

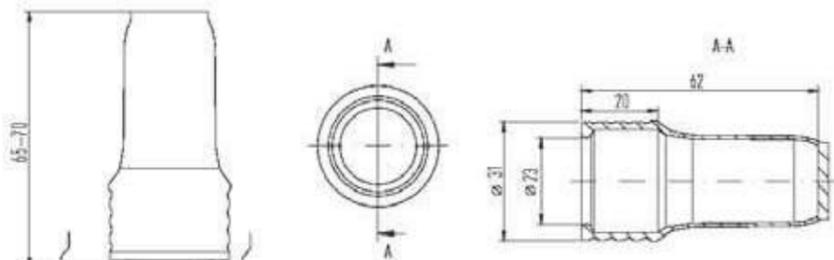


Fig. dimension of protective cap



Photo. Appearance of protective cap

NEW!

E61 (DC) Series (DC Cylindrical Metallized Polypropylene Film Capacitors)

Features

- High voltage range and ultra low inductance capacitors.
- E55 series are made in dry technology.
- For DC application.

Specifications

Item	Specification
Category temperature range	-25 ~ +85°C (Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (UN)	500 ~ 4,000Vdc
Terminal (torque)	M6 x 5 (4Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 x 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	-
Impregnant	Solid resin based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS

Dimensions

Item	Specification
Terminal code	P5
Can material	Plastic (UL94V-0)
Terminal	Internal threads M6x5
	Torque : 4Nm I _{max} (terminal) : 40A
Degree of protection	IP00
Humidity class	F
Clearance in air	30mm(φ75) / 37.5mm(φ95)
Creepage distance	30mm(φ75) / 37.5mm(φ95)

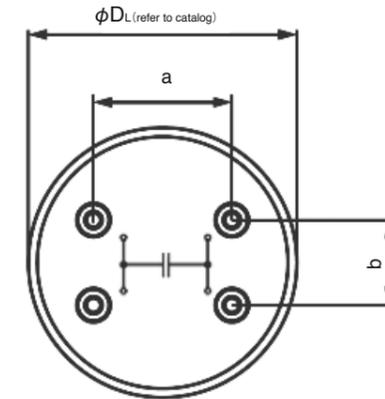
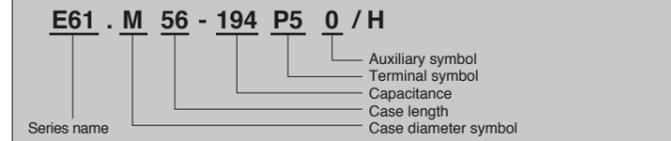


Table. Dimensions Unit : mm

D	a	b
75	42.5	25
95	49	30

Numbering system: e.g. E61, 500VDC, 190 μ F, φ 75 x 56Lmm, P5 terminal



Standard Value and Case Size

Rated Capacitance C_N [μF]	Case size		Energy Contents W [J]	Series resistance (reference) R_S [mΩ]	Thermal resistance (reference) R_{th} [K/W]	Max current I_{max} [Arms]	Max peak current \hat{i} [kA]	Max surge current I_S [kA]	Self inductance (reference) ESL [nH]	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]									
Rated voltage U_N: 500Vdc U_S: 750V U_r: 170Vdc U_{TT}: 750Vdc											
190	75	56	24	0.85	7.5	50	2.4	7	20	0.3	E61.M56-194P50/H
325	95	56	41	0.67	4.7	70	4	12	25	0.48	E61.P56-334P50/H
560	95	78	70	1.1	3.4	60	4	12	30	0.66	E61.P78-564P50/H
Rated voltage U_N: 700Vdc U_S: 1,050V U_r: 200Vdc U_{TT}: 1,050Vdc											
142	75	56	35	0.92	7.5	50	2.1	6	20	0.3	E61.M56-144P50/H
240	95	56	59	0.71	4.7	70	4	11	25	0.48	E61.P56-244P50/H
415	95	78	102	1.2	3.4	60	4	11	30	0.66	E61.P78-424P50/H
Rated voltage U_N: 900Vdc U_S: 1,350V U_r: 260Vdc U_{TT}: 1,350Vdc											
110	75	56	45	0.98	7.5	45	1.8	5	20	0.3	E61.M56-114P50/H
187	95	56	76	0.75	4.7	65	3	9	25	0.48	E61.P56-194P50/H
325	95	78	132	1.3	3.4	60	3	9	30	0.66	E61.P78-334P50/H
Rated voltage U_N: 1,100Vdc U_S: 1,650V U_r: 300Vdc U_{TT}: 1,650Vdc											
82	75	56	50	1.06	7.5	40	1.6	5	20	0.3	E61.M56-823P50/H
140	95	56	85	0.79	4.7	65	2.7	8	25	0.48	E61.P56-144P50/H
240	95	78	145	1.35	3.4	55	2.7	8	30	0.66	E61.P78-244P50/H
Rated voltage U_N: 1,300Vdc U_S: 1,950V U_r: 300Vdc U_{TT}: 1,950Vdc											
54	75	56	46	1.21	7.5	40	1.6	5	20	0.3	E61.M56-543P50/H
93	95	56	79	0.88	4.7	60	2.2	7	25	0.48	E61.P56-933P50/H
160	95	78	135	1.5	3.4	55	2.2	7	30	0.66	E61.P78-164P50/H
Rated voltage U_N: 2,000Vdc U_S: 3,000V U_r: 400Vdc U_{TT}: 3,000Vdc											
23	75	56	46	1.54	7.5	35	0.9	2.7	20	0.3	E61.M56-233P50/H
39	95	56	78	1.08	4.7	55	1.5	5	25	0.48	E61.P56-393P50/H
66	95	78	132	1.9	3.4	50	1.4	4	30	0.66	E61.P78-663P50/H
Rated voltage U_N: 2,200Vdc U_S: 3,300V U_r: 400Vdc U_{TT}: 3,300Vdc											
18.5	75	56	45	1.67	7.5	35	0.8	2.4	20	0.3	E61.M56-193P50/H
31	95	56	75	1.16	4.7	55	1.3	4	25	0.48	E61.P56-313P50/H
53	95	78	128	2	3.4	45	1.3	4	30	0.66	E61.P78-533P50/H
Rated voltage U_N: 2,600Vdc U_S: 3,900V U_r: 500Vdc U_{TT}: 3,900Vdc											
12	75	56	41	1.41	7.5	35	1.3	4	20	0.3	E61.M56-123P50/H
20	95	56	68	1.01	4.7	55	2.1	6	25	0.48	E61.P56-203P50/H
37	95	78	125	2.1	3.4	45	1	3	30	0.66	E61.P78-373P50/H
Rated voltage U_N: 3,300Vdc U_S: 4,950V U_r: 700Vdc U_{TT}: 4,950Vdc											
6.5	75	56	35	1.72	7.5	30	1	2.9	20	0.3	E61.M56-702P50/H
11.5	95	56	63	1.15	4.7	45	1.7	5	25	0.48	E61.P56-123P50/H
Rated voltage U_N: 3,600Vdc U_S: 5,400V U_r: 800Vdc U_{TT}: 5,400Vdc											
6	75	56	39	1.77	7.5	30	0.9	2.8	20	0.3	E61.M56-602P50/H
10	95	56	65	1.23	4.7	45	1.5	5	25	0.48	E61.P56-103P50/H
Rated voltage U_N: 4,000Vdc U_S: 6,000V U_r: 800Vdc U_{TT}: 6,000Vdc											
4.5	75	56	36	2.02	7.5	25	0.8	2.3	20	/H	E61.M56-452P50/H
7.5	95	56	60	1.38	4.7	40	1.3	4	25	/H	E61.P56-752P50/H

E62 (AC) Series (AC Cylindrical Metallized Polypropylene Film Capacitors)

Features

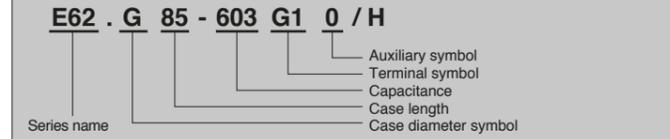
- Perfect for non-sinusoidal voltages and pulsed currents.
- Housed in a hermetically sealed aluminum can which is filled with environmentally friendly plant oil as standard.
- The integrated overpressure disconnecter ensure safe operation and controlled disconnection in the event of overload or failure at the end of operating life.

Specifications

Item	Specification
Category temperature range	-40 ~ +70°C (+85°C / Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U_N)	420 ~ 4,000Vac
Stud bolt (torque)	M12×16/18 (15 ±1Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ _o)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	Overpressure disconnecter
Impregnant	Liquid, based on vegetable oil, Non PCB
Material of case	Aluminum
Environmental regulations	Comply with RoHS



Numbering system: e.g. E62, 420VAC, 60μ F, φ50×85Lmm, G1 terminal



Standard Value and Case Size

Rated Capacitance C_N [μF]	Case size		Rated DC voltage U_N (DC) [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current \hat{i} [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]											
Rated AC voltage U_N (AC): 420Vac U_{rms}: 300V U_S: 1,050V Test voltage (T-T) U_{TT}: 1,050Vdc Test voltage (T-C) U_{TC}: 3,000Vac													
42	60	80	700	20	0.8	2.5	10	2.3	90	9.3	Z1	0.27	E62.K80-433Z10/H
60	50	85	700	32	0.7	2.1	15	3.3	100	10.5	G1	0.18	E62.G85-603G10/H
75	60	105	700	40	0.8	2.5	18	2.1	110	7.1	C68	0.31	E62.K10-753C68/H
95	65	105	700	30	1.0	3.0	23	2.3	110	6.5	Z1	0.40	E62.L10-953Z10/H
100	65	95	700	40	1.15	3.45	25	3.1	100	7.2	G1	0.33	E62.L95-104G10/H
120	75	105	700	50	1.4	4.2	29	1.0	140	5.7	C6	0.5	E62.M10-124C60/H
130	65	109	700	40	1.2	3.6	32	3.4	110	6.3	G1	0.4	E62.L10-134G10/H
130	75	105	700	30	1.4	4.0	32	2.4	110	5.7	Z1	0.5	E62.M10-134Z10/H
150	65	135	700	35	1.2	3.6	37	4.4	110	5.1	G1	0.5	E62.L13-154G10/H
167	85	112	700	56	1.8	5.0	41	1.2	110	4.7	S2	0.65	E62.N11-174S20/H
170	85	105	700	50	2.0	6.0	42	0.82	140	5	C6	0.6	E62.N10-174C60/H
200	65	145	700	30	1.2	3.6	49	4.4	140	4.7	G1	0.5	E62.L14-204G10/H
217	95	112	700	56	2.4	7.0	53	1.1	110	4.2	S2	0.85	E62.P11-224S20/H
220	95	105	700	50	2.5	7.5	54	1.3	140	4.5	C6	0.8	E62.P10-224C60/H
250	85	176	700	80	3.0	10.0	61	1.2	160	3	C6	1.2	E62.N17-254C60/H
340	85	169	700	56	1.8	3.0	83	1.8	110	3.1	S2	1.0	E62.N16-344S20/H
400	85	245	700	80	4.5	13.5	98	0.68	160	2.1	C6	1.5	E62.N24-404C60/H
434	95	179	700	56	5.0	14.0	106	1.0	120	2.6	S2	1.3	E62.P17-434S20/H
470	95	176	700	80	5.3	15.9	115	0.53	160	2.7	C6	1.3	E62.P17-474C60/H
500	100	176	700	80	5.7	17.1	123	0.57	160	2.5	C6	1.5	E62.Q17-504C60/H
540	95	245	700	80	6.0	18.0	132	0.9	170	1.9	C6	2.2	E62.P24-544C60/H
2,000	136	320	700	100	15	20	490	0.6	190	1	C6	4.9	E62.S32-205C60/H

Standard Value and Case Size

Standard Value and Case Size

Rated Capacitance C_N [µF]	Case size		Rated DC voltage U_N (DC) [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal symbol	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]											
Rated AC voltage U_N (AC) : 500Vac			$U_{rms} : 360V \quad U_S : 1,260V \quad \text{Test voltage (T-T)} \quad U_{TT} : 1,260Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,000Vac$										
30	60	80	840	20	0.7	2.2	11	2.4	90	9.3	Z1	0.27	E62.K80-303Z10/H
40	50	85	840	30	0.6	1.7	14	3.6	100	10.5	G1	0.18	E62.G85-403G10/H
50	55	85	840	25	0.7	2.1	18	4.4	110	9.5	G1	0.21	E62.H85-503G10/H
55	60	105	840	40	0.7	2.2	19	2.2	110	7.1	C68	0.31	E62.K10-553C68/H
70	65	105	840	30	0.9	2.8	25	2.4	110	6.5	Z1	0.40	E62.L10-703Z10/H
75	65	95	840	40	1.0	3.0	26	2.3	100	7.2	G1	0.33	E62.L95-753G10/H
100	65	135	840	40	0.9	2.7	35	4.3	120	5.1	G1	0.5	E62.L13-104G10/H
120	75	120	840	39	1.3	4.0	42	2.6	110	5.0	Z1	0.6	E62.M12-124Z10/H
150	85	124	840	56	1.6	5.0	53	1.4	110	4.2	S2	0.75	E62.N12-154S20/H
200	65	145	700	30	1.2	3.6	49	4.4	140	4.7	G1	0.5	E62.L14-204G10/H
250	85	169	840	56	1.6	5.0	88	1.9	110	3.1	S2	1.0	E62.N16-254S20/H
300	95	176	840	80	4.1	12.3	106	1.1	160	2.7	C6	1.3	E62.P17-304C60/H
320	95	179	840	56	4.0	13	113	1.0	120	2.6	S2	1.3	E62.P17-324S20/H
620	116	245	840	100	9.0	15	219	0.58	160	1.6	C6	2.7	E62.R24-624C60/H
750	116	245	840	100	10	20	265	0.57	170	1.6	C6	2.7	E62.R24-754C60/H
1,000	136	245	840	100	14	20	353	0.56	170	1.3	C6	3.7	E62.S24-105C60/H
1,500	136	320	840	100	15	20	529	0.5	190	1	C6	4.9	E62.S32-155C60/H
Rated AC voltage U_N (AC) : 640Vac			$U_{rms} : 450V \quad U_S : 1,500V \quad \text{Test voltage (T-T)} \quad U_{TT} : 1,500Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,000Vac$										
15	50	62	1,000	25	0.24	0.7	8	2.9	100	14.4	G1	0.14	E62.G62-153G10/H
23	60	80	1,000	20	0.7	2.0	12	2.5	90	9.3	Z1	0.27	E62.K80-233Z10/H
30	50	85	1,000	33	0.5	1.4	15	3.9	100	10.5	G1	0.18	E62.G85-303G10/H
41	60	105	1,000	40	0.6	1.9	21	2.4	110	7.1	C68	0.31	E62.K10-413C68/H
50	65	95	1,000	40	0.8	2.4	25	3.4	100	7.2	G1	0.33	E62.L95-503G10/H
52	65	105	1,000	30	0.8	2.4	26	2.5	110	6.5	Z1	0.4	E62.L10-523Z10/H
68	65	109	1,000	30	0.9	2.7	34	3.7	100	6.3	G1	0.4	E62.L10-683G10/H
75	75	105	1,000	43	1.2	3.6	38	2.7	110	5.7	L1	0.5	E62.M10-753L10/H
80	85	105	1,000	43	1.3	3.8	40	1.4	110	5.0	L1	0.6	E62.N10-803L10/H
100	85	120	1,000	80	3.0	9.0	50	0.53	100	4.4	C6	0.9	E62.N12-104C60/H
120	95	105	1,000	43	1.9	5.8	60	1.60	110	4.5	L1	0.8	E62.P10-124L10/H
140	85	164	1,000	100	4.0	12	70	0.81	160	3.2	C6	1.0	E62.N16-144C60/H
145	75	164	1,000	39	1.1	3.0	73	3.3	110	3.6	Z1	0.75	E62.M16-154Z10/H
155	85	149	1,000	56	1.4	4.0	78	1.8	110	3.5	S2	0.9	E62.N14-164S20/H
200	95	176	1,000	80	3.5	10.5	100	0.7	160	2.7	C6	1.3	E62.P17-204C60/H
220	95	159	1,000	56	1.8	5.0	110	1.7	130	2.9	S2	1.2	E62.P15-224S20/H
250	100	176	1,000	80	4.0	12.0	125	0.63	160	2.5	C6	1.5	E62.Q17-254C60/H
250	95	176	1,000	43	4.0	12.0	125	1.30	130	2.7	L1	1.3	E62.P17-254L10/H
350	116	176	1,000	80	5.6	16.8	175	0.57	160	2.2	C6	2.0	E62.R17-354C60/H
500	116	245	1,000	100	7.8	20.0	250	0.6	170	1.6	C6	2.7	E62.R24-504C60/H
750	116	320	1,000	100	12.0	20.0	375	0.64	190	1.2	C6	3.5	E62.R32-754C60/H
800	136	245	1,000	100	12.8	20.0	400	0.63	170	1.3	C6	3.7	E62.S24-804C60/H
1,000	136	320	1,000	100	15.6	20.0	500	0.62	190	1.0	C6	4.9	E62.S32-105C60/H
Rated AC voltage U_N (AC) : 680Vac			$U_{rms} : 480V \quad U_S : 1,680V \quad \text{Test voltage (T-T)} \quad U_{TT} : 1,680Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,000Vac$										
17.5	60	80	1,120	20	0.6	1.7	11	2.6	90	9.3	Z1	0.27	E62.K80-183Z10/H
31	60	105	1,120	40	0.6	1.7	19	2.6	110	7.1	C68	0.31	E62.K10-313C68/H
39	65	105	1,120	30	0.7	2.1	24	2.7	110	6.5	Z1	0.40	E62.L10-393Z10/H
60	75	105	1,120	43	1.1	3.3	38	2.3	110	5.7	L1	0.50	E62.M10-603L10/H
66	75	120	1,120	39	1.0	2.9	41	2.6	110	5.0	Z1	0.60	E62.M12-663Z10/H
68	85	105	1,120	43	1.2	3.7	43	1.5	110	5.0	L1	0.60	E62.N10-683L10/H
86	85	124	1,120	56	1.3	4.0	54	1.6	110	4.2	S2	0.75	E62.N12-863S20/H
100	100	105	1,120	43	1.8	5.5	63	1.3	110	4.2	L1	0.90	E62.Q10-104L10/H
100	95	120	1,120	80	3.0	10.0	63	1.1	150	3.9	C6	0.9	E62.P12-104C60/H
150	116	124	1,120	80	5.0	14.0	94	0.95	150	3.2	C6	1.3	E62.R12-154C60/H
152	95	149	1,120	56	1.6	5.0	95	1.7	110	3.1	S2	1.1	E62.P14-154S20/H
180	95	176	1,120	43	3.3	9.9	113	1.4	130	2.7	L1	1.3	E62.P17-184L10/H
200	100	176	1,120	80	3.7	11.1	125	0.66	160	2.5	C6	1.5	E62.Q17-204C60/H
280	116	176	1,120	80	5.1	15.3	176	0.6	160	2.2	C6	2.0	E62.R17-284C60/H
400	116	245	1,120	100	7.3	20.0	251	0.6	170	1.6	C6	2.7	E62.R24-404C60/H
600	136	245	1,120	100	10.7	20.0	376	0.56	170	1.3	C6	3.7	E62.S24-604C60/H
800	136	320	1,120	100	14.8	20.0	502	0.63	190	1.0	C6	4.9	E62.S32-804C60/H

