UPGRADE!

MLC2 Series (Cylindrically-Shaped Metallized Polypropylene Fim Capacitos)

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-dischrage.
- High reliability of withstanding voltage due to using of our original segmented metallized film.

Specifications

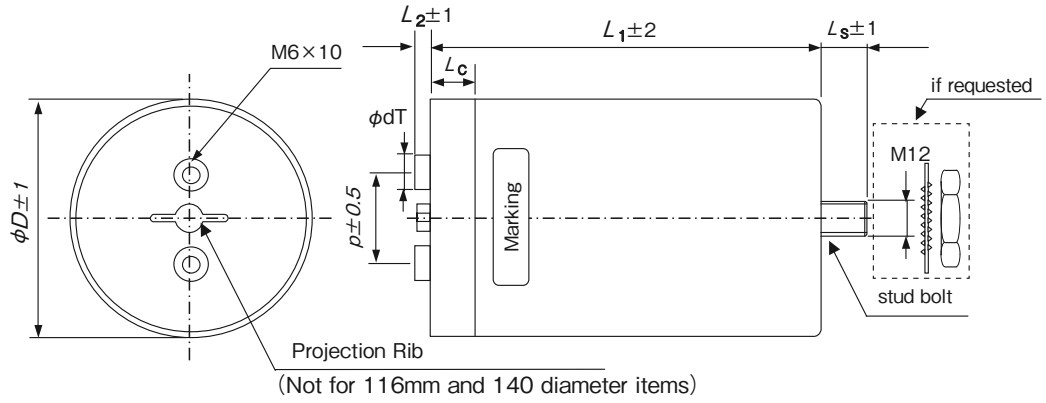
Items	Characteristics
Operating Temperature range *	−40～+85℃ at 0.7 U_N
	−40～+80℃ at 0.8 U_N
	−40～+75℃ at 0.9 U_N
	−40～+70℃ at 1.0 U_N
Rated Voltage U_N	800～900Vdc
Voltage test between terminals U_{TT}	1.5×U_N / 10s
Voltage test terminals to case U_{TC}	3,200Vac / 10s
Terminals (permitted Torque)	M6×10 (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

		φD				
		φ85	φ88.5	φ100	φ116	φ140
Dimensions (mm)	P	32	32	32	50	50
	ϕd_T	φ12	φ12	φ12	φ14	φ19
	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

IMax Multiplier (1kHz～10kHz)

		0.7×U_N	0.8×U_N	0.9×U_N	1.0×U_N
T_a Ambient Temperature	50℃	1.3	1.2	1.1	1.0
	60℃	1.1	1.0	0.9	0.7
	70℃	0.9	0.7	0.5	0.0
	75℃	0.7	0.5	0.0	
	80℃	0.5	0.0		
	85℃	0.0			

Outline of drawings and dimensions



Part number

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

MLC2800V128KB116125

MLC2 — Type of series

800V — Rated voltage

128 — Capacitance code
The first two digits are significant.
The last digit in dicates the number of following zeros in PF
(128 : 12×10⁸pF)

K — Tolerance code
J : ±5%
K : ±10%

B — Fixing symbol code
B : Stud Bolt
N : Plain Bottom

116 — Case dimenter φD

125 — Case length L_1

(...) — Costomers Specification

Standard Products Table

Rated d.c voltage U_N : 800Vdc	Max.ripple voltage U_r : 200V Non repetitive surge voltage U_S : 1,200V Voltage test between terminals U_{TT} : 1,200Vdc/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〕	Part number
	Diameter ϕD 〔mm〕	Length of the case L_1 〔mm〕	Remarks								
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
	140	75		49	15	45	320	1.3	65	6.2	MLC2800V108KB14075
1,100	140	80		49	15	45	352	1.4	65	5.8	MLC2800V118KB14080
1,200	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
	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	Standard size	83	20	60	608	1.1	55	2.6	MLC2800V198KB116175
	140	120		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.