Rated Capacitance C_N [µF]	Case size		Rated DC voltage U_N (DC) [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal symbol	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]											
Rated AC voltage U_N (AC) : 750Vac			$U_{rms} : 530V \quad U_S : 1,900V \quad \text{Test voltage (T-T)} \quad U_{TT} : 1,890Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,000Vac$										
10	50	62	1,260	20	0.4	1.2	8	3.1	110	14.4	G1	0.14	E62.G62-103G10/H
13	60	80	1,260	20	0.5	1.4	10	2.8	90	9.3	Z1	0.27	E62.K80-133Z10/H
20	50	85	1,260	27	0.4	1.2	16	4.2	100	10.5	G1	0.18	E62.G85-203G10/H
24	60	105	1,260	40	0.5	1.4	19	2.9	110	7.1	C68	0.31	E62.K10-243C68/H
30	65	105	1,260	30	0.6	1.8	24	3.2	110	6.5	Z1	0.4	E62.L10-303Z10/H
33	65	95	1,260	37	0.7	2.0	26	3.6	100	7.2	G1	0.33	E62.L95-333G10/H
40	65	109	1,260	30	0.7	2.0	32	5.6	120	6.3	G1	0.4	E62.L10-403G10/H
47	75	105	1,260	43	1.0	2.9	37	2.4	110	5.7	L1	0.5	E62.M10-473L10/H
51	75	120	1,260	39	0.8	2.5	40	3.1	110	5.0	Z1	0.6	E62.M12-513Z10/H
60	65	145	1,260	35	0.7	2.0	48	6.2	140	4.7	G1	0.5	E62.L14-603G10/H
60	85	105	1,260	43	1.2	3.7	48	1.5	110	5.0	L1	0.6	E62.N10-603L10/H
65	85	124	1,260	56	1.1	3.0	52	1.8	110	4.2	S2	0.75	E62.N12-653S20/H
75	95	105	1,260	43	1.5	4.6	60	1.4	110	4.5	L1	0.8	E62.P10-753L10/H
116	95	149	1,260	56	1.4	4.0	92	1.8	110	3.1	S2	1.1	E62.P14-124S20/H
150	95	176	1,260	43	3.1	9.3	119	1.4	130	2.7	L1	1.3	E62.P17-154L10/H
150	100	176	1,260	80	3.1	9.3	119	0.7	160	2.5	C6	1.5	E62.Q17-154C60/H
220	116	176	1,260	80	4.5	13.5	175	0.61	160	2.2	C6	2	E62.R17-224C60/H
330	116	245	1,260	100	6.8	20.0	262	0.61	170	1.6	C6	2.7	E62.R24-334C60/H
350	116	245	1,260	100	6.8	20.0	278	0.59	160	1.6	C6	2.7	E62.R24-334C60/H
500	136	245	1,260	100	10.1	20.0	397	0.56	170	1.3	C6	3.7	E62.S24-504C60/H
600	136	320	1,260	100	12.4	20.0	476	0.64	190	1.0	C6	4.9	E62.S32-604C60/H
Rated AC voltage U_N (AC) : 850Vac			$U_{rms} : 600V \quad U_S : 2,100V \quad \text{Test voltage (T-T)} \quad U_{TT} : 2,100Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,000Vac$										
10.5	60	80	1,400	20	0.4	1.3	10	2.9	90	9.3	Z1	0.27	E62.K80-113Z10/H
15	50	85	1,400	25	0.3	0.9	15	4.6	80	10.5	G1	0.18	E62.G85-153G10/H
16	50	85	1,400	30	0.4	1.1	16	4.5	100	10.5	G1	0.18	E62.G85-163G10/H
19	60	105	1,400	40	0.4	1.3	19	3.1	110	7.1	C68	0.31	E62.K10-193C68/H
24.5	65	105	1,400	30	0.6	1.7	24	3.4	110	6.5	Z1	0.40	E62.L10-253Z10/H
25	65	95	1,400	40	0.6	1.7	25	3.9	100	7.2	G1	0.33	E62.L95-253G10/H
30	65	109	1,400	30	0.6	1.7	29	4.4	110	6.3	G1	0.4	E62.L10-303G10/H
33	75	105	1,400	38	0.8	2.3	32	2.7	110	5.7	L1	0.5	E62.M10-333L10/H
41	75	120	1,400	39	0.8	2.3	40	3.2	110</				

Standard Value and Case Size

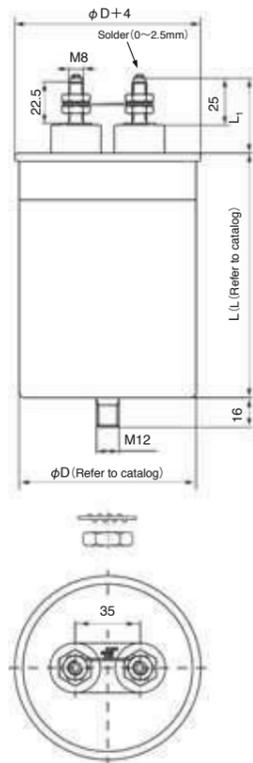
Rated Capacitance C_N [μF]	Case size		Rated DC voltage $U_N (DC)$ [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_s [kA]	Rated energy contents W [J]	Series resistance (reference) R_s [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal symbol	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]											
Rated AC voltage $U_N (AC) : 1,200Vac$			$U_{rms} : 850V \quad U_s : 3,000V \quad \text{Test voltage (T-T)} \quad U_{TT} : 3,000Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 4,000Vac$										
5	60	80	2,000	20	0.6	1.9	4	2.6	90	9.3	Z1	0.3	E62.K80-502Z10/H
6.8	50	85	2,000	33	0.5	1.5	5	3.7	100	10.5	G1	0.2	E62.G85-682G10/H
9.5	60	105	2,000	40	0.6	1.9	7	2.5	110	7.1	C68	0.3	E62.K10-952C68/H
10	65	95	2,000	40	0.7	2.1	7	3.7	100	7.2	G1	0.3	E62.L95-103G10/H
12	65	105	2,000	30	0.8	2.4	9	2.9	110	6.5	Z1	0.4	E62.L10-123Z10/H
15	65	109	2,000	40	0.8	2.4	11	3.9	120	6.3	G1	0.4	E62.L10-153G10/H
20	65	135	2,000	30	0.8	2.4	14	4.7	120	5.1	G1	0.5	E62.L13-203G11/H
21	75	120	2,000	30	1.1	3.0	15	2.8	110	5.0	Z1	0.6	E62.M12-213Z10/H
26.5	85	124	2,000	56	1.4	4.0	19	1.6	110	4.2	S2	0.8	E62.N12-273S20/H
30	65	160	2,000	40	1.0	3.0	22	5.3	130	4.3	G1	0.6	E62.L16-303G10/H
32	100	105	2,000	50	2.0	6.0	23	0.79	140	4.2	C6	0.9	E62.Q10-323C60/H
33	85	140	2,000	56	1.3	4.0	24	2.2	140	3.7	S2	0.9	E62.N14-333S20/H
33	85	176	2,000	80	2.2	7.0	24	1.3	160	3.0	C6	1.2	E62.N17-333C60/H
40	85	176	2,000	80	2.7	8.1	29	0.76	160	3.0	C6	1.2	E62.N17-403C60/H
47	95	149	2,000	56	1.8	5.0	34	1.6	110	3.1	S2	1.1	E62.P14-473S20/H
53	85	245	2,000	80	4.0	11.0	38	1.0	160	2.1	C6	1.7	E62.N24-533C60/H
68	85	280	2,000	80	3.6	10.8	49	0.81	160	1.9	C6	1.8	E62.N28-683C60/H
80	95	245	1,900	80	5.0	15.0	58	1.0	170	1.9	C6	1.8	E62.P24-803C60/H
100	116	176	2,000	80	3.2	9.6	72	1.0	150	2.2	C6	2.0	E62.R17-104C60/H
150	116	280	2,000	100	8.0	20.0	108	1.4	180	1.4	C6	3.1	E62.R28-154C60/H
Rated AC voltage $U_N (AC) : 1,350Vac$			$U_{rms} : 960V \quad U_s : 3,300V \quad \text{Test voltage (T-T)} \quad U_{TT} : 3,375Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 4,200Vac$										
4	50	85	2,250	26	0.3	1.0	4	5.0	120	10.5	G1	0.2	E62.G85-402G10/H
5	50	85	2,250	25	0.4	1.2	5	4.4	100	10.5	G1	0.2	E62.G85-502G10/H
6.8	55	85	2,250	25	0.5	1.6	6	4.0	110	9.5	G1	0.2	E62.H85-682G10/H
10	75	105	2,250	45	0.8	2.3	9	1.6	140	5.7	C6	0.5	E62.M10-103C60/H
15	85	105	2,250	50	1.1	3.3	14	1.2	120	5.0	C6	0.6	E62.N10-153C60/H
16	85	105	2,250	50	1.2	3.7	15	1.1	140	5.0	C6	0.6	E62.N10-163C60/H
20	95	105	2,250	50	1.5	4.6	18	0.96	140	4.5	C6	0.8	E62.P10-203C60/H
22	75	176	2,250	80	1.9	5.7	20	0.97	160	3.4	C6	0.8	E62.M17-223C60/H
40	95	176	2,250	80	3.1	9.3	36	0.71	160	2.7	C6	1.3	E62.P17-403C60/H
47	100	176	2,250	80	3.6	10.8	43	0.67	160	2.5	C6	1.5	E62.Q17-473C60/H
68	100	245	2,250	80	5.0	15.0	62	1.0	160	1.8	C6	2.0	E62.Q24-683C60/H
68	116	176	2,250	80	5.3	15.9	62	0.59	160	2.2	C6	2.0	E62.R17-683C60/H
100	116	245	2,250	100	7.7	20.0	91	0.6	170	1.6	C6	2.7	E62.R24-104C60/H
150	136	245	2,250	100	11.6	20.0	137	0.56	170	1.3	C6	3.7	E62.S24-154C60/H
200	136	320	2,250	100	15.0	20.0	182	0.62	190	1.0	C6	4.9	E62.S32-204C60/H
Rated AC voltage $U_N (AC) : 1,700Vac$			$U_{rms} : 1,200V \quad U_s : 4,200V \quad \text{Test voltage (T-T)} \quad U_{TT} : 4,200Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 5,000Vac$										
4	75	105	2,800	48	0.8	1.8	6	2.8	140	5.7	C6	0.5	E62.M10-402C60/H
6.8	75	105	2,800	46	0.7	2.0	10	1.8	140	5.7	C6	0.5	E62.M10-682C60/H
10	85	105	2,800	50	1.0	2.9	14	1.3	140	5.0	C6	0.6	E62.N10-103C60/H
12	95	105	2,800	50	1.2	3.5	17	1.2	140	4.5	C6	0.8	E62.P10-123C60/H
12	75	176	2,800	80	1.9	5.7	17	1.4	160	3.4	C6	0.8	E62.M17-123C60/H
25	95	176	2,800	80	2.4	7.3	36	0.8	160	2.7	C6	1.3	E62.P17-253C60/H
30	100	176	2,800	80	2.9	8.7	43	0.73	160	2.5	C6	1.5	E62.Q17-303C60/H
40	116	176	2,800	80	3.9	11.7	58	0.65	160	2.2	C6	2.0	E62.R17-403C60/H
60	116	245	2,800	100	5.8	17.4	87	0.64	170	1.6	C6	2.7	E62.R24-603C60/H
90	136	245	2,800	100	8.7	20.0	130	0.58	170	1.3	C6	3.7	E62.S24-903C60/H
100	136	280	2,800	100	8.0	20.0	145	0.94	190	1.2	C6	4.3	E62.S28-104C60/H
125	136	320	2,800	100	12.1	20.0	181	0.64	190	1.0	C6	4.9	E62.S32-134C60/H
Rated AC voltage $U_N (AC) : 2,000Vac$			$U_{rms} : 1,400V \quad U_s : 5,100V \quad \text{Test voltage (T-T)} \quad U_{TT} : 5,100Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 5,800Vac$										
10	75	176	3,400	40	1.2	3.5	20	2.1	170	3.4	C6	0.8	E62.M17-103C60/H
15	95	176	3,400	40	1.0	3.1	30	1.6	170	2.7	C6	1.3	E62.P17-153C60/H
20	100	176	3,400	50	2.3	7.0	40	1.3	160	2.5	C6	1.5	E62.Q17-203C60/H
30	116	176	3,400	50	3.6	10.8	60	1.0	160	2.2	C6	2.0	E62.R17-303C60/H
40	116	320	3,400	80	4.6	13.8	80	1.1	190	1.2	C6	3.5	E62.R32-403C60/H
50	136	245	3,400	100	9.0	20.0	100	0.88	170	1.3	C6	3.7	E62.S24-503C60/H
54	116	320	3,400	80	5.9	17.7	108	1.1	180	1.2	C6	3.5	E62.R32-543C60/H
60	116	320	3,400	100	6.0	18.0	120	1.0	180	1.2	C6	3.5	E62.R32-603C60/H
90	136	320	3,400	100	9.7	20.0	180	1.0	190	1.0	C6	4.9	E62.S32-903C60/H

Standard Value and Case Size

Rated Capacitance C_N [μF]	Case size		Rated DC voltage $U_N (DC)$ [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_s [kA]	Rated energy contents W [J]	Series resistance (reference) R_s [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal symbol	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]											
Rated AC voltage $U_N (AC) : 2,100Vac$			$U_{rms} : 1,500V \quad U_s : 5,400V \quad \text{Test voltage (T-T)} \quad U_{TT} : 5,400Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 6,200Vac$										
13	95	176	3,600	80	2.6	8.0	84	1.3	160	2.7	C6	1.3	E62.P17-133C60/H
33	116	205	3,600	80	3.3	9.9	214	1.2	150	1.9	CR	2.4	E62.R20-333C60/H
40	116	320	3,600	100	5.4	16.2	259	1.1	180	1.2	CR	3.5	E62.R32-403CR0/H
60	136	320	3,600	100	7.9	20.0	389	1.0	190	1.0	CR	4.9	E62.S32-603CR0/H
70	136	320	3,600	100	8.0	20.0	454	1.1	190	1.0	CR	4.9	E62.S32-703CR0/H
Rated AC voltage $U_N (AC) : 2,400Vac$			$U_{rms} : 1,700V \quad U_s : 6,000V \quad \text{Test voltage (T-T)} \quad U_{TT} : 6,000Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 6,800Vac$										
6.8	75	176	4,000	40	0.9	2.8	54	2.5	160	3.4	C6	0.8	E62.M17-682C60/H
10	85	176	4,000	40	1.4	4.2	80	1.9	170	3.0	C6	1.2	E62.N17-103C60/H
20	116	176	4,000	50	2.7	8.0	160	1.6	160	2.2	C6	2.0	E62.R17-203C61/H
22	116	176	4,000	50	2.8	8.7	176	1.1	160	2.2	CR	2.0	E62.R17-223CR0/H
25	136	176	4,000	80	5.6	16.8	200	0.59	160	1.9	CR	2.6	E62.S17-253CR0/H
33	136	245	4,000	100	7.5	20.0	264	0.6	160	1.3	CR	3.7	E62.S24-333CR0/H
Rated AC voltage $U_N (AC) : 4,000Vac$			$U_{rms} : 2,800V \quad U_s : 7,500V \quad \text{Test voltage (T-T)} \quad U_{TT} : 7,500Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 8,200Vac$										
0.2	75	105	5,000	16	0.7	2.2	3	5.1	150	5.7	CR	0.6	E62.M10-201CR0/H
1.0	75	120	5,000	40	0.8	2.4	13	3.9	150	5.0	CR	0.6	E62.M12-102CR0/H
1.8	85	120	5,000	40	1.4	4.0	23	2.7	150	4.4	CR	0.9	E62.N12-182CR0/H
1.9	95	120	5,000	40	1.4	4.0	24	2.6	150	3.9	CR	0.9	E62.P12-192CR0/H
2.2	95	120	5,000	40	1.7	5.1	28	2.0	150	3.9	CR	0.9	E62.P12-222CR0/H
4.7	95	205	5,000	40	3.7	11.1	59	1.2	170	2.3	CR	1.6	E62.P20-472CR0/H
6.0	116	205	5,000	80	4.7	14.1	75	0.8	160	1.9	CR	2.7	E62.R20-602CR0/H
10	116	280	5,000	50	6.0	18.0	125	2.6	180	1.4	CR	3.11	E62.R28-103CR0/H

Dimensions (E62 series)

C6/C68 terminal
(Can diameter : $\phi 60 \sim 136\text{mm}$)



CR terminal
(Can diameter : $\phi 75 \sim 136\text{mm}$)

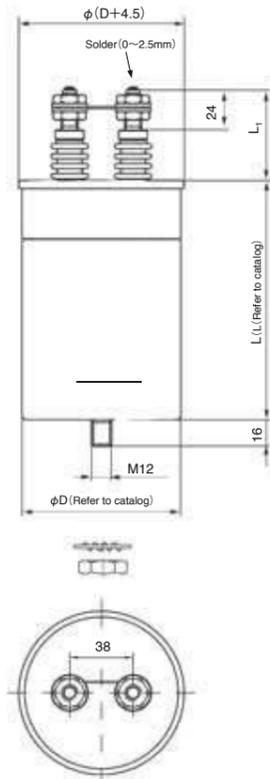


Table. Common Specification

Item	Specification
Terminal code	C6 / C68
Can material	Aluminum
Stud bolt	M12
Lid	Aluminum
Terminal	C6 M10 bolt terminal, Plastic bushing Torque : 9Nm I_{\max} (terminal) : 100A
	C68 M8 bolt terminal, Plastic bushing Torque : 4Nm I_{\max} (terminal) : 50A
Degree of protection	IP00
Humidity class	C

Table. Dimensions

D	L	Insulation distance	
		in Air	Creepage
60	41	19	23
65	41	19	23
75	41	15	25
85	41	15	25
95	41	15	25
100	41	15	25
116	37	15	25
136	36	15	25

Table. Common Specification

Item	Specification
Terminal code	CR
Can material	Aluminum
Stud bolt	M12
Lid	Aluminum
Terminal	M10 bolt terminal, Celamic bushing Torque : 9Nm I_{\max} (terminal) : 100A
Degree of protection	IP00
Humidity class	C

Table. Dimensions

D	L	Insulation distance	
		in Air	Creepage
75	56	17	54
85	56	17	54
95	56	17	54
100	56	17	54
116	54	17	54
136	51	17	54

Dimensions (E62 series)

G1 terminal
(Can diameter : $\phi 50/55/65\text{mm}$)

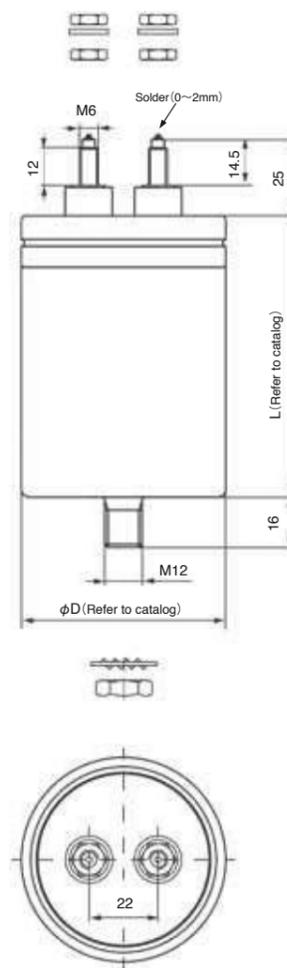


Table. Common Specification

Item	Specification
Terminal code	G1
Can material	Aluminum
Stud bolt	M12
Lid	Plastic, Rubber
Terminal	M6 bolt terminal, Plastic bushing Torque : 2Nm I_{\max} (terminal) : 40A
Degree of protection	IP00
Humidity class	F

Table. Dimensions

D	Insulation distance	
	in Air	Creepage
50	10	15
55	10	16
65	10	21

L1 terminal
(Can diameter : $\phi 60 \sim 136\text{mm}$)

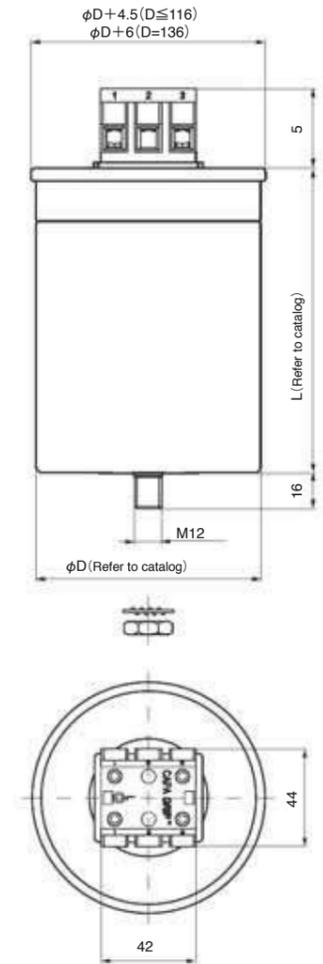
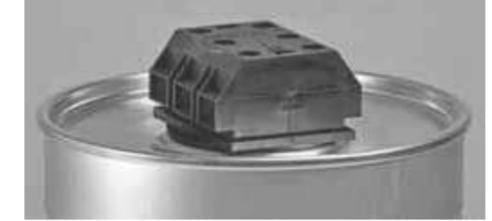
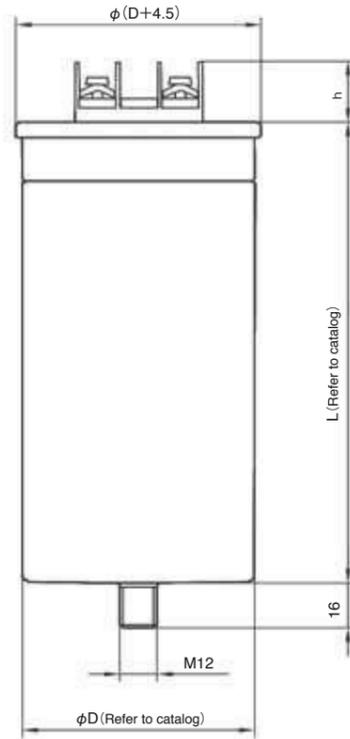


Table. Common Specification

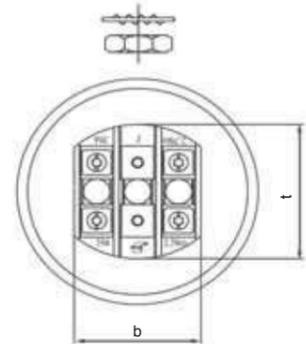
Item	Specification
Terminal code	L1
Can material	Aluminum
Stud bolt	M12
Lid	Aluminum
Terminal	Max wire size: max 25mm ² Torque : 3Nm I_{\max} (terminal) : 43A Clearance in air: 16mm Creepage distance: 16mm
Degree of protection	IP20
Humidity class	C

Dimensions (E62 series)

Z1/S2 terminal (Can diameter : $\phi 60 \sim 136\text{mm}$)
For one phase capacitors



Z1



S2

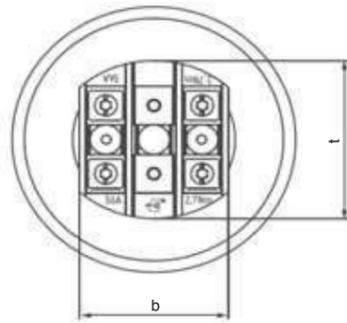


Table. Common Specification

Item	Specification	
Terminal code	Z1 / S2	
Can material	Aluminum	
Stud bolt	M12	
Lid	Aluminum	
Terminal	Z1 Max wire size: max 10mm ² Torque : 2.7Nm I _{max} (terminal) : 39A Clearance in air: 16mm Creepage distance: 16mm	
	S2 Max wire size: max 16mm ² Torque : 2.7Nm I _{max} (terminal) : 56A Clearance in air: 15mm Creepage distance: 14mm	
	Degree of protection	IP00
	Humidity class	C

Table. Dimensions

Unit : mm

Item	Terminal	
	Z1	S2
h	22	18
b	41	47
t	43.5	53

NEW!

E62-TAB (AC) Series

(AC Cylindrical Metallized Polypropylene Film Capacitors)

Features

- Perfect for non-sinusoidal voltages and pulsed currents.
- Housed in a hermetically sealed aluminum can which is filled with environmentally friendly plant oil as standard.
- The integrated overpressure disconnecter ensure safe operation and controlled disconnection in the event of overload or failure at the end of operating life.

Specifications

Item	Specification
Category temperature range	-40 ~ +70°C (+85°C/ Includes self temperature rise)
Storage temperature	-40 ~ +85°C
Rated voltage (U _N)	420 ~ 5,000Vac
Terminal (torque)	M8 × 10 (5Nm) / M12 × 16 (15Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor (tan δ ₀)	2 × 10 ⁻⁴
Capacitance tolerance	±10% (optional ±5%)
Safety devices	Overpressure disconnecter
Impregnant	Liquid, based on vegetable oil, Non PCB
Material of case	Plastic (UL94V-0)
Environmental regulations	Comply with RoHS



Numbering system: e.g. E62, 420VAC, 15μ F, φ35×58Lmm, D1 terminal

E62 . D 58 - 153 D1 0 / H



Standard Value and Case Size

Rated Capacitance C _N (μF)	Case size		Rated DC voltage U _N (DC) [Vdc]	Max current (rms) I _{max} [Arms]	Max peak current i [kA]	Max surge current I _s [kA]	Rated energy contents W [J]	Series resistance (reference) R _s [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R _{th} [K/W]	Terminal	Weight [kg]	Part number
	Diameter φD [mm]	Length L [mm]											
Rated AC voltage U _N (AC) : 420Vac			U _{rms} : 300V U _s : 1,050V Test voltage (T-T) U _{TT} : 1,050Vdc Test voltage (T-C) U _{TC} : 3,000Vac										
15	35	58	700	16	0.3	0.9	1.3	3.1	60	21.9	D1	0.07	E62.D58-153D10/H
20	40	58	700	16	0.5	1.5	1.8	2.6	60	19.2	D1	0.08	E62.E58-203D10/H
22	35	81	700	10	0.3	0.9	1.9	5.4	80	15.7	E2	0.10	E62.D81-223E20/H
24	35	81	700	10	0.3	0.9	2.1	5.0	80	15.7	E2	0.10	E62.D81-243E20/H
24	35	81	700	10	0.30	0.90	2.1	5.7	80	15.7	D1	0.12	E62.D81-243D10/H
35	40	81	700	16	0.4	1.2	3.1	4.0	80	13.9	D1	0.1	E62.E81-353D10/H
50	45	81	700	16	0.6	1.7	4.4	3.3	80	12.2	D1	0.1	E62.F81-503D10/H
75	55	85	700	16	0.8	2.6	6.6	2.7	80	9.5	D1	0.2	E62.H85-753D10/H
80	55	85	700	16	0.9	2.7	7.1	4.7	80	9.5	D1	0.2	E62.H85-803D10/H
90	60	85	700	16	1.0	3.0	7.9	2.5	80	8.7	D1	0.25	E62.K85-903D10/H
220	65	160	700	16	1.2	3.6	19	4.5	130	4.3	D2	0.6	E62.L16-224D20/H
300	75	160	700	16	1.6	4.8	26	4.1	90	3.7	D2	0.7	E62.M16-304D20/H
Rated AC voltage U _N (AC) : 500Vac			U _{rms} : 360V U _s : 1,260V Test voltage (T-T) U _{TT} : 1,260Vdc Test voltage (T-C) U _{TC} : 3,000Vac										
1	25	48	840	6	0.1	0.3	0.1	18.6	60	37.1	E1	0.03	E62.B48-102E10/H
20	40	81	840	16	0.3	0.8	2.5	5.4	80	13.8	D1	0.11	E62.E81-203D10/H
25	40	81	840	16	0.4	1.1	3.1	4.3	80	13.8	D1	0.11	E62.E81-253D10/H
33	45	81	840	16	0.5	1.4	4.1	3.7	80	12.2	D1	0.14	E62.F81-333D10/H
50	55	85	840	16	0.7	2.1	6.3	3.0	80	9.5	D1	0.21	E62.H85-503D10/H
60	60	85	840	16	0.8	2.5	7.5	2.8	80	8.7	D1	0.25	E62.K85-603D10/H
160	65	160	840	16	1.0	3.0	20	4.2	100	4.3	D2	0.6	E62.L16-164D20/H
200	75	160	840	16	1.3	3.9	25	3.9	140	3.7	D2	0.7	E62.M16-204D20/H

Standard Value and Case Size

Rated Capacitance C_N [μF]	Case size		Rated DC voltage U_N (DC) [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal	Weight [kg]	Part number
	⌀D [mm]	L [mm]											
Rated AC voltage U_N (AC) : 640Vac			U _{rms} : 450V U _S : 1,500V Test voltage (T-T) U _{TT} : 1,500Vdc Test voltage (T-C) U _{TC} : 3,000Vac										
0.47	25	48	1,000	8	0.10	0.3	0.1	7.4	60	37.1	E1	0.04	E62.B48-471E10/H
4	30	58	1,000	10	0.2	0.6	0.8	5.9	60	25.6	E1	0.05	E62.C58-402E10/H
4.7	30	58	1,000	10	0.2	0.7	1.0	5.4	60	25.6	E1	0.05	E62.C58-472E10/H
5	30	58	1,000	10	0.3	0.8	1.0	4.9	60	25.6	E1	0.05	E62.C58-502E10/H
6	35	58	1,000	16	0.4	1.0	1.2	4.5	60	21.9	E2	0.07	E62.D58-602E20/H
6.8	35	58	1,000	16	0.4	1.0	1.4	4.1	60	21.9	E2	0.1	E62.D58-682E20/H
10	40	58	1,000	16	0.4	1.2	2.0	3.2	60	19.2	D1	0.1	E62.E58-103D10/H
15	40	81	1,000	16	0.2	0.7	3.1	5.5	80	13.8	D1	0.1	E62.E81-153D10/H
18	40	81	1,000	16	0.3	1	3.7	4.8	80	13.8	D1	0.1	E62.E81-183D10/H
22	45	81	1,000	16	0.4	1.1	4.5	4.3	80	12.2	D1	0.14	E62.F81-223D10/H
25	45	81	1,000	16	0.4	1.2	5.1	4.0	80	12.2	D1	0.1	E62.F81-253D10/H
40	55	85	1,000	16	0.6	1.9	8.2	3.4	80	9.5	D1	0.2	E62.H85-403D10/H
47	60	85	1,000	16	0.8	2.3	10	2.9	80	8.7	D1	0.25	E62.K85-473D10/H
50	60	98	1,000	16	0.6	1.9	10	3.9	120	7.6	D1	0.4	E62.K98-503D10/H
60	60	98	1,000	16	1.0	3.0	12	3.2	120	7.6	D1	0.4	E62.K98-603D10/H
100	60	148	1,000	16	0.8	2.4	20	5.1	120	5.0	D1	0.45	E62.K14-104D10/H
120	65	160	1,000	16	0.9	2.7	25	5.0	130	4.3	D2	0.6	E62.L16-124D20/H
150	75	160	1,000	16	1.1	3.3	31	4.6	110	3.7	D2	0.7	E62.M16-154D20/H
Rated AC voltage U_N (AC) : 680Vac			U _{rms} : 480V U _S : 1,680V Test voltage (T-T) U _{TT} : 1,680Vdc Test voltage (T-C) U _{TC} : 3,000Vac										
3.3	30	58	1,120	15	0.2	0.5	0.8	6.5	60	25.6	E1	0.05	E62.C58-332E10/H
12	40	81	1,120	16	0.2	0.7	2.8	5.8	80	13.8	D1	0.11	E62.E81-123D10/H
15	40	81	1,120	16	0.3	0.8	3.5	5.4	80	13.8	D1	0.11	E62.E81-153D10/H
20	45	81	1,120	16	0.4	1.1	4.6	4.2	80	12.2	D1	0.14	E62.F81-203D10/H
30	55	85	1,120	16	0.5	1.6	6.9	3.3	80	9.5	D1	0.21	E62.H85-303D10/H
33	60	85	1,120	16	0.6	1.8	7.6	3.2	80	8.7	D1	0.3	E62.K85-333D10/H
40	65	95	1,120	16	0.7	2.1	9.2	3.3	120	7.2	D2	0.3	E62.L95-403D20/H
50	55	124	1,120	16	0.5	1.6	12	5.2	100	6.5	D1	0.3	E62.H12-503D10/H
50	65	109	1,120	16	0.7	2.2	12	3.7	120	6.3	D2	0.4	E62.L10-503D20/H
60	60	124	1,120	16	0.6	1.9	14	5.0	140	6.0	D1	0.4	E62.K12-603D10/H
70	60	148	1,120	16	0.6	1.9	16	6.0	140	5.0	D1	0.5	E62.K14-703D10/H
90	65	160	1,120	16	0.8	2.4	21	4.8	110	4.3	D2	0.6	E62.L16-903D20/H
100	75	160	1,120	16	0.9	2.6	23	5.1	100	3.7	D2	0.7	E62.M16-104D20/H
Rated AC voltage U_N (AC) : 750Vac			U _{rms} : 530V U _S : 1,900V Test voltage (T-T) U _{TT} : 1,890Vdc Test voltage (T-C) U _{TC} : 3,000Vac										
4.7	30	81	1,200	10	0.2	0.7	1.3	11.1	60	18.3	E1	0.07	E62.C81-472E10/H
6.8	40	85	1,200	16	0.2	0.6	1.9	3.8	60	19.2	D1	0.08	E62.E58-682D10/H
10	40	81	1,200	16	0.5	1.4	2.8	6.1	110	13.8	D1	0.11	E62.E81-103D10/H
10	50	62	1,200	16	0.4	1.2	2.8	3.0	100	14.4	D1	0.14	E62.G62-103D10/H
15	45	85	1,200	16	0.3	0.9	4.2	5.9	110	11.6	B2	0.1	E62.F85-153B20/H
16	50	85	1,200	16	0.3	1.0	4.5	5.1	80	10.5	D1	0.18	E62.G85-163D10/H
22	60	85	1,200	16	0.5	1.5	6.2	3.5	120	8.7	D1	0.3	E62.K85-223D10/H
26	60	85	1,200	16	0.5	1.5	7.3	3.4	120	8.7	D1	0.3	E62.K85-263D10/H
29	60	85	1,200	16	0.6	1.8	8.2	3.2	120	8.7	D1	0.3	E62.K85-293D10/H
33	50	148	1,200	16	0.4	1.0	9.3	11.4	120	6.0	D1	0.3	E62.G14-333D10/H
70	65	160	1,200	16	0.7	2.0	20	5.6	140	4.3	D2	0.6	E62.L16-703D20/H
80	75	160	1,200	20	0.8	2.3	23	5.3	130	3.7	D2	0.7	E62.M16-803D20/H
Rated AC voltage U_N (AC) : 850Vac			U _{rms} : 600V U _S : 2,100V Test voltage (T-T) U _{TT} : 2,100Vdc Test voltage (T-C) U _{TC} : 3,000Vac										
2	30	58	1,200	10	0.2	0.5	0.7	8.1	60	25.6	E1	0.05	E62.C58-202E10/H
2	30	58	1,400	10	0.2	0.5	0.7	8.1	60	25.6	E4	0.07	E62.C58-202E40/H
2.2	30	58	1,200	10	0.2	0.6	0.8	7.5	60	25.6	E1	0.05	E62.C58-222E10/H
2.2	30	58	1,400	10	0.2	0.6	0.8	7.5	60	25.6	E4	0.07	E62.C58-222E40/H
3.3	30	81	1,200	10	0.1	0.3	1.2	13.8	80	18.3	E1	0.07	E62.C81-332E10/H
3.3	35	58	1,200	16	0.1	0.4	1.2	5.6	60	21.9	D1	0.07	E62.D58-332D10/H
4	30	81	1,200	10	0.2	0.5	1.4	11.7	80	18.3	E1	0.1	E62.C81-402E10/H
4	30	81	1,400	10	0.2	0.5	1.4	11.7	80	18.3	E4	0.1	E62.C81-402E40/H
12	45	85	1,400	16	0.3	0.8	4.3	6.2	110	12	B2	0.1	E62.F85-123B20/H
15	50	85	1,200	16	0.3	1.0	5.4	4.3	80	10	D1	0.18	E62.G85-153D10/H
25	65	95	1,200	16	0.6	1.7	9.0	3.6	120	7.0	D2	0.3	E62.L95-253D20/H
55	65	160	1,200	16	0.6	1.8	20	6.0	130	4.3	D2	0.6	E62.L16-553D20/H
68	75	160	1,200	16	0.7	2.2	25	5.4	100	3.7	D2	0.7	E62.M16-683D20/H