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

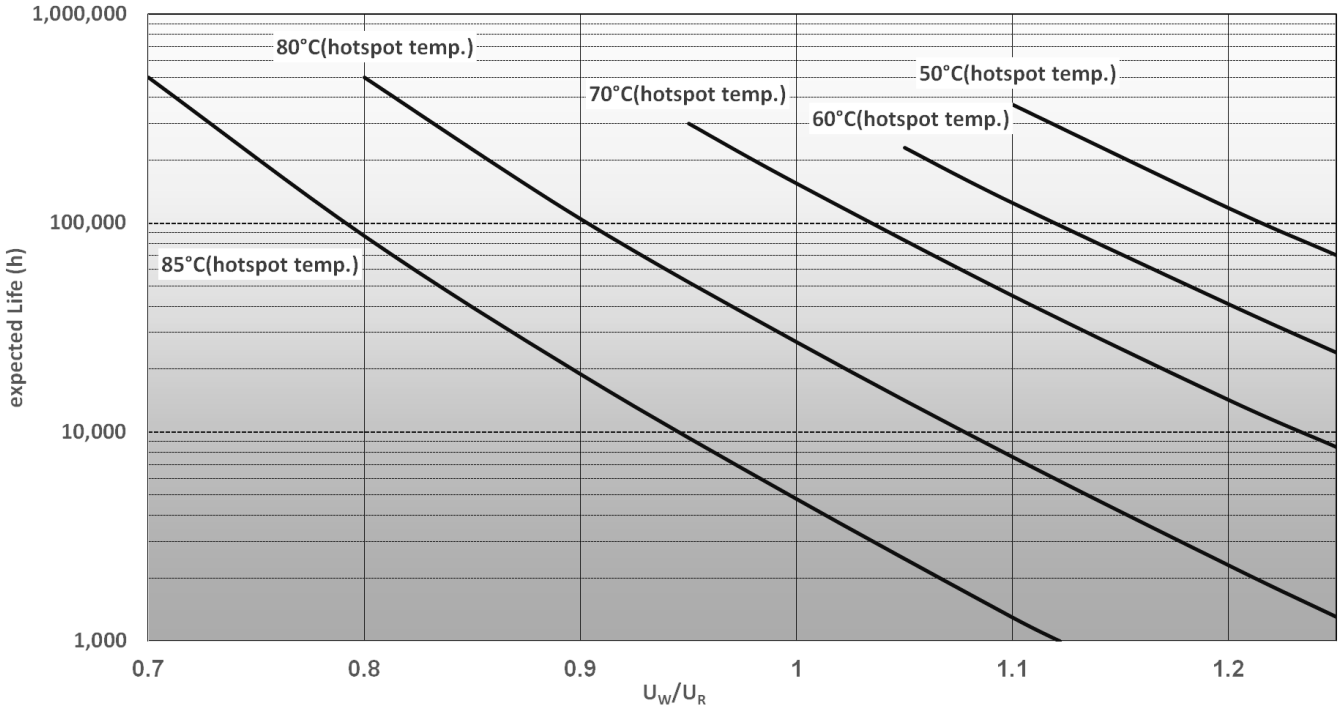
Standard Products Table

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〕	Part number
	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		29	4	12	80	2.9	65	8.0	MLC2900V257KB8575
	88.5	70	Standard size	31	5	15	80	2.5	60	8.1	MLC2900V257KB88570
280	85	80		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		31	5	15	99	2.9	65	7.0	MLC2900V317KB88580
320	85	87		29	5	15	102	3.4	75	6.8	MLC2900V327KB8587
350	88.5	87		31	5	15	112	3.2	75	6.3	MLC2900V357KB88587
	100	70	Standard size	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		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		28	5	15	131	4.4	90	5.7	MLC2900V417KB85106
430	100	80		38	7	21	138	2.3	65	6.0	MLC2900V437KB10080
450	88.5	106		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		37	7	21	150	2.6	75	5.6	MLC2900V477KB10087
	116	70	Standard size	45	9	27	150	1.6	60	6.0	MLC2900V477KB11670
480	85	120		27	4	12	154	5.1	100	5.3	MLC2900V487KB85120
510	85	135		55	9	27	163	1.5	40	4.3	MLC2900V517KB85135
	88.5	125	Standard size	59	10	30	163	1.3	40	4.3	MLC2900V517KB885125
	116	75		45	9	27	163	1.7	65	5.7	MLC2900V517KB11675
530	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		54	9	27	182	1.6	45	4.2	MLC2900V577KB85145
	88.5	135		59	10	30	182	1.4	40	4.0	MLC2900V577KB885135
	116	80		44	9	27	182	1.9	65	5.3	MLC2900V577KB11680
590	100	106		36	6	18	189	3.3	90	4.6	MLC2900V597KB100106
630	88.5	145		57	10	30	202	1.5	45	4.0	MLC2900V637KB885145
640	85	159		54	9	27	205	1.8	50	3.7	MLC2900V647KB85159
650	116	87		44	9	27	208	2.0	75	5.0	MLC2900V657KB11687
690	100	120		34	6	18	221	3.8	100	4.4	MLC2900V697KB100120
	100	125	Standard size	69	13	39	221	1.0	40	4.0	MLC2900V697KB100125
710	88.5	159		57	10	30	227	1.6	50	3.8	MLC2900V717KB885159
	140	70	Standard size	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	Standard size	43	9	27	234	2.3	80	4.6	MLC2900V737KB11695