Standard Value and Case Size

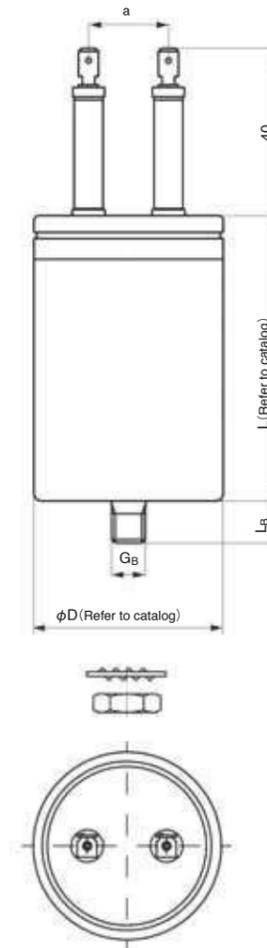
Rated Capacitance C_N [μF]	Case size		Rated DC voltage U_N (DC) [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal	Weight [kg]	Part number
	⌀D [mm]	L [mm]											
Rated AC voltage U_N (AC) : 1,000Vac			U _{rms} : 720V U _S : 2,500V Test voltage (T-T) U _{TT} : 2,520Vdc Test voltage (T-C) U _{TC} : 3,500Vac										
1.5	30	58	1,200	10	0.3	0.9	0.8	5.0	60	25.6	E1	0.1	E62.C58-152E10/H
1.5	30	58	1,680	10	0.3	0.9	0.8	5.0	60	25.6	E4	0.1	E62.C58-152E40/H
2.2	35	58	1,200	16	0.3	0.8	1.1	3.8	60	21.9	E2	0.1	E62.D58-222E20/H
3	30	81	1,200	10	0.4	1.1	1.5	7.2	80	18.3	E1	0.1	E62.C81-302E10/H
3	30	81	1,680	10	0.4	1.1	1.5	7.2	80	18.3	E4	0.1	E62.C81-302E40/H
4	35	81	1,200	10	0.5	1.4	2.0	5.8	80	15.7	E2	0.1	E62.D81-402E20/H
5	40	81	1,200	16	0.6	1.8	2.5	5.0	80	14.0	D1	0.1	E62.E81-502D10/H
6.8	45	81	1,200	16	0.8	2.4	3.4	4.1	80	12.2	D1	0.1	E62.F81-682D10/H
8	45	81	1,200	16	0.5	1.4	4.0	3.7	80	12.2	D1	0.1	E62.F81-802D10/H
8	45	85	1,680	16	0.5	1.4	4.0	5.0	110	11.6	B2	0.1	E62.F85-802B20/H
15	60	85	1,200	16	0.9	2.6	7.5	2.7	110	8.7	D1	0.3	E62.K85-153D10/H
20	65	95	1,200	16	1.7	5.1	10	2.8	120	7.2	D2	0.3	E62.L95-203D20/H
38	65	160	1,200	20	1.0	3.0	19	4.8	140	4.3	D2	0.6	E62.L16-383D20/H
53	75	160	1,200	20	1.4	4.2	27	4.3	130	3.7	D2	0.7	E62.M16-533D20/H
Rated AC voltage U_N (AC) : 1,200Vac			U _{rms} : 850V U _S : 3,000V Test voltage (T-T) U _{TT} : 3,000Vdc Test voltage (T-C) U _{TC} : 4,000Vac										
0.1	25	58	1,200	8	0.1	0.3	0.07	15.0	60	30.7	E1	0.1	E62.B58-101E10/H
0.1	30	58	1,200	8	0.1	0.3	0.07	12.7	60	25.6	E1	0.1	E62.C58-101E10/H
0.15	30	58	1,200	8	0.1	0.3	0.11	10.4	60	25.6	E1	0.1	E62.C58-151E10/H
0.22	30	58	1,200	10	0.2	0.6	0.16	7.5	60	25.6	E1	0.1	E62.C58-221E10/H
0.33	30	58	1,200	10	0.2	0.6	0.24	6.5	60	25.6	E1	0.1	E62.C58-331E10/H
0.47	30	58	1,200	10	0.2	0.6	0.34	8.2	60	25.6	E1	0.1	E62.C58-471E10/H
0.5	30	58	1,200	10	0.2	0.5	0.36	5.9	60	25.6	E1	0.1	E62.C58-501E10/H
0.5	30	58	2,000	10	0.2	0.5	0.36	5.9	60	25.6	E4	0.1	E62.C58-501E40/H
0.68	30	58	1,200	10	0.2	0.7	0.49	6.6	60	25.6	E1	0.1	E62.C58-681E10/H
1	30	58	1,200	10	0.3	0.8	0.72	6.0	60	25.6	E1	0.1	E62.C58-102E10/H
1	30	58	2,000	10	0.3	0.8	0.72	6.0	60	25.6	E4	0.1	E62.C58-102E40/H
1.2	30	58	1,200	10	0.3	0.8	0.86	5.6	60	25.6	E1	0.1	E62.C58-122E10/H
1.5	30	81	1,200	10	0.2	0.7	1.1	9.9	60	18.3	E1	0.1	E62.C81-152E10/H
2	30	81	1,200	10	0.3	0.8	1.4	8.7	60	18.3	E1	0.1	E62.C81-202E10/H
2	30	81	2,000	10	0.3	0.8	1.4	8.7	60	18.3	E4	0.1	E62.C81-202E40/H
2.2	30	93	1,200	10	0.2	0.6	1.6	11.1	90	16.0	E1	0.1	E62.C93-222E10/H
2.2	30	93	2,000	10	0.2	0.6	1.6	11.1	90	16.0	E4		

Standard Value and Case Size

Rated Capacitance C_N [μ F]	Case size		Rated DC voltage U_N (DC) [Vdc]	Max current (rms) I_{max} [Arms]	Max peak current I [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [m Ω]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]											
Rated AC voltage U_N (AC) : 2,400Vac			$U_{rms} : 1,700V$ $U_S : 6,000V$ Test voltage (T-T) $U_{TT} : 6,000Vdc$ Test voltage (T-C) $U_{TC} : 6,800Vac$										
2	50	105	4,000	16	0.5	1.5	5.8	5.6	120	8.5	B2	0.2	E62.G10-202B20/H
2.2	55	105	4,000	16	0.5	1.5	6.3	5.0	120	7.4	B2	0.3	E62.H10-222B20/H
4	55	151	4,000	16	0.6	1.8	12	7.5	190	5.4	B2	0.4	E62.H15-402B20/H
Rated AC voltage U_N (AC) : 4,000Vac			$U_{rms} : 2,800V$ $U_S : 7,500V$ Test voltage (T-T) $U_{TT} : 7,500Vdc$ Test voltage (T-C) $U_{TC} : 8,200Vac$										
0.1	45	81	5,000	16	0.4	1.2	0.80	9.6	100	12.2	B2	0.1	E62.F81-101B20/H
0.15	45	81	5,000	16	0.5	1.5	1.2	7.0	90	12.2	B2	0.1	E62.F81-151B20/H
0.22	45	105	5,000	16	0.4	1.3	1.8	14.5	140	9.4	B2	0.2	E62.F10-221B21/H
0.22	60	105	5,000	16	0.7	2.1	1.8	6.9	140	7.1	CD	0.3	E62.K10-221CD0/H
0.33	45	105	5,000	16	0.3	0.9	2.6	14.0	140	9.4	B2	0.2	E62.F10-331B20/H
0.39	45	105	5,000	16	0.3	0.9	3.1	12.3	140	9.4	B2	0.2	E62.F10-391B20/H
0.47	45	105	5,000	16	0.4	1.1	3.8	10.8	140	9.4	B2	0.2	E62.F10-471B20/H
0.5	45	105	5,000	16	0.5	1.5	4.0	10.4	140	9.4	B2	0.2	E62.F10-501B20/H
0.68	55	105	5,000	16	0.5	1.5	5.4	8.5	120	7.7	B2	0.3	E62.H10-681B20/H
1.5	75	140	4,000	16	1.4	4.2	12	5.2	140	4.2	CD	0.6	E62.M14-152CD0/H
2	85	140	4,000	16	1.4	4.2	16	5.1	140	3.7	CD	0.80	E62.N14-202CD0/H
Rated AC voltage U_N (AC) : 5,000Vac			$U_{rms} : 3,500V$ $U_S : 7,500V$ Test voltage (T-T) $U_{TT} : 8,750Vdc$										
0.1	45	105	5,000	16	0.4	1.1	1.25	14.9	140	9.4	B2	0.2	E62.F10-101B20/H
0.15	45	105	5,000	16	0.4	1.4	1.9	12.9	140	9.4	B2	0.2	E62.F10-151B20/H
0.22	45	105	5,000	16	0.4	1.4	2.8	14.5	140	9.4	B2	0.2	E62.F10-221B20/H
0.33	60	120	5,000	16	0.7	2.2	4.1	8.7	140	6.2	CD	0.3	E62.K12-331CD0/H
0.47	60	120	5,000	16	0.9	2.8	5.9	7.1	140	6.2	CD	0.3	E62.K12-471CD0/H
0.68	60	140	5,000	16	0.9	2.8	8.5	8.9	140	5.3	CD	0.4	E62.K14-681CD0/H
1	75	140	5,000	16	1.4	4.2	13	6.5	140	4.2	CD	0.6	E62.M14-102CD0/H
1.5	85	140	5,000	16	2.1	6.2	19	4.8	140	3.7	CD	0.8	E62.N14-152CD0/H
2	95	140	5,000	16	2.8	8.3	25	3.9	140	3.4	CD	1.0	E62.P14-202CD0/H

Dimensions (E62-TAB series)

B2 terminal
(Can diameter : $\phi 45 \sim 55mm$)



CD terminal
(Can diameter : $\phi 60 \sim 95mm$)

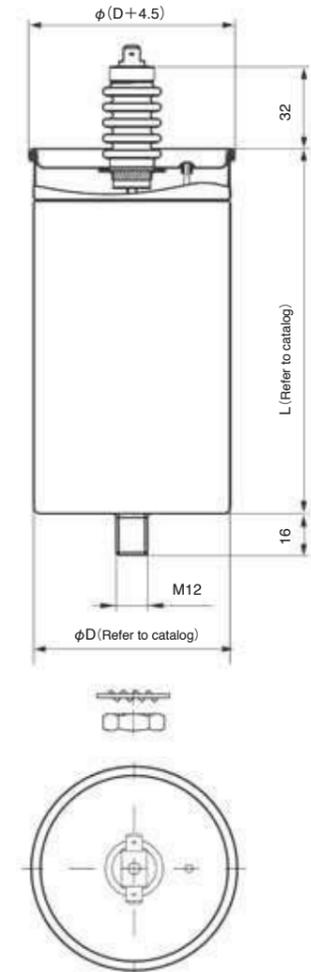


Table. Common Specification

Item	Specification
Terminal code	B2
Can material	Aluminium
Stud bolt	M8 / M12
Lid	Brass with rubber sealing
Terminal	Single tab connector, ceramic bushing I_{max} (terminal) : 16A
Degree of protection	IP00
Humidity class	F

Table. Dimensions

D	L _B	G _B	a	Clearance	
				in Air	Creepage
45	10	M8	19	9	20
50	16	M12	26	16	20
55	16	M12	26	16	20

Table. Common Specification

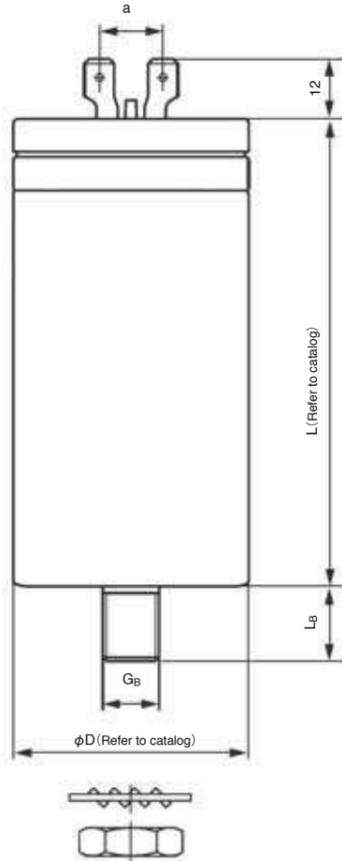
Item	Specification
Terminal code	CD
Can material	Aluminium
Stud bolt	M12
Lid	Copper
Terminal	Dual tab terminal I_{max} (terminal) : 16A Clearance in air : 35mm Creepage distance : 54mm
Degree of protection	IP00
Humidity class	C

Dimensions (E62-TAB series)

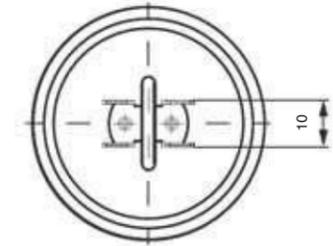
D1 terminal
(Can diameter : $\phi 35 \sim 60\text{mm}$)



D2 terminal
(Can diameter : $\phi 65 \sim 75\text{mm}$)



D1



D2

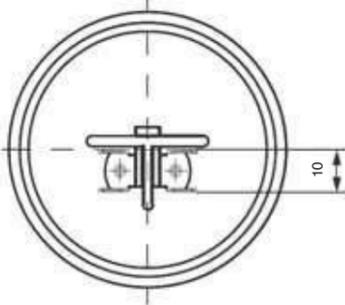


Table. Common Specification

Item	Specification
Terminal code	D1 / D2
Can material	Aluminium
Stud bolt	M8 / M12
Lid	Plastic with rubber sealing
Terminal	Dual tab connectors I_{max} (terminal) : 16A
Degree of protection	IP00
Humidity class	F

Table. Dimensions

D	L_B	G_B	a	Clearance	
				in Air	Creepage
35	10	M8	13.5	6.5	6.5
40	10	M8	13.5	6.5	9
45	10	M8	13.5	6.5	10
50	16	M12	13.5	6.5	10
55	16	M12	13.5	6.5	10
60	16	M12	13.5	6.5	10
65	16	M12	16.5	8	10
75	16	M12	16.5	8	10

Unit : mm

Dimensions (E62-TAB series)

E1 terminal
(Can diameter : $\phi 25 \sim 30\text{mm}$)



E2 terminal
(Can diameter : $\phi 35 \sim 65\text{mm}$)

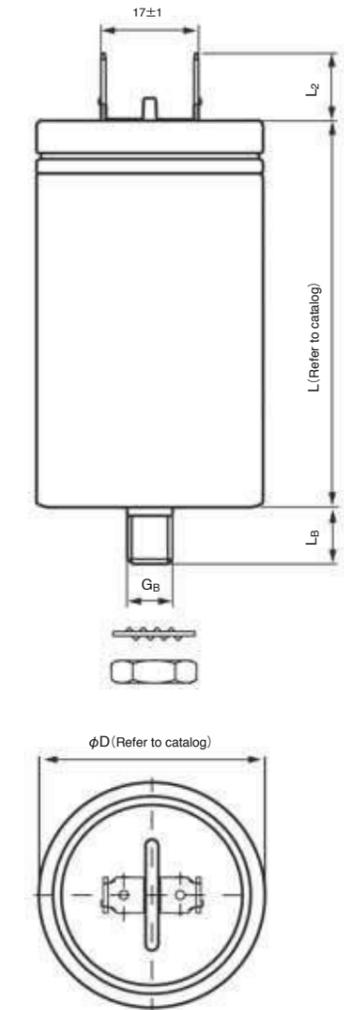
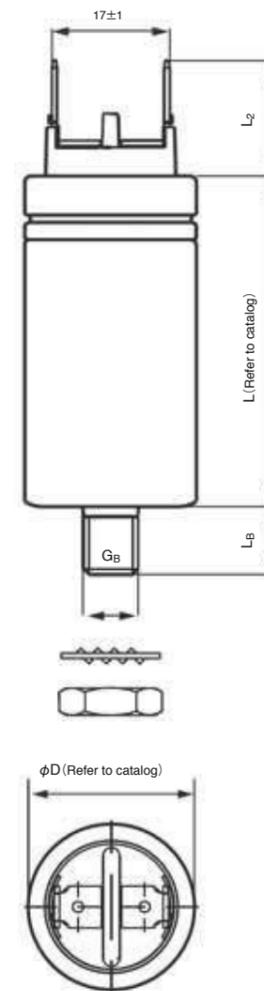


Table. Common Specification

Item	Specification
Terminal code	E1 / E2
Can material	Aluminium
Stud bolt	M8 / M12
Lid	Plastic
Terminal	Tab connector (6.3×0.8mm) I_{max} (terminal) : 16A
Degree of protection	IP00
Humidity class	F

Table. Dimensions

D	L_2	L_B	G_B	Clearance	
				in Air	Creepage
25	16	10	M8	7.5	7.5
30	15	10	M8	7.5	9
35 ~ 45	11	10	M8	7.5	9
50 ~ 65	11	16	M12	7.5	9

Unit : mm

Dimensions (E62-TAB series)

E4 terminal
(Can diameter : $\phi 25 \sim 30\text{mm}$)

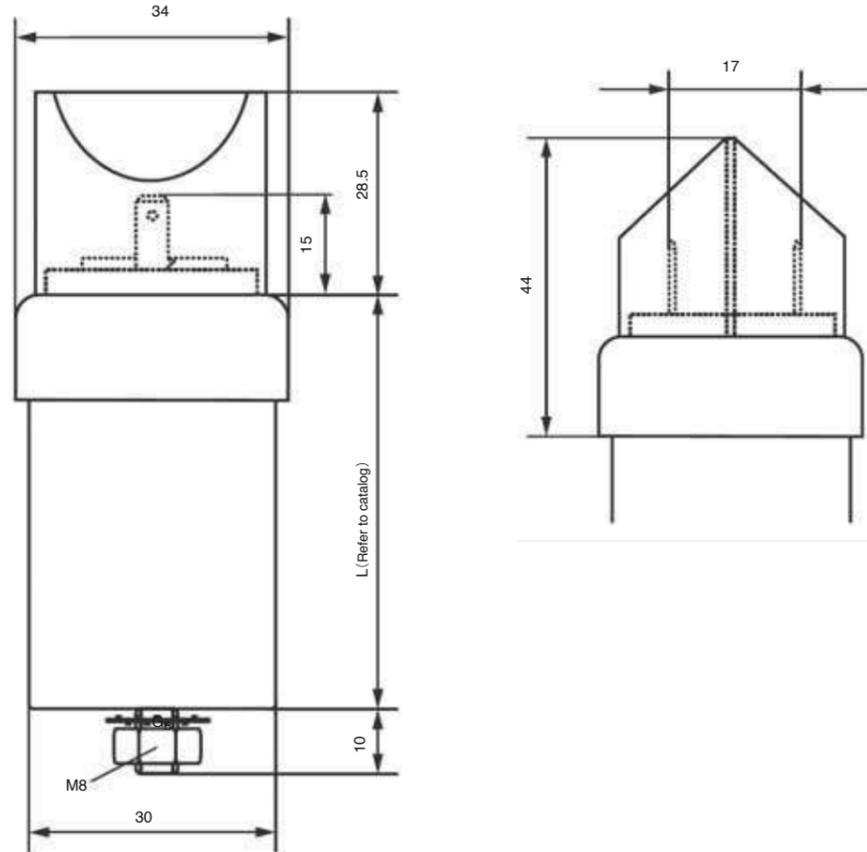


Table. Common Specification

Item	Specification
Terminal code	E4
Can material	Aluminium
Stud bolt	M8
Lid	Plastic with rubber sealing
Terminal	Tab connector (6.3×0.8mm) I_{max} (terminal) : 16A
Degree of protection	IP00
Humidity class	F

UPGRADE!

E62-3HF (AC) Series

(Three Phase Type Cylindrical Metallized Polypropylene Film Capacitors)

Features

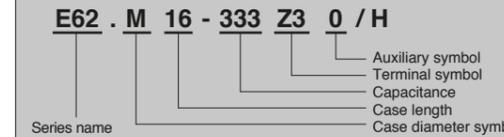
- The three capacitor elements are connected in delta internally.
- Designed especially for heavy duty operation in extreme or sophisticated operating conditions.
- The integrated overpressure disconnecter ensure safe operation and controlled disconnection in the event of overload or failure at the end of operating life.

Specifications

Item	Specification
Category temperature range	-50 ~ +70°C (+85°C / Includes self temperature rise)
Storage temperature	-50 ~ +85°C
Rated voltage (U_N)	640 ~ 1,400Vac
Stud bolt (torque)	M12 × 16 / 18 (15 ±1Nm)
Standards	IEC 61071 : 2007
Dielectric	Polypropylene
Dielectric dissipation factor ($\tan \delta_o$)	2×10^{-4}
Capacitance tolerance	±5%
Safety devices	Overpressure disconnecter
Impregnant	Castor oil, Non PCB
Material of case	Aluminum
Environmental regulations	Comply with RoHS



Numbering system: e.g. E62-3HF, 640VAC, 3×33μ F, $\phi 75 \times 164\text{Lmm}$, Z3 terminal



Standard Value and Case Size

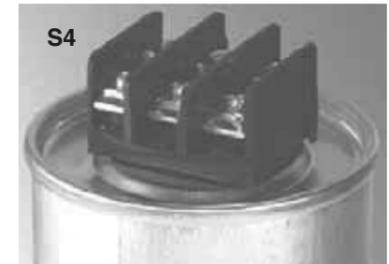
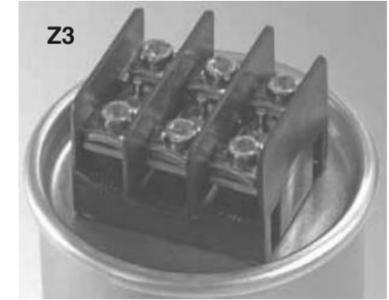
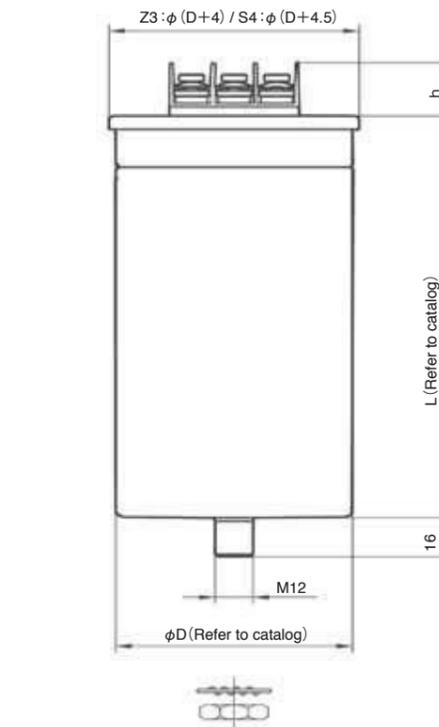
Rated Capacitance C_N [μF]	Case size		Max current (rms) I_{max} [Arms]	Max peak current \hat{I} [kA]	Max surge current I_s [kA]	Rated energy contents W [J]	Series resistance (reference) R_s [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]										
Rated AC voltage U_N (AC) : 640Vac			$U_{rms} : 450V \quad U_s : 1,350V \quad \text{Test voltage (T-T)} \quad U_{TT} : 1,060Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,600Vac$									
3×33	75	164	3×39	0.9	2.7	20.3	3×0.9	110	4.7	Z3	0.8	E62.M16-333Z30/H
3×40	75	164	3×39	1.1	3.3	24.6	3×0.9	110	4.7	Z3	0.8	E62.M16-403Z30/H
3×46	85	164	3×56	1.3	3.9	28.3	3×0.7	120	4.1	S4	1.0	E62.N16-463S40/H
3×51	85	164	3×56	1.4	4.2	31.3	3×0.7	120	4.1	S4	1.0	E62.N16-513S40/H
3×68	95	164	3×56	1.9	5.7	41.8	3×0.55	120	3.5	S4	1.5	E62.P16-683S40/H
3×80	95	196	3×56	1.8	5.4	49.2	3×0.7	130	3.1	S4	1.5	E62.P19-803S40/H
3×100	116	164	3×56	3	9	61.5	3×0.4	100	3	S4	2.1	E62.R16-104S40/H
3×100	116	164	3×80	3	9	61.5	3×0.4	100	2.1	MB	2.1	E62.R16-104MB0/H
3×135	116	230	3×80	2.5	7.5	82.9	3×0.55	120	2.1	MB	2.5	E62.R19-134MB0/H
3×140	116	230	3×56	2.5	7.5	86.1	3×0.7	120	2.4	S4	2.6	E62.R23-144S40/H
3×200	136	245	3×80	3.4	10.2	122.9	3×0.55	120	1.7	MB	3.6	E62.S23-204MB0/H
Rated AC voltage U_N (AC) : 750Vac			$U_{rms} : 530V \quad U_s : 1,600V \quad \text{Test voltage (T-T)} \quad U_{TT} : 1,250Vdc \quad \text{Test voltage (T-C)} \quad U_{TC} : 3,600Vac$									
3×16	65	164	3×39	0.6	1.8	13.5	3×1.1	100	5.4	Z3	0.6	E62.L16-163Z30/H
3×23	75	164	3×39	0.85	2.5	19.4	3×1.0	110	4.7	Z3	0.8	E62.M16-233Z30/H
3×30	85	164	3×56	1.1	3.3	25.3	3×0.7	120	4.1	S4	1.0	E62.N16-303S40/H
3×38.4	95	164	3×56	1.4	4.2	32.4	3×0.6	125	3.7	S4	1.2	E62.P16-383S40/H
3×48	100	164	3×56	1.4	4.2	40.4	3×0.7	130	3.1	S4	1.5	E62.Q16-483S40/H
3×75	116	196	3×56	2.1	6.3	63.3	3×0.6	130	2.5	S4	2.2	E62.R19-753S40/H
3×100	116	230	3×56	2.1	6.3	84.4	3×0.7	120	2.4	S4	2.6	E62.R23-104S40/H
3×100	116	230	3×80	2.2	6.6	84.4	3×0.6	120	2.1	MB	2.5	E62.R23-104MB0/H

Standard Value and Case Size

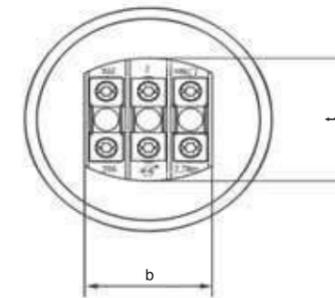
Rated Capacitance C_N [μF]	Case size		Max current (rms) I_{max} [Arms]	Max peak current \hat{i} [kA]	Max surge current I_S [kA]	Rated energy contents W [J]	Series resistance (reference) R_S [mΩ]	Self inductance (reference) ESL [nH]	Thermal resistance (reference) R_{th} [K/W]	Terminal	Weight [kg]	Part number
	Diameter ϕD [mm]	Length L [mm]										
Rated AC voltage U_N (AC) : 850Vac			$U_{rms} : 600V$ $U_S : 1,830V$ Test voltage (T-T) $U_{TT} : 1,420Vdc$ Test voltage (T-C) $U_{TC} : 4,800Vac$									
3×9.0	60	164	3×39	0.8	2.4	9.8	3×1.0	100	5.8	Z3	0.5	E62.K16-902Z30/H
3×11	65	164	3×39	1.0	3.0	11.9	3×0.9	100	5.4	Z3	0.6	E62.L16-113Z30/H
3×12	65	164	3×39	1.1	3.3	13.0	3×0.9	100	5.4	Z3	0.6	E62.L16-123Z30/H
3×14	75	164	3×39	1.2	3.6	15.2	3×0.8	120	4.7	Z3	0.8	E62.M16-143Z30/H
3×19	85	164	3×56	1.6	4.8	20.6	3×0.75	120	4.1	S4	1	E62.N16-193S40/H
3×25	95	164	3×56	2.2	6.6	27.1	3×0.6	120	3.7	S4	1.2	E62.P16-253S40/H
3×30	100	164	3×56	2.6	7.8	32.5	3×0.5	120	3.5	S4	1.5	E62.Q16-303S40/H
3×37.5	100	196	3×56	2.4	7.2	40.6	3×0.55	130	2.9	S4	1.6	E62.Q19-373S40/H
3×50	116	196	3×56	3.4	10.2	54.2	3×0.5	130	2.5	S4	2.2	E62.R19-503S40/H
3×72.5	116	230	3×56	3.6	10.8	78.6	3×0.65	120	2.5	S4	2.6	E62.R23-723S40/H
3×86	136	196	3×80	2.8	4.4	93.2	3×0.5	100	2.1	MB	2.8	E62.S19-863MB0/H
Rated AC voltage U_N (AC) : 1,080Vac			$U_{rms} : 760V$ $U_S : 2,320V$ Test voltage (T-T) $U_{TT} : 1,800Vdc$ Test voltage (T-C) $U_{TC} : 4,800Vac$									
3×11	75	164	3×39	1.2	3.6	19.2	3×1.0	110	4.7	Z3	0.8	E62.M16-113Z30/H
3×18.4	95	164	3×56	2.0	6.0	32.4	3×0.6	125	3.7	S4	1.2	E62.P16-183S40/H
3×22	95	196	3×56	2.0	6.0	38.5	3×0.7	130	3.1	S4	1.5	E62.P19-223S40/H
3×27.6	116	164	3×56	3.1	9.3	48.3	3×0.4	120	3.5	S4	2.1	E62.R16-283S40/H
3×33.4	95	230	3×56	2.1	6.3	63.6	3×0.6	130	2.5	S4	2.2	E62.P23-333S40/H
3×49	116	230	3×56	3.2	9.6	85.7	3×0.55	120	2.1	S4	2.5	E62.R23-493S40/H
3×55.7	136	196	3×56	5.0	15.0	97.5	3×0.4	130	2.1	S4	2.8	E62.S19-563S40/H
3×55.7	136	196	3×80	5.0	15.0	97.5	3×0.4	130	2.1	MB	2.8	E62.S19-563MB0/H
3×75	136	230	3×80	4.5	13.5	131.2	3×0.5	130	1.8	MB	3.4	E62.S23-753MB0/H
Rated AC voltage U_N (AC) : 1,130Vac			$U_{rms} : 800V$ $U_S : 2,430V$ Test voltage (T-T) $U_{TT} : 1,890Vdc$ Test voltage (T-C) $U_{TC} : 4,800Vac$									
3×24.9	100	196	3×56	1.7	5.1	47.7	3×0.6	130	2.6	S4	1.8	E62.Q19-253S40/H
3×33.2	116	196	3×56	2.9	8.7	63.6	3×0.6	130	2.5	S4	2.2	E62.R19-333S40/H
3×41.4	136	196	3×56	3.7	11	79.3	3×0.5	130	2.1	S4	3	E62.S19-413S40/H
3×46	116	230	3×56	2.9	8.7	88.1	3×0.65	120	2.4	S4	2.6	E62.R23-463S40/H
Rated AC voltage U_N (AC) : 1,200Vac			$U_{rms} : 850V$ $U_S : 2,580V$ Test voltage (T-T) $U_{TT} : 2,010Vdc$ Test voltage (T-C) $U_{TC} : 4,800Vac$									
3×8.0	75	164	3×39	1.0	3.0	17.3	3×1.0	110	4.7	Z3	0.8	E62.M16-802Z30/H
3×25	116	164	3×56	2.4	7.2	54.0	3×0.5	130	2.5	S4	2.2	E62.R16-253S40/H
3×37.5	116	230	3×56	2.6	7.8	81.0	3×0.7	120	2.4	S4	2.6	E62.R23-373S40/H
3×41.5	116	230	3×56	2.7	8.1	89.6	3×0.55	120	2.6	S4	2.7	E62.R23-413S40/H
3×41.5	116	245	3×80	2.7	8.1	89.6	3×0.6	130	2.0	MB	2.7	E62.R24-413MB0/H
3×55.7	136	230	3×80	3.9	11.7	120.3	3×0.45	130	1.8	MB	3.4	E62.S23-563MB0/H
Rated AC voltage U_N (AC) : 1,400Vac			$U_{rms} : 1,000V$ $U_S : 3,000V$ Test voltage (T-T) $U_{TT} : 2,370Vdc$ Test voltage (T-C) $U_{TC} : 4,800Vac$									
3×33	136	230	3×80	3	9	97	3×0.55	120	1.8	MB	3.4	E62.S23-333MB0/H
3×40	136	280	3×80	2.9	8.7	117.6	3×0.65	140	1.5	MB	3.8	E62.S28-403MB0/H

Dimensions (E62-3HF series)

Z3/S4 terminal (Can diameter : φ60 ~ 136mm)
For one phase capacitors



Z3



S4

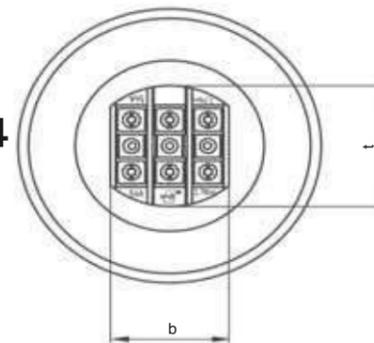


Table. Common Specification

Item	Specification
Terminal code	Z3 / S4
Can material	Aluminum
Stud bolt	M12
Lid	Aluminum
Terminal	Z3
	Max wire size : max 10mm ²
	Torque : 2.7Nm
	I_{max} (terminal) : 39A
Terminal	S4
	Max wire size : max 16mm ²
	Torque : 2.7Nm
	I_{max} (terminal) : 56A
Degree of protection	IP00
Humidity class	C

Table. Dimensions

Item	Terminal	
	Z1	S2
h	22	18
b	41	47
t	43.5	53

MEMO

Dimensions (E62-3HF series)

MB terminal (Can diameter : $\phi 116 / 136\text{mm}$)
For three phase capacitors

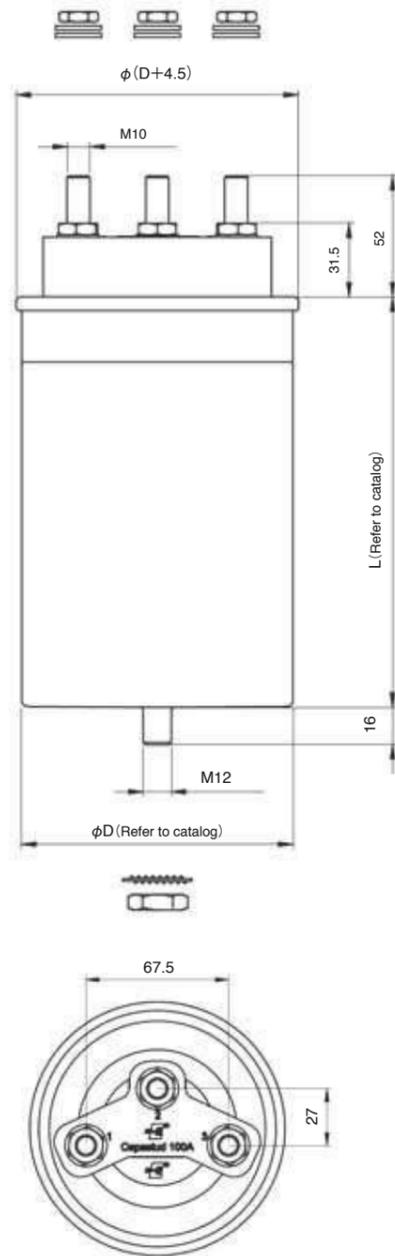


Table. Common Specification

Item	Specification
Terminal code	MB
Can material	Aluminum
Stud bolt	M12
Lid	Aluminum
Terminal	M10 bolt terminal
	Torque : 10Nm
	I_{max} (terminal) : 100A
	Clearance in air : 20mm
	Creepage distance : 25mm
Degree of protection	IP00
Humidity class	C

Precautions in using Plastic Film Capacitors other than Power electronics use

1. When DC-rated Types Are Used in AC Circuits

The plastic film capacitor voltage ratings are usually expressed in volts DC (V.DC).

(1) Use in AC circuits

When DC-rated types are used in AC-rated circuits, unexpected heat generation or other contingencies can take place. Therefore, ensure that the voltages listed in the following conversion table (Table 1) are not exceeded. Since the AC rating may vary with the product type, contact your local Hitachi AIC agent for details.

Table 1 Equivalent AC rating for DC-rated products

Rated DC voltage	Maximum permitted operating AC voltage (50 or 60Hz)			
	MTBS, MTB	MDDSA	MDD-P	MTB-P
100V.DC	63V.AC	40V.AC	—	—
250V.DC	150V.AC	100V.AC	150V.AC	—
400V.DC	200V.AC	150V.AC	200V.AC	—
630V.DC	250V.AC	200V.AC	250V.AC	—

(2) Use at high frequency

If the capacitors are used at a high frequency, they can deteriorate or become defective due to its spontaneous heat generation. To avoid such problems, be sure that the capacitors are used within the ranges defined in Figs. 1, 2, and 3. Since the permitted limits vary with the product type, contact your local Hitachi AIC agent for details.

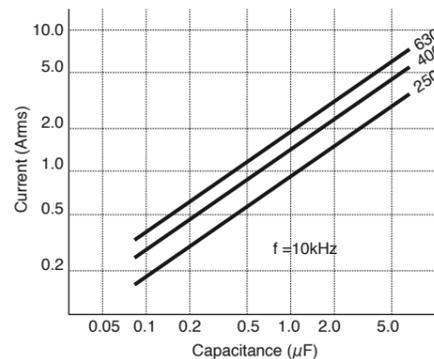


Fig. 1 Metallized polyester capacitors (MDDSA, MTB types)

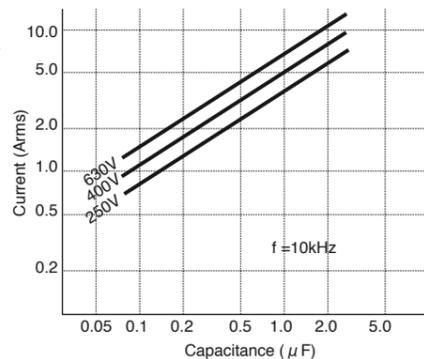


Fig. 2 Metallized polypropylene capacitors (MDD-P and MTB-P types)

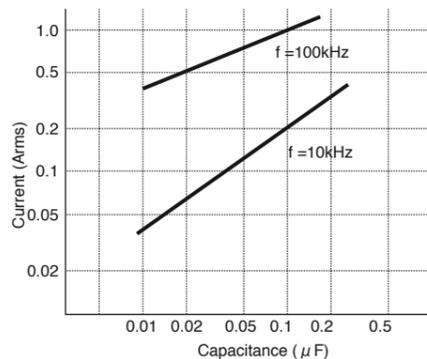


Fig. 3 Metallized PPS film capacitors (MDD-HF, MML-E types)

2. Operating Temperature

The operating temperature varies with the type of the plastic film used as the capacitor dielectric.

(1) Relationship between operating temperature and voltage rating tolerance

The operating temperature and maximum voltage rating vary with the capacitor dielectric film type. Be sure that the operating temperature does not exceed the value determined by adding the ambient temperature value to the spontaneous temperature rise value which is explained in paragraph 2 below. For the resulting voltage derating factor, see Figs. 4, 5, or 6.