780	100	135		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		53	9	27	262	2.3	60	3.0	MLC2900V827KB85197
830	116	106		43	9	27	266	2.6	90	4.1	MLC2900V837KB116106
860	100	145		68	13	39	275	1.2	45	3.5	MLC2900V867KB100145
870	140	80		47	14	42	278	1.5	65	5.9	MLC2900V877KB14080
910	88.5	197		56	10	30	291	2.1	60	3.0	MLC2900V917KB885197
930	100	159		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		52	9	27	307	2.7	70	2.7	MLC2900V967KB85225
970	116	120		42	9	27	310	3.0	100	3.7	MLC2900V977KB116120
980	140	87		47	14	42	314	1.6	75	5.5	MLC2900V987KB14087
1,000	88.5	225		54	9	27	320	2.6	70	2.6	MLC2900V108KB885225
	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		64	13	39	352	1.8	60	2.7	MLC2900V118KB100197
	116	145		78	17	51	352	1.0	45	3.2	MLC2900V118KB116145
	140	95	Standard size	46	13	39	352	1.8	80	5.1	MLC2900V118KB14095
1,200	140	106		45	13	39	384	2.0	90	4.8	MLC2900V128KB140106
1,300	116	159		79	18	54	416	1.1	50	2.9	MLC2900V138KB116159
1,400	100	225		66	13	39	448	2.0	70	2.3	MLC2900V148KB100225
	116	175	Standard size	78	17	51	448	1.3	55	2.5	MLC2900V148KB116175
	140	120		45	13	39	448	2.4	100	4.0	MLC2900V148KB140120
	140	125	Standard size	84	27	81	448	0.7	40	4.0	MLC2900V148KB140125
1,500	140	135		83	26	78	480	0.8	40	3.6	MLC2900V158KB140135
1,600	116	197		77	17	51	512	1.4	60	2.4	MLC2900V168KB116197
1,700	140	145		83	26	78	544	0.8	45	3.6	MLC2900V178KB140145
1,900	116	225		77	18	54	608	1.6	70	2.1	MLC2900V198KB116225
	140	159		84	26	78	608	0.9	50	3.1	MLC2900V198KB140159
2,200	140	175	Standard size	84	27	81	704	1.0	55	2.8	MLC2900V228KB140175
2,500	140	197		83	27	81	800	1.1	60	2.6	MLC2900V258KB140197
2,900	140	225		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℃/ 1kHz

Rated d.c. Voltage U_R

The peak voltage of either polarity of a reversing or non-reserving 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 $\hat{I}$

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 δ_0

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 Uw

Effective working voltage according to the actual capacitor