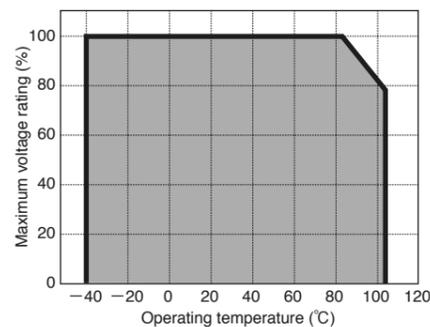


Fig. 4 Metallized polyester capacitors temperature derating diagram (MDDSA types)

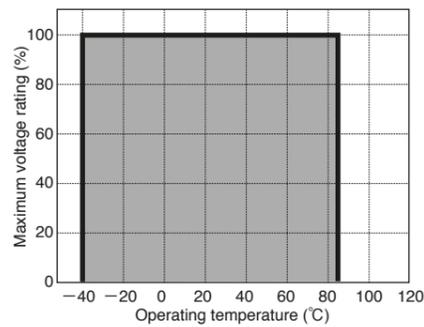


Fig. 5 Metallized polypropylene capacitors temperature derating diagram (MDD-P and MTB-P types)

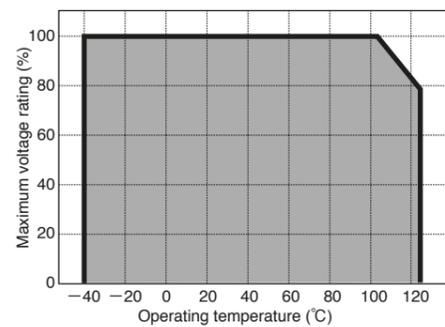


Fig. 6 Metallized PPS film capacitors temperature derating diagram (MDD-HF, MML-E types)

(2) Spontaneous temperature rise

If capacitor spontaneous heat generation is significant at a high frequency, the capacitors can deteriorate or burn out. Therefore, the capacitors must be used in such a manner that the spontaneous temperature rise in a no-airflow environment (at an ambient temperature of 40°C) does not exceed the permitted limit listed in Table 2.

Table 2 Maximum permitted spontaneous temperature rises

Capacitor type	Designation	Spontaneous temperature rise
Metallized polyester capacitor	MPET	10°C
Metallized polypropylene capacitor	MPP	5°C
Metallized polyphenylene sulfide film capacitor	MPPS	10°C

3. Soldering lead-attached capacitors (MDDSA, MTB, MDD-P, and MTB-P types)

When soldering capacitor leads to a printed circuit board or the like, use care not to exceed the temperature limits shown in Figs. 7 and 8, because long-time heating can incur property deterioration or short-circuiting.

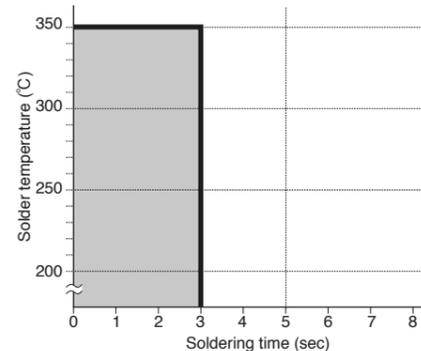


Fig. 7 Temperature limits for soldering by solder iron

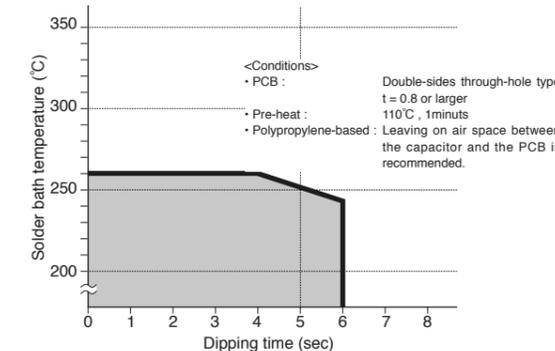


Fig. 8 Temperature limits for solder dip

4. For Use in Rapid Charging and Discharging

Specially designed capacitors are available for rapid charging / discharging applications (e.g., photo flashes, igniters, etc.) When such capacitors are needed, contact your local Hitachi AIC agent.

5. Resonance Sound

Applying a high-frequency voltage to the capacitors may generate a resonance sound. This is because the capacitor film mechanically vibrates owing to the Coulomb force which is exerted between the different poles. Although this does not adversely affect electrical performance, bear it in mind when using the capacitors.

6. Others

- (1) For further details, refer to EIAJ RCR-2350B, Precautions and Guidelines for Using Electronic Device Fixed Plastic Film Capacitors.
- (2) If you have any questions, feel free to contact your local Hitachi AIC agent.

MKC, MKC-P Series

(Resin encased Type Metallized Polyester Film Capacitors, Resin encased Type Metallized Polypropylene Film Capacitors for Automobile)

For HEV vehicles DC-DC converter, the object for electric compressors, PHV, for EV vehicles An in-vehicle charger etc. are the high reliability capacitors for automobile.

Features

- Compact and high ripple current type.
- High moisture resistance. (85°C / 85%RH)
- Various custom type.

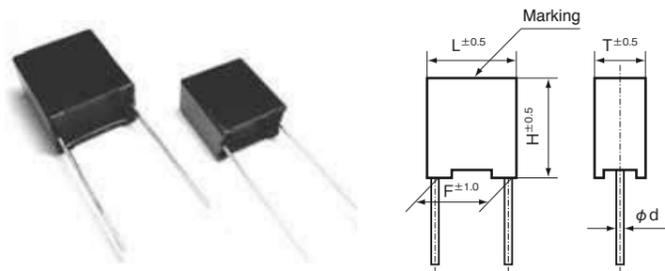
Recommended Applications

- DC-DC converter for HEV.
- Car charger for PHV and EV.
- Electric air compressors for HEV.

MKC, and MKC-P Type Product Specifications

Items	Specifications	
	MKC Type	MKC-P Type
Temperature Range	-40°C ~ +125°C	-40°C ~ +105°C
Rated Voltage	35, 100V.DC	250, 450V.DC
Capacitance Tolerance	±5% (J), ±10% (K)	±5% (J), ±10% (K)
Withstanding Voltage	Rated voltage × 1.5, 1minute	Rated voltage × 1.5, 1minute
Dielectric dissipation factor	1.0% or less (20°C, 1kHz)	0.1% or less (20°C, 1kHz)
Insulation resistance	2,500/C _R MΩ or more	7,500/C _R MΩ or more

Outline of drawings and dimensions



Product symbol : (Example) MKC-P Series 450V.DC 1.0mF ±5%
MKC-P-2W-105 J
 Type of series Capacitance tolerance code
 Capacitance code
 Rated voltage code

MKC, and MKC-P Type Standard value and case size (Unit : mm)

Production name	R.V (V.dc)	Cap. (μF)	Size				
			T	H	L	F	d
MKC-1V-106	35	10.0	10.0	18.5	15.0	12.5	0.8
MKC-2A-395	100	3.9	11.0	20.5	17.0	15.0	0.8
MKC-P-2E-185	250	1.8	11.0	20.5	17.0	15.0	0.8
MKC-P-2W-474	450	0.47	10.5	18.5	17.0	15.0	0.8
MKC-P-2W-105	450	1.0	12.5	22.5	20.0	17.5	1.0

*For ratings that are not described in the table., ask us for further information.

MKC-JS Series (Resin-encased Metallized Polyester Film Capacitors)

The MKC-JS series is developed to offer capacitors that have an increased moisture resistance and receive wide use in automotive electrical components, communications devices, and other electronic equipment. It guarantees a rated voltage load of 85°C, 85% RH, and 500 hours.

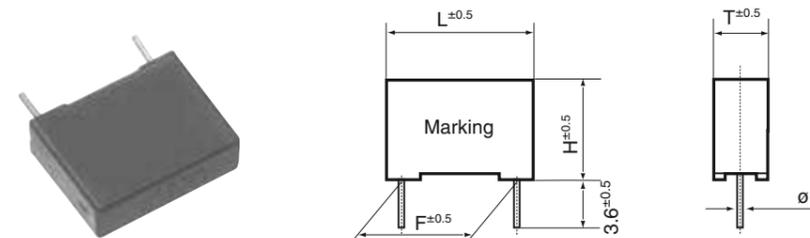
- The employed case and resin parts are made of the 94 V-0 flame-resistant material.
- A lead pitch of 10 mm is employed for the entire series.

Product Specifications

Items	Specifications	
Temperature range	-40°C ~ +85°C (+105°C, with derating over 85°C)	
Rated voltage	100 V.DC	
Capacitance tolerance	±10% (K)	
Dielectric dissipation factor	0.8% or less (20°C, 1KHz)	
Withstanding voltage	Between terminals	Rated voltage (V.DC) × 1.5 for one min
	Between terminal and outside coating	Rated voltage (V.DC) × 2.0 for 1 to 5 seconds
Insulation resistance	C _R ≤ 0.33 μF 9,000MΩ or more	
	C _R > 0.33 μF 3,000 / C _R MΩ or more	
Related standard	Subject to JIS C 5101-1 and JIS C 5101-2.	

C_R : Capacitance (μ F)

Outline of drawings and dimensions



Product symbol : (Example) MKC-JS Series 100V.DC 1.0mF ±10%
MKC-JS-2A-105 K
 Type of series Capacitance tolerance code
 Capacitance code
 Rated voltage code

Standard value and case size (Unit : mm)

Capacitance	μ F	Code	Rated voltage (100V.DC)				
			T	H	L	F	d
0.1	104		4.0	10.0	13.0	10.0	0.6
0.15	154		4.0	10.0	13.0	10.0	0.6
0.22	224		4.0	10.0	13.0	10.0	0.6
0.33	334		4.0	10.0	13.0	10.0	0.6
0.47	474		5.0	11.5	13.0	10.0	0.6
0.58	684		5.0	11.5	13.0	10.0	0.6
1.0	105		6.0	12.0	13.0	10.0	0.6
1.5	155		7.5	13.5	13.0	10.0	0.6

Packaging of Plastic Film Capacitors

The following packaging types are available for automatic mounting.

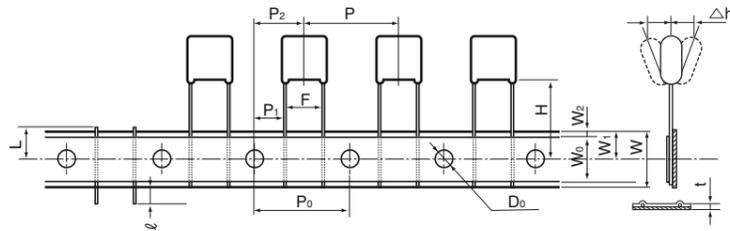
Capacitor type / Packaging	MDDSA	MDD-HF	MKC-JS
Lead taping *1	○	○	
Stick magazine			○

*1 : For capacitors having a lead pitch of 15 mm or less.

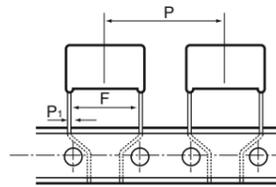
Lead Taping for Dip Type Capacitor

Taping types and outline drawings

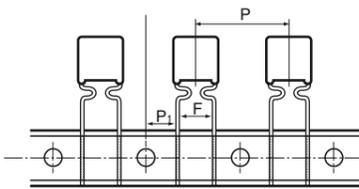
Taping type A



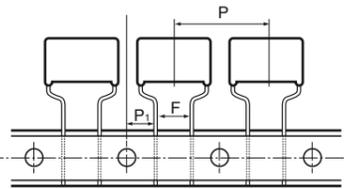
Taping type B



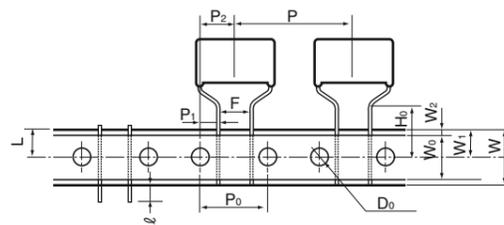
Taping type C



Taping type D



Taping type E



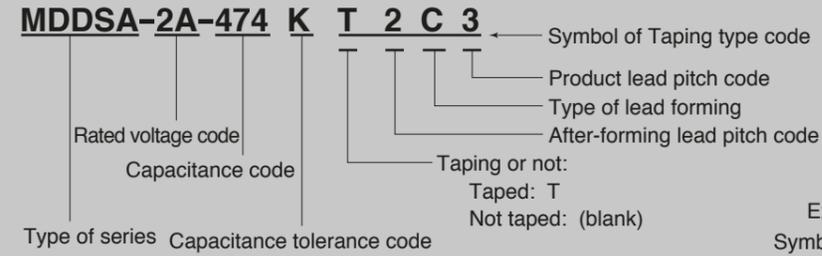
(Unit : mm)

Item	Code	Dimension	Dimension tolerance	Individual dimensions										
				Not formed (straight)					Formed					
Formed or not				Not formed (straight)					Formed					
Taping type code				A	A	T	B	B	T2C2	T2C3	T2I4	T2I5	T2I6	
Outline drawing				A	A	T	B	B	C	C	D	E	E	
Product lead pitch (F)		Each dimensions	—	5.0	7.5	10.0	12.5	15.0	5.0	7.5	10.0	12.5	15.0	
Taping dimensions		—	Each dimensions	± 1.0	± 1.0	± 1.5	± 1.5	± 1.5	± 1.0	± 1.0	± 1.5	± 1.5	± 1.5	
1 Taping lead pitch	F	Each dimensions	± 0.5	5.0	7.5	10.0	12.5	15.0	5.0	5.0	5.0	5.0	5.0	
2 Feed hole pitch	P ₀ (*1)	12.7	± 0.3											
3 Feed hole displacement	P ₂	6.35	± 1.3											
4 Inter-product distance	P ₁ (*2)	—	Each dimensions	3.85	2.60	1.35	0.10	1.15	3.85	3.85	3.85	3.85	3.85	
5 Tape width	W (*3)	18.0	+1.0 -0.5											
6 Adhesive tape width	W ₀	12.5	MIN											
7 Feed hole displacement	W ₁	9.0	± 0.5											
8 Adhesive tape displacement	W ₂ (*3)	3.0	MAX											
9 Length to hole center	H	20.5	± 0.75											
10 Lead clinch height	H ₀ (*4)	16.0	± 0.5											
11 Feed hole diameter	D ₀	4.0	± 0.2											
12 Non-standard product cutting position	L	11.0	MAX											
13 Lead displacement length	ℓ	1.0	MAX											
14 Tape thickness (overall)	t	0.6	± 0.3											
15 Inolation limits	Δ h (*5)	0	± 2.0											
Other	Subject to JIS C 0806-2													

- (*1) Maximum allowance of pitch tolerance for 20 pitch should be ± 1.0mm.
- (*2) Measuring point is upper end of taping and between center of lead wire.
- (*3) Adhesive tape should not be exceeded to the carrier tape.
- (*4) Measuring point is at the bottom of forming crinch.
- (*5) Measuring point is top of the component.

Product Symbol for Dip Type Capacitor

Example : MDDSA Series 100V.DC 0.47mF ± 10% Taping type C



Examples of taping code
 Symbol: C Examples: 2C3
 Symbol: I Examples: 2I6



Lead pitch codes-product and after-forming

Code	2	3	4	5	6
Dimension (F)	5	7.5	10	12.5	15

Taping Types and Packed Quantities for MDDSA Type Capacitor

Capacitance		Rated voltage (Code)							
		100V.DC (2A)		250V.DC (2E)		400V.DC (2G)		630V.DC (2J)	
μ F	Code	Taping type	Quantity per pack	Taping type	Quantity per pack	Taping type	Quantity per pack	Taping type	Quantity per pack
0.010	103	A, C	2,000	A, C	2,000	A, C	2,000	A, D	2,000
0.012	123	A, C	2,000	A, C	2,000	A, C	2,000	A, D	2,000
0.015	153	A, C	2,000	A, C	2,000	A, C	2,000	A, D	1,500
0.018	183	A, C	2,000	A, C	2,000	A, C	2,000	A, D	1,500
0.022	223	A, C	2,000	A, C	2,000	A, C	2,000	A, D	1,500
0.027	273	A, C	2,000	A, C	2,000	A, C	2,000	A, D	1,500
0.033	333	A, C	2,000	A, C	2,000	A, C	1,500	A, D	1,000
0.039	393	A, C	2,000	A, C	2,000	A, D	2,000	A, D	1,000
0.047	473	A, C	2,000	A, C	2,000	A, D	2,000	A, D	1,000
0.056	563	A, C	2,000	A, C	2,000	A, D	1,500	B, E	500
0.068	683	A, C	2,000	A, C	2,000	A, D	1,500	B, E	500
0.082	823	A, C	2,000	A, C	2,000	A, D	1,500	B, E	500
0.10	104	A, C	2,000	A, C	1,500	A, D	1,500	B, E	500
0.12	124	A, C	2,000	A, C	1,500	B, E	500	B, E	500
0.15	154	A, C	2,000	A, C	1,000	B, E	500	B, E	500
0.18	184	A, C	2,000	A, D	1,500	B, E	500		
0.22	224	A, C	2,000	A, D	1,500	B, E	500		
0.27	274	A, C	1,500	A, D	1,000	B, E	500		
0.33	334	A, C	1,500	A, D	1,000	B, E	500		
0.39	394	A, C	1,000	B, E	500	B, E	500		
0.47	474	A, C	1,000	B, E	500	B, E	500		
0.56	564	A, D	1,500	B, E	500				
0.68	684	A, D	1,500	B, E	500				
0.82	824	A, D	1,000	B, E	500				
1.0	105	A, D	1,000	B, E	500				
1.2	125	B, E	500	B, E	500				
1.5	155	B, E	500						
1.8	185	B, E	500						
2.2	225	B, E	500						
2.7	275	B, E	500						
3.3	335	B, E	400						

MDDSA Series (Small Type Metallized Polyester Capacitors)

MDDSA series is the reduced size of conventional MDD type, light weight and high reliability metallized polyester film capacitors.

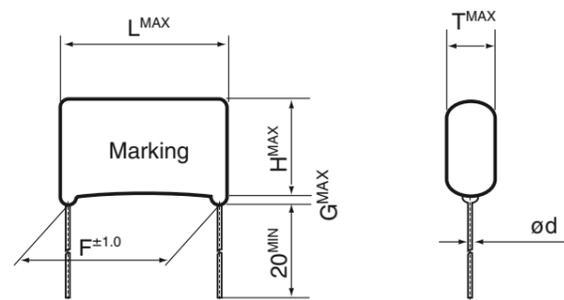
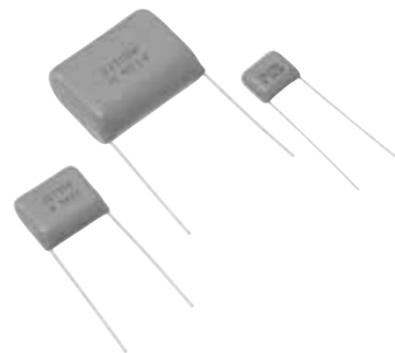
- The size is reduced by 40 to 50% of conventional MDD type.
- The capacitance range is extended from 0.01 μF to 10 μF .
- Humidity resistance is greatly improved through special production technique.
- Excellent in flame retardant property with outside coating of flame resistance epoxy resin.
- Tracking resistance is improved.
- For lead forming and taping, see page 231 and 232.

Product Specifications

Items	Specifications
Temperature range	-40°C ~ +85°C (+105°C, with derating over 85°C)
Rated voltage	100~630 V.DC
Capacitance tolerance	±5% (J), ±10% (K), ±20% (M)
Dielectric dissipation factor	0.8% or less (20°C, 1KHz)
Withstanding voltage	Between terminals
	Rated voltage (V.DC) × 1.4 for one min
Insulation resistance	Between terminal and outside coating
	Rated voltage (V.DC) × 2.0 for 1 to 5 seconds
Related standard	$C_R \leq 0.33 \mu F$ 7,500M Ω or more
	$C_R > 0.33 \mu F$ 2,500 / C_R M Ω or more
Related standard	Subject to JIS C 5101-1 and JIS C 5101-2.

C_R : Capacitance (μF)

Outline of drawings and dimensions



G : 1.0 mm when F Dimension is less than 7.5 mm.
1.5 mm when F Dimension is more than 10 mm.

Standard value and case size

(Unit : mm)

Capacitance		Rated voltage (Code)																			
		100V.DC (2A)					250V.DC (2E)					400V.DC (2G)					630V.DC (2J)				
μF	Code	T	H	L	F	d	T	H	L	F	d	T	H	L	F	d	T	H	L	F	d
0.010	103	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	4.5	8.0	10.0	7.5	0.6	4.5	8.0	12.5	10.0	0.6
0.012	123	4.5	7.5	8.5	5.0	0.5	4.5	8.5	10.0	7.5	0.6	4.5	8.5	10.0	7.5	0.6	4.5	8.5	12.5	10.0	0.6
0.015	153	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	4.5	8.0	10.0	7.5	0.6	5.0	9.0	12.5	10.0	0.6
0.018	183	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	4.5	8.0	10.0	7.5	0.6	5.0	9.5	12.5	10.0	0.6
0.022	223	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	4.5	8.0	10.0	7.5	0.6	5.5	10.0	12.5	10.0	0.6
0.027	273	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	5.0	8.5	10.0	7.5	0.6	5.5	11.0	12.5	10.0	0.6
0.033	333	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	5.0	9.0	10.0	7.5	0.6	6.0	11.5	12.5	10.0	0.6
0.039	393	4.5	7.5	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	4.5	8.0	12.5	10.0	0.6	6.5	12.0	12.5	10.0	0.6
0.047	473	4.5	8.0	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	4.5	9.0	12.5	10.0	0.6	7.5	12.5	12.5	10.0	0.6
0.056	563	4.5	8.0	8.5	5.0	0.5	4.5	8.0	10.0	7.5	0.6	5.0	9.0	12.5	10.0	0.6	5.5	11.0	18.0	15.0	0.6
0.068	683	4.5	8.0	8.5	5.0	0.5	4.5	8.5	10.0	7.5	0.6	5.5	9.5	12.5	10.0	0.6	6.0	11.5	18.0	15.0	0.6
0.082	823	4.5	8.0	8.5	5.0	0.5	4.5	9.0	10.0	7.5	0.6	5.5	10.5	12.5	10.0	0.6	6.0	13.0	18.0	15.0	0.6
0.10	104	4.5	8.0	8.5	5.0	0.5	5.0	9.0	10.0	7.5	0.6	6.0	11.0	12.5	10.0	0.6	6.5	13.5	18.0	15.0	0.6
0.12	124	4.5	8.0	10.0	7.5	0.6	5.5	9.5	10.0	7.5	0.6	5.0	10.0	18.0	15.0	0.6	7.5	14.0	18.0	15.0	0.8
0.15	154	4.5	8.5	10.0	7.5	0.6	6.0	10.0	10.0	7.5	0.6	5.0	10.5	18.0	15.0	0.6	8.0	15.0	18.0	15.0	0.8
0.18	184	4.5	8.5	10.0	7.5	0.6	5.0	10.0	12.5	10.0	0.6	5.5	11.0	18.0	15.0	0.6	9.0	15.5	18.0	15.0	0.8
0.22	224	5.0	8.5	10.0	7.5	0.6	5.5	10.5	12.5	10.0	0.6	6.0	12.0	18.0	15.0	0.6	9.5	16.5	18.0	15.0	0.8
0.27	274	5.0	9.0	10.0	7.5	0.6	6.0	11.0	12.5	10.0	0.6	6.5	12.5	18.0	15.0	0.8	7.5	17.5	25.5	22.5	0.8
0.33	334	5.5	9.5	10.0	7.5	0.6	6.5	11.5	12.5	10.0	0.6	7.0	12.5	18.0	15.0	0.8	8.0	18.5	25.5	22.5	0.8
0.39	394	6.0	9.5	10.0	7.5	0.6	5.0	12.0	18.0	15.0	0.6	7.0	14.0	18.0	15.0	0.8	9.0	19.0	25.5	22.5	0.8
0.47	474	6.5	10.0	10.0	7.5	0.6	5.5	12.0	18.0	15.0	0.6	8.0	14.5	18.0	15.0	0.8	10.0	20.0	25.5	22.5	0.8
0.56	564	5.5	10.5	12.5	10.0	0.6	6.0	12.5	18.0	15.0	0.6	7.0	14.0	25.5	22.5	0.8	11.0	21.0	25.5	22.5	0.8
0.68	684	5.5	11.0	12.5	10.0	0.6	6.5	13.0	18.0	15.0	0.8	7.5	14.5	25.5	22.5	0.8	12.0	22.5	25.5	22.5	0.8
0.82	824	6.0	11.5	12.5	10.0	0.6	7.0	14.0	18.0	15.0	0.8	7.5	16.0	25.5	22.5	0.8	12.0	22.5	30.5	27.5	0.8
1.0	105	6.5	12.0	12.5	10.0	0.6	7.5	14.5	18.0	15.0	0.8	8.5	17.0	25.5	22.5	0.8	13.5	24.0	30.5	27.5	0.8
1.2	125	5.5	12.0	18.0	15.0	0.8	8.5	15.0	18.0	15.0	0.8	9.5	18.0	25.5	22.5	0.8	15.0	25.0	30.5	27.5	0.8
1.5	155	6.0	12.5	18.0	15.0	0.8	9.0	16.0	18.0	15.0	0.8	9.0	18.0	30.5	27.5	0.8	16.5	27.0	30.5	27.5	0.8
1.8	185	6.5	13.0	18.0	15.0	0.8	8.0	15.0	25.5	22.5	0.8	10.0	19.0	30.5	27.5	0.8	18.5	29.0	30.5	27.5	0.8
2.2	225	7.0	14.0	18.0	15.0	0.8	9.0	16.0	25.5	22.5	0.8	11.0	20.0	30.5	27.5	0.8	21.5	31.5	30.5	27.5	0.8
2.7	275	8.0	14.5	18.0	15.0	0.8	10.0	17.0	25.5	22.5	0.8										
3.3	335	8.5	16.0	18.0	15.0	0.8	11.0	18.0	25.5	22.5	0.8										
3.9	395	7.5	14.5	25.5	22.5	0.8	11.5	20.0	25.5	22.5	0.8										
4.7	475	7.5	16.5	25.5	22.5	0.8	12.5	21.0	25.5	22.5	0.8										
5.6	565	8.5	17.0	25.5	22.5	0.8	12.0	21.0	30.5	27.5	0.8										
6.8	685	9.5	18.5	25.5	22.5	0.8	14.0	22.0	30.5	27.5	0.8										
8.2	825	11.0	20.0	25.5	22.5	0.8	15.0	23.0	30.5	27.5	0.8										
10.0	106	11.5	21.0	25.5	22.5	0.8	16.5	25.0	30.5	27.5	0.8										

Product symbol : (Example) MDDSA Series 100V.DC 0.47mF ±10%

MDDSA-2A-474 K

- Type of series
- Capacitance code
- Capacitance tolerance code
- Rated voltage code

For taping, ask us for further information.

MDD-HD(4) Series (Resin Dip Type Metallized Polyester Film Capacitors for PFC use only)

Features

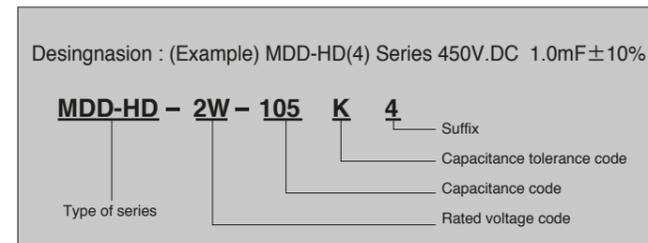
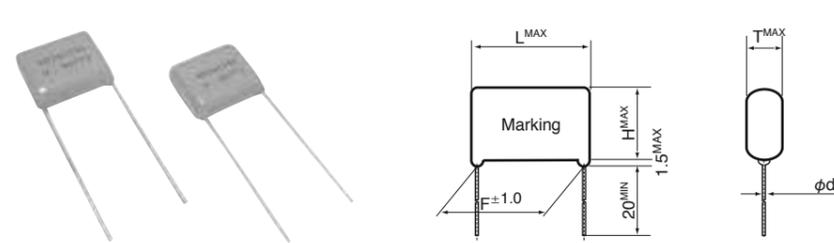
- The size reduced by 35% of conventional.
- Improve of pulse current resistance with the technology for Automobile.
- Flame retardant epoxy resin (UL94V-0) coating type.

Product Specifications

Items	Specifications
Temperature range	-40°C ~ +85°C (+105°C with derating over 85°C)
Rated voltage	450 V.DC
Capacitance tolerance	±10% (K)
Dielectric dissipation factor	0.8% or less (20°C, 1KHz)
Withstanding voltage	Rated voltage (V.DC) × 1.4
Insulation resistance	Between terminals 2,500 / C _R MΩ or more
Related standard	Subject to JIS C 5101-1 and JIS C 5101-2

C_R : Capacitance (μ F)

Outline of drawings and dimensions



Standard value and case size

(Unit : mm)

No.	Production name	Cap. (μ F)	Tol. (%)	R.V (VDC)	Size					I _{0-p} A _{0-p}
					T	H	L	F	d	
1	MDD-HD-2W-474K4	0.47	± 10	450	6.8	13.8	12.5	10.0	0.6	14.0
2	MDD-HD-2W-684K4	0.68	± 10	450	5.5	13.5	17.8	15.0	0.8	11.0
3	MDD-HD-2W-105K4	1.0	± 10	450	7.0	15.5	17.8	15.0	0.8	16.0
4	MDD-HD-2W-155K4	1.5	± 10	450	6.8	15.5	25.5	22.5	0.8	15.0
5	MDD-HD-2W-225K4	2.2	± 10	450	8.5	17.0	25.5	22.5	0.8	22.0

MDD-HD(4HS) Series (Resin Dip Type Metallized Polyester Film Capacitors for PFC use only)

Features

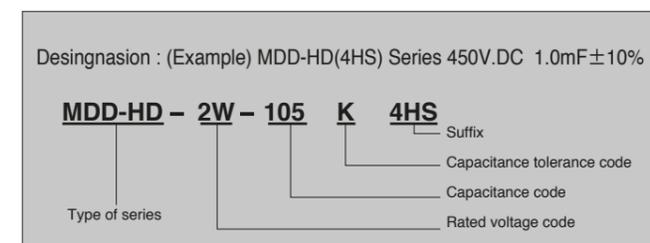
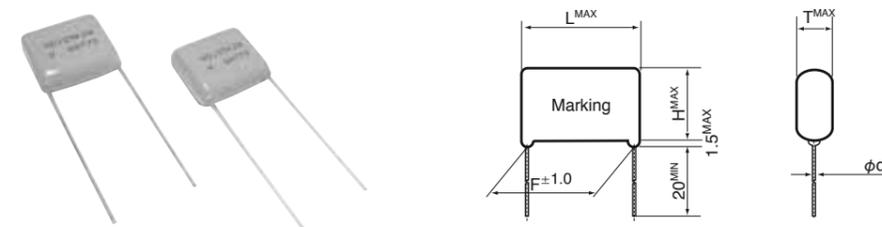
- The size reduced by 25% of conventional.
- Improve of pulse current resistance with the technology for Automobile.
- The buzz noise reduced by 10dB of conventional.
- Flame retardant epoxy resin (UL94V-0) coating type.

Product Specifications

Items	Specifications
Temperature range	-40°C ~ +85°C (+105°C with derating over 85°C)
Rated voltage	450 V.DC
Capacitance tolerance	±10% (K)
Dielectric dissipation factor	0.8% or less (20°C, 1KHz)
Withstanding voltage	Rated voltage (V.DC) × 1.4
Insulation resistance	Between terminals 2,500 / C _R MΩ or more
Related standard	Subject to JIS C 5101-1 and JIS C 5101-2

C_R : Capacitance (μ F)

Outline of drawings and dimensions



Standard value and case size

(Unit : mm)

No.	Production name	Cap. (μ F)	Tol. (%)	R.V (VDC)	Size					I _{0-p} A _{0-p}
					T	H	L	F	d	
1	MDD-HD-2W-474K4HS	0.47	± 10	450	8.0	15.0	12.5	10.0	0.6	15.0
2	MDD-HD-2W-684K4HS	0.68	± 10	450	6.5	15.0	17.8	15.0	0.8	12.0
3	MDD-HD-2W-105K4HS	1.0	± 10	450	8.0	16.5	17.8	15.0	0.8	18.0
4	MDD-HD-2W-155K4HS	1.5	± 10	450	8.0	16.5	25.5	22.5	0.8	16.0
5	MDD-HD-2W-225K4HS	2.2	± 10	450	9.5	19.0	25.5	22.5	0.8	24.0

MDD-P (4) Series

(Resin Dip Type Metallized Polypropylene Film Capacitors for PFC use only)

Features

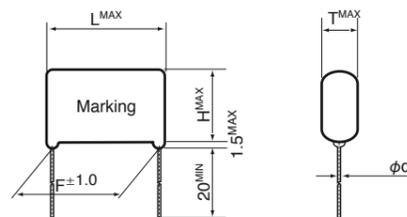
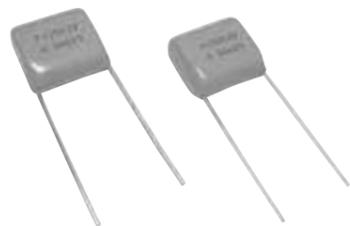
- Self-healing and high frequency characteristic due to polypropylene film and non-inductive construction.
- Flame retardant epoxy resin (UL94V-0) coating type.

Product Specifications

Items	Specifications
Temperature range	-40°C ~ +85°C
Rated voltage	450 V.DC
Capacitance tolerance	±10% (K)
Dielectric dissipation factor	0.1% or less (20°C, 1KHz)
Withstanding voltage	Rated voltage (V.DC) × 1.4
Insulation resistance	Between terminals 7,500 / C _R MΩ or more
Related standard	Subject to JIS C 5101-1 and JIS C 5101-16

C_R : Capacitance (μ F)

Outline of drawings and dimensions



Desingnasion : (Example) MDD-P(4) Series 450V.DC 1.0mF ± 10%

MDD-P - 2W - 105 K 4

- MDD-P: Type of series
- 2W: Rated voltage code
- 105: Capacitance code
- K: Capacitance tolerance code
- 4: Suffix

Standard value and case size

(Unit : mm)

No.	Production name	Cap. (μ F)	Tol. (%)	R.V (VDC)	Size					I _{0-p} A _{0-p}
					T	H	L	F	d	
1	MDD-P-2W-474K4	0.47	± 10	450	8.3	15.4	12.5	10.0	0.6	19.0
2	MDD-P-2W-684K4	0.68	± 10	450	7.5	14.2	17.8	15.0	0.8	15.0
3	MDD-P-2W-105K4	1.0	± 10	450	9.2	15.8	17.8	15.0	0.8	22.0
4	MDD-P-2W-155K4	1.5	± 10	450	8.3	16.5	25.5	22.5	0.8	21.0
5	MDD-P-2W-225K4	2.2	± 10	450	9.8	18.0	25.5	22.5	0.8	31.0

MDD-HF Series

(High-frequency Current, Resin Dip Type PPS Film Capacitors)

PPS film based, dip type film capacitors which are developed on the basis of the MDD capacitor production technology to offer increased heat resistance and enhanced performance characteristics.

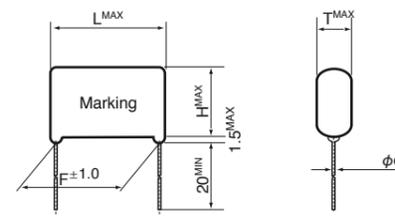
Features

- Offers excellent electrical performance characteristics and remains stable relative to temperature, frequency, and voltage.
- Exhibits increased heat resistance.
- Excels in loss characteristics and generates a minimum of heat at high frequency.
- Refer to page 231 and 232 for lead wire forming and taping type.

Product Specifications

Items	Specifications
Temperature range	-40°C ~ +105°C (+125°C, with derating over 105°C)
Rated voltage	100, 250 V.DC
Capacitance tolerance	±5% (J), ±10% (K)
Dielectric dissipation factor	0.1% or less (20°C, 1KHz)
Withstanding voltage	Rated voltage (V.DC) × 1.5 for one min.
Insulation resistance	15,000 MΩ or more.

Outline of drawings and dimensions



Product symbol : (Example) MDD-HF Series 100V.DC 0.1mF ± 10%

MDD-HF-2A-104 K T 2C3

- MDD-HF: Type of series
- 2A: Rated voltage code
- 104: Capacitance code
- K: Capacitance tolerance code
- T: With or without taping
- 2C3: Forming

Standard value and case size

(Unit : mm)

Capacitance	Rated voltage (100V.DC)																	
	100V.DC (2A)										250V.DC (2E)							
	μ F	Code	T	H	L	F	f	d	Taping type	Package quantity / case	T	H	L	F	f	d	Taping type	Package quantity/case
0.010	103	4.5	7.5	8.5	5.0	0.5	0.5	A,C	2,000	4.5	7.5	8.5	5.0	0.5	0.5	A,C	2,000	
0.012	123	4.5	7.5	8.5	5.0	0.5	0.6	A,C	2,000	4.5	7.5	8.5	5.0	0.5	0.6	A,C	2,000	
0.015	153	4.9	7.7	8.5	5.0	0.5	0.6	A,C	2,000	4.9	7.7	8.5	5.0	0.5	0.6	A,C	2,000	
0.018	183	4.5	7.5	11.0	7.5	1.0	0.6	A,C	2,000	4.5	7.5	11.0	7.5	1.0	0.6	A,C	2,000	
0.022	223	4.7	7.5	11.0	7.5	1.0	0.6	A,C	2,000	4.7	7.5	11.0	7.5	1.0	0.6	A,C	2,000	
0.027	273	4.7	8.3	11.0	7.5	1.0	0.6	A,C	2,000	4.7	8.3	11.0	7.5	1.0	0.6	A,C	2,000	
0.033	333	4.9	9.0	11.0	7.5	1.0	0.6	A,C	1,500	4.9	9.0	11.0	7.5	1.0	0.6	A,C	1,500	
0.039	393	5.2	9.3	11.0	7.5	1.0	0.6	A,C	1,500	5.2	9.3	11.0	7.5	1.0	0.6	A,C	1,500	
0.047	473	5.5	9.5	11.0	7.5	1.0	0.6	A,C	1,500	5.5	9.5	11.0	7.5	1.0	0.6	A,C	1,500	
0.056	563	5.2	8.0	11.0	7.5	1.0	0.6	A,C	2,000	5.0	9.0	13.5	10.5	1.0	0.6	A,D	1,500	
0.068	683	5.2	8.5	11.0	7.5	1.0	0.6	A,C	1,500	5.5	9.5	13.5	10.5	1.0	0.6	A,D	1,500	
0.082	823	5.3	9.0	11.0	7.5	1.0	0.6	A,C	1,500	6.0	9.5	13.5	10.5	1.0	0.6	A,D	1,500	
0.10	104	5.7	9.3	11.0	7.5	1.0	0.6	A,C	1,500	6.0	10.5	13.5	10.5	1.0	0.6	A,D	1,000	
0.12	124	4.8	8.4	13.0	10.5	1.0	0.6	A,D	1,500									
0.15	154	4.7	10.0	13.0	10.5	1.0	0.6	A,D	1,500									
0.18	184	5.0	10.2	13.0	10.5	1.0	0.6	A,D	1,500									
0.22	224	5.3	10.5	13.0	10.5	1.0	0.6	A,D	1,500									
0.27	274	5.6	10.8	13.0	10.5	1.0	0.6	A,D	1,500									
0.33	334	6.1	11.3	13.0	10.5	1.0	0.6	A,D	1,000									

MDD-P, MTB-P Series (Metallized Polypropylene Film Capacitors for High frequency)

These types are metallized polypropylene film capacitors that have been used for many years and are suitable for communication devices and inverter fluorescent lighting.

Use either resin dip type (MDD-P type) or tape wrapped type (MTB-P type) depending on the operating condition.

Product Specifications

Item	Specification	
Temperature Range	-40°C ~ +85°C	
Rated voltage	250 ~ 630V.DC	
Capacitance tolerance	±5% (J), ±10% (K), ±20% (M)	
Dissipation factor	0.1% or less (20°C, 1kHz)	
Withstanding voltage	Between terminals	Rated voltage (V.DC) × 1.4 for one min
	Between terminal and outside coating	Rated voltage (V.DC) × 2.0 for 1 to 5 seconds
Insulation resistance	CR ≤ 0.33 μF	25,000MΩ or more
	CR > 0.33 μF	7,500 / CR MΩ or more
Related standard	Subject to JIS C 5101-1 and JIS C 5101-16.	

CR : Capacitance (μ F)

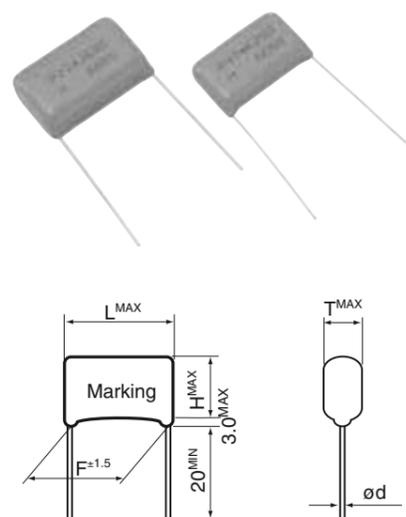
Product symbol: (Example) MDD-P series 250 V.DC 0.1mF ± 10%

MDD-P-2E-104 K

- MDD-P : Type of series
- 2E : Rated voltage code
- 104 : Capacitance code
- K : Capacitance tolerance code

MDD-P Series (Resin Dip Type Metallized Polypropylene Film Capacitors)

Outline of drawings and dimensions



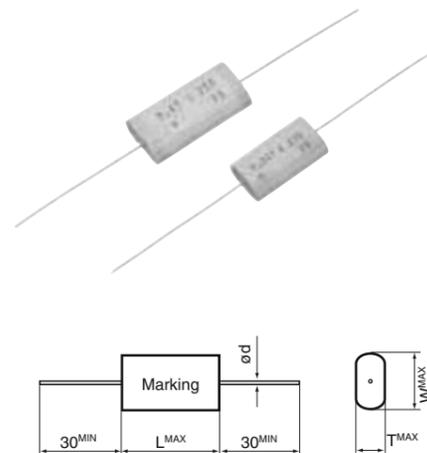
Standard value and case size

(Unit : mm)

Capacitance	Rated voltage (code)											
	250V.DC (2E)					400V.DC (2G)				630V.DC (2J)		
	μ F	Code	T	H	L	F	d	T	H	L	F	d
0.027	273							7.0	10.5	18.0	15.0	0.6
0.033	333							7.5	11.0	18.0	15.0	0.6
0.039	393							7.5	11.5	18.0	15.0	0.6
0.047	473							7.5	12.5	15.0	12.5	0.6
0.056	563							6.5	10.5	20.0	17.5	0.6
0.068	683	6.5	10.0	15.0	12.5	0.6		7.0	11.5	20.0	17.5	0.6
0.082	823	7.0	10.5	15.0	12.5	0.6		7.5	12.5	20.0	17.5	0.6
0.10	104	7.0	12.0	15.0	12.5	0.6		8.0	13.0	20.0	17.5	0.6
0.12	124	7.5	12.5	15.0	12.5	0.6		8.5	13.5	20.0	17.5	0.8
0.15	154	7.0	11.0	20.0	17.5	0.6		9.5	14.5	20.0	17.5	0.8
0.18	184	7.0	12.0	20.0	17.5	0.6		10.5	15.5	20.0	17.5	0.8
0.22	224	7.5	12.5	20.0	17.5	0.6		11.5	16.5	20.0	17.5	0.8
0.27	274	8.5	13.0	20.0	17.5	0.6		9.5	16.0	29.0	25.0	0.8
0.33	334	8.5	15.0	20.0	17.5	0.6		10.5	16.5	29.0	25.0	0.8
0.39	394	9.0	15.5	20.0	17.5	0.6		11.0	17.5	29.0	25.0	0.8
0.47	474	8.5	15.0	26.0	22.5	0.6		12.0	18.5	29.0	25.0	0.8
0.56	564	9.0	15.5	26.0	22.5	0.6		13.0	19.5	29.0	25.0	0.8
0.68	684	10.0	16.5	26.0	22.5	0.6		13.0	23.0	29.0	25.0	0.8
0.82	824	10.0	19.5	26.0	22.5	0.6		12.0	22.0	36.0	32.5	0.8
1.0	105	10.0	19.5	31.0	27.5	0.6		13.5	23.0	36.0	32.5	0.8

MTB-P Series (Tape Wrapped Metallized Polypropylene Film Capacitors)

Outline of drawings and dimensions



Standard value and case size

(Unit : mm)

Capacitance	Rated voltage (code)														
	250V.DC (2E)				400V.DC (2G)				630V.DC (2J)						
	μ F	Code	T	W	L	d	T	W	L	d	T	W	L	d	
0.027	273														
0.033	333							5.5	9.0	16.0	0.6	5.5	9.5	20.0	0.6
0.039	393							6.0	9.5	16.0	0.6	6.0	10.0	20.0	0.6
0.047	473							6.0	11.0	16.0	0.6	6.5	11.5	20.0	0.6
0.056	563							5.0	9.0	21.0	0.6	7.0	12.0	20.0	0.6
0.068	683	4.5	8.5	16.0	0.6			5.0	10.0	21.0	0.6	6.0	11.0	26.0	0.6
0.082	823	5.0	9.0	16.0	0.6			5.5	10.5	21.0	0.6	7.0	11.5	26.0	0.8
0.10	104	5.5	10.5	16.0	0.6			6.5	11.0	21.0	0.6	7.5	12.5	26.0	0.8
0.12	124	6.0	11.0	16.0	0.6			7.0	12.0	21.0	0.6	7.5	14.0	26.0	0.8
0.15	154	5.5	9.0	21.0	0.6			8.0	13.0	21.0	0.6	9.0	15.0	26.0	0.8
0.18	184	5.5	10.5	21.0	0.6			8.5	13.5	21.0	0.6	9.5	16.0	26.0	0.8
0.22	224	6.0	11.0	21.0	0.6			9.5	14.5	21.0	0.6	10.0	16.5	29.0	0.8
0.27	274	6.5	11.5	21.0	0.6			7.5	14.0	29.0	0.8	11.0	17.5	29.0	0.8
0.33	334	7.0	13.5	21.0	0.6			8.5	15.0	29.0	0.8	11.0	20.5	29.0	0.8
0.39	394	7.5	14.0	21.0	0.6			9.5	15.5	29.0	0.8	12.0	22.0	29.0	0.8
0.47	474	7.0	13.0	26.0	0.6			10.5	16.5	29.0	0.8	11.0	20.5	37.0	0.8
0.56	564	7.5	14.0	26.0	0.6			11.5	17.5	29.0	0.8	12.5	22.0	37.0	0.8
0.68	684	8.5	15.0	26.0	0.6			11.5	21.0	29.0	0.8				
0.82	824	8.0	18.0	26.0	0.6			10.5	20.0	37.0	0.8				
1.0	105	8.0	18.0	31.0	0.8			12.0	21.0	37.0	0.8				

MTBS, MTB Series (Tape Wrapped Metallized Polyester Film Capacitors)

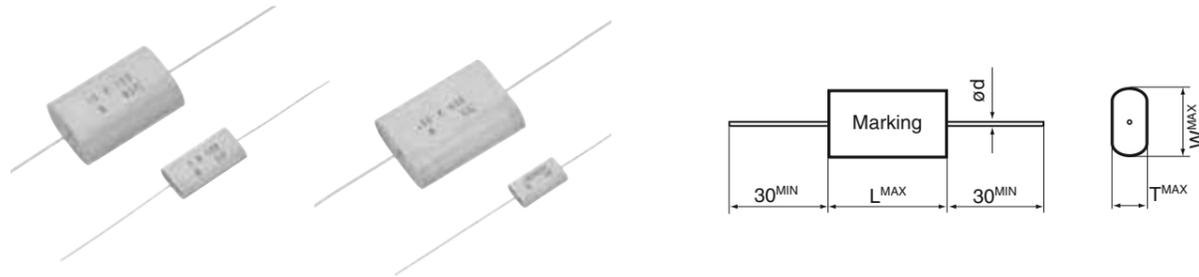
This series offers metallized film capacitors that have axial leads and exhibit excellent heat resistance and moisture resistance. These capacitors employ a metallized polyester film dielectric and have a polyester-taped outer covering and resin-sealed ends.

Product Specifications

Items	Specifications
Temperature range	-40°C ~ +85°C
Rated voltage	100 ~ 630 V.DC
Capacitance tolerance	±5% (J), ±10% (K), ±20% (M)
Withstanding voltage	Rated voltage (V.DC) × 1.4 for one min.
Dielectric dissipation factor	0.8% or less (20°C, 1KHz)
Insulation resistance	CR ≤ 0.33 μF 7,500MΩ or more
	CR > 0.33 μF 2,500 / CR MΩ or more
Related standard	Subject to JIS C 5101-1 and JIS C 5101-2.

CR : Capacitance (μ F)

Outline of drawings and dimensions



Standard value and case size

(Unit : mm)

Capacitance μ F Code	MTBS				MTB											
	Rated voltage (Code)															
	100V.DC (2A)				250V.DC (2E)				400V.DC (2G)				630V.DC (2J)			
	T	W	L	d	T	W	L	d	T	W	L	d	T	W	L	d
0.022 223									4.0	7.0	14.0	0.6	4.5	9.0	16.0	0.6
0.033 333									4.0	7.5	16.0	0.6	5.5	9.0	16.0	0.6
0.047 473					4.0	7.5	14.0	0.6	5.0	8.5	16.0	0.6	4.5	9.5	22.0	0.6
0.068 683					4.0	7.5	16.0	0.6	6.0	9.5	16.0	0.6	5.5	10.5	22.0	0.6
0.10 104					4.5	9.0	16.0	0.6	5.0	10.0	22.0	0.6	6.5	13.0	22.0	0.6
0.12 124					5.0	9.5	16.0	0.6	5.5	10.5	22.0	0.6	7.0	13.5	22.0	0.6
0.15 154					5.5	10.5	16.0	0.6	6.5	11.0	22.0	0.6	6.5	11.5	29.0	0.8
0.18 184					6.0	11.0	16.0	0.6	6.5	12.5	22.0	0.6	6.5	13.0	29.0	0.8
0.22 224					5.0	10.0	22.0	0.6	7.0	13.5	22.0	0.6	7.5	14.0	29.0	0.8
0.27 274	4.0	8.0	14.0	0.6	5.5	10.5	22.0	0.6	8.0	14.5	22.0	0.6	7.5	17.0	29.0	0.8
0.33 334	4.5	8.5	14.0	0.6	6.0	11.0	22.0	0.6	7.0	13.5	29.0	0.8	8.0	17.5	31.0	0.8
0.39 394	5.0	9.0	14.0	0.6	7.0	11.5	22.0	0.6	7.5	14.0	29.0	0.8	9.0	18.5	31.0	0.8
0.47 474	5.5	9.5	14.0	0.6	7.5	12.5	22.0	0.6	8.5	14.5	29.0	0.8	9.5	19.0	31.0	0.8
0.56 564	4.5	9.5	20.0	0.6	6.0	12.0	29.0	0.8	8.0	17.5	29.0	0.8	11.0	20.5	31.0	0.8
0.68 684	5.0	9.5	20.0	0.6	6.5	13.0	29.0	0.8	9.0	18.5	29.0	0.8	11.0	23.5	31.0	0.8
0.82 824	5.0	10.0	20.0	0.6	7.0	13.5	29.0	0.8	10.0	19.5	29.0	0.8	12.5	25.0	31.0	0.8
1.0 105	6.0	10.5	20.0	0.6	7.0	16.5	29.0	0.8	11.5	21.0	29.0	0.8	14.0	26.5	31.0	0.8
1.2 125	6.5	11.5	20.0	0.6	8.0	17.5	29.0	0.8	12.0	21.5	31.0	0.8	12.5	25.0	43.0	1.0
1.5 155	7.0	12.5	20.0	0.6	9.0	18.5	29.0	0.8	14.0	23.5	31.0	0.8	14.0	26.5	43.0	1.0
1.8 185	7.0	12.0	22.0	0.8	10.0	19.5	29.0	0.8	12.5	22.0	43.0	1.0	15.5	28.5	43.0	1.0
2.2 225	7.5	13.0	22.0	0.8	11.0	21.0	29.0	0.8	14.0	24.0	43.0	1.0	15.5	28.0	52.0	1.0
2.7 275	8.5	14.0	22.0	0.8	9.5	19.0	43.0	1.0	14.0	24.0	43.0	1.0				
3.3 335	9.0	16.0	22.0	0.8	10.5	20.5	43.0	1.0	16.0	28.5	43.0	1.0				
3.9 395	10.0	17.0	22.0	0.8	12.0	21.5	43.0	1.0	16.5	32.5	43.0	1.0				
4.7 475	11.0	17.5	22.0	0.8	13.5	23.0	43.0	1.0	15.5	31.0	52.0	1.0				
5.6 565	11.0	17.5	26.0	0.8	13.0	22.5	52.0	1.0								
6.8 685	12.0	18.5	26.0	0.8	14.5	24.0	52.0	1.0								
8.2 825	11.5	18.5	29.0	0.8	16.0	25.5	52.0	1.0								
10.0 106	12.5	20.5	29.0	0.8	16.5	29.5	52.0	1.0								

Product symbol : (Example) MTB Series 630V.DC 0.1mF ±10%

MTB-2J-104 K

Type of series: MTB
 Capacitance tolerance code: J
 Capacitance code: 104
 Rated voltage code: K

Product symbol : (Example) MTBS Series 100V.DC 1.0mF ±10%

MTBS-2A-105 K

Type of series: MTBS
 Specify as MTBS when ordering 100V DC items

WMTB, WMTB-P Series (High-frequency Large-current Tape-wrapped Capacitors) (For Snubbers)

The WMTB / WMTB-P series offers tape-wrapped capacitors which are developed for applications where high-frequency current is essential.

Being small and lightweight, these capacitors are ideal for use in high-frequency large-current circuits for high-frequency surge suppressors, various inverter circuits, snubber circuits, and the like.

WMTB, and WMTB-P Type Product Specifications

Items	Specifications	
	WMTB Type	WMTB-P Type
Type of Series	WMTB Type	WMTB-P Type
Dielectric	Metallized polyester	Metallized polypropylene
Temperature range	-40°C ~ +85°C	-40°C ~ +85°C
Rated voltage	630V.DC	1,200V.DC
Capacitance tolerance	±10% (K)	±10% (K)
Withstanding voltage	Rated voltage (V.DC) × 1.5 for one min.	Rated voltage (V.DC) × 1.5 for one min.
Dielectric dissipation factor	0.8% or less (20°C, 1KHz)	0.1% or less (20°C, 1KHz)
Insulation resistance	CR ≤ 0.33 μF 9,000MΩ or more	CR ≤ 0.33 μF 30,000MΩ or more
	CR > 0.33 μF 3,000 / CR MΩ or more	CR > 0.33 μF 10,000 / CR MΩ or more

CR : Capacitance (μ F)

Outline of drawings and dimensions



Product symbol : (Example) WMTB-P Series 1200V.DC 0.1mF ±10%

WMTB-P-1200-104 K

Type of series: WMTB-P
 Capacitance tolerance code: K
 Capacitance code: 104
 Rated voltage code: 1200

WMTB, and WMTB-P Type Standard value and case size

(Unit : mm)

Capacitance μ F Code	Rated voltage							
	630V.DC (WMTB Type)				1200V.DC (WMTB-P Type)			
	T	W	L	d	T	W	L	d
0.10 104					11.0	20.0	36.0	0.8
0.15 154					13.5	23.0	36.0	0.8
0.22 224	10.5	20.0	29.0	0.8	17.0	26.0	36.0	0.8
0.33 334	11.0	20.5	33.0	0.8	15.5	25.0	41.0	1.0
0.47 474	13.0	22.5	33.0	0.8	20.0	29.0	41.0	1.0
0.68 684	14.0	24.0	41.0	1.0	23.5	33.0	41.0	1.0
1.0 105	16.5	27.5	41.0	1.0	21.0	35.5	54.0	1.0
1.5 155	18.0	27.5	52.0	1.0				
2.2 225	21.0	33.5	52.0	1.0				

MEMO

AIC EUROPE

Sales & Marketing in Europe of **HITACHI AIC** Components



AIC Europe GmbH

Adolf-Dembach-Str. 12

D-47829 Krefeld/Germany

E-Mail: info@aic-europe.com

Phone: +49 2151 4943-5

Fax: +49 2151 4943-80