

# Aluminum Capacitors Power Screw Terminal

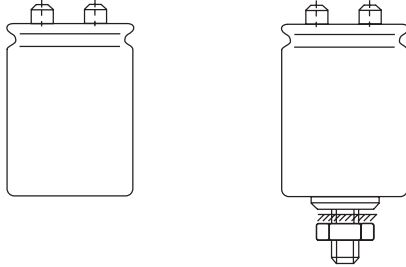


Fig.1 Component outlines.

## FEATURES

- Polarized aluminum electrolytic capacitors
- Insulated
- Charge and discharge proof
- Long useful life at 85 °C

## APPLICATIONS

- Computers, telecommunication and industrial systems
- Smoothing and filtering
- Standard and switched mode power supplies

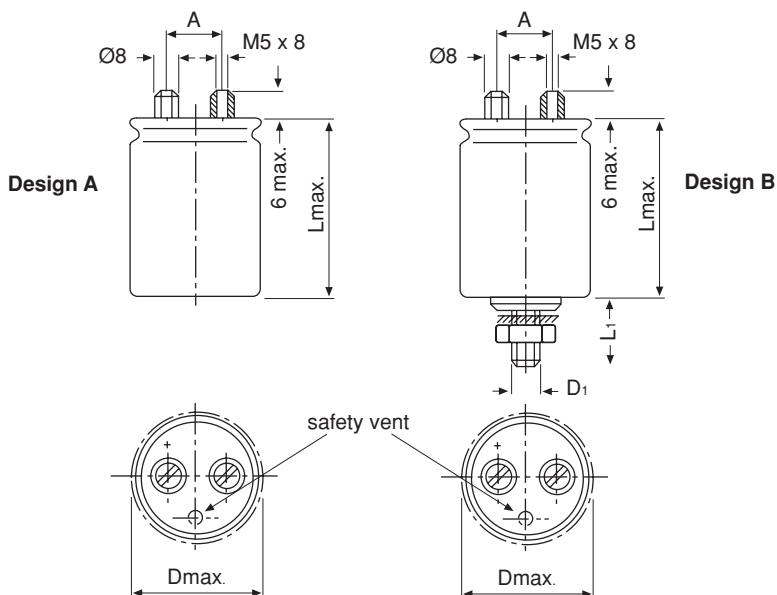
## MARKING

The capacitors are marked (where possible) with the following information:

- Rated capacitance (in  $\mu\text{F}$ ).
- Tolerance on rated capacitance, code letter in accordance with IEC 60062 (Q for  $-10/+30\%$ ).
- Rated voltage (in V).
- Date code in accordance with IEC 60062 (year and week).
- ROE logo.
- Polarity.
- Series.
- Climatic category in accordance with IEC 60068.

QUICK REFERENCE DATA		
DESCRIPTION	VALUE	
	LOW VOLTAGE	HIGH VOLTAGE
Nominal case size ( $\varnothing D \times L$ in mm)	35 × 50 to 76 × 144	
Rated capacitance range $C_R$	150 to 330000 $\mu\text{F}$	
Tolerance on $C_R$	-10 to +30%	
Rated voltage range, $U_R$	10 to 100 V	160 to 450 V
Category temperature range	-40 to +85 °C	
Endurance test at upper category temperature	2000 hours	
Useful life at 85 °C	10000 hours	5000 hours
Useful life at 40 °C,	300000 hours	150000 hours
Shelf life at 0 V, 85 °C	500 hours	
Based on sectional specification	IEC 60384-4/EN130300	
Climatic category IEC 68 DIN 40040	40/085/56 GPF	
Failure rate ( $10^9$ hours)	$\leq 15$	$\leq 40$

SELECTION CHART FOR $C_R$ , $U_R$ AND RELEVANT NOMINAL CASE SIZES ( $\varnothing D \times L$ in mm)														
$C_R$ ( $\mu\text{F}$ )	$U_R$ (V)													
	10	16	25	40	50	63	100	160	200	250	350	385	400	450
150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	35 × 50	35 × 50	35 × 50	35 × 60
470	-	-	-	-	-	-	-	-	-	35 × 50	35 × 60	35 × 80	35 × 80	35 × 80
680	-	-	-	-	-	-	-	-	35 × 50	35 × 50	35 × 60	35 × 105	35 × 105	35 × 105
1000	-	-	-	-	-	-	-	-	35 × 60	35 × 60	35 × 80	35 × 114	50 × 80	50 × 80
1500	-	-	-	-	-	-	-	-	35 × 80	35 × 105	35 × 105	50 × 80	50 × 80	50 × 105
2200	-	-	-	-	-	-	-	-	35 × 105	50 × 80	50 × 80	50 × 105	50 × 105	50 × 114
3300	-	-	-	-	-	-	-	-	35 × 50	50 × 80	50 × 80	50 × 105	65 × 80	65 × 105
4700	-	-	-	-	-	35 × 50	35 × 80	50 × 105	50 × 114	65 × 105	65 × 114	76 × 105	76 × 105	76 × 114
6800	-	-	-	-	35 × 50	35 × 60	35 × 80	35 × 105	65 × 80	65 × 105	65 × 114	76 × 144	76 × 144	76 × 144
10000	-	-	35 × 50	35 × 60	35 × 80	35 × 105	50 × 105	76 × 114	-	-	-	-	-	-
15000	35 × 50	35 × 50	35 × 60	35 × 105	35 × 105	50 × 80	65 × 80	-	-	-	-	-	-	-
22000	35 × 60	35 × 80	35 × 105	50 × 80	50 × 80	50 × 105	65 × 114	-	-	-	-	-	-	-
33000	35 × 80	35 × 105	50 × 80	50 × 105	50 × 105	65 × 105	76 × 114	-	-	-	-	-	-	-
47000	35 × 105	35 × 114	50 × 80	50 × 114	65 × 105	65 × 114	76 × 144	-	-	-	-	-	-	-
68000	50 × 80	50 × 80	50 × 105	65 × 105	65 × 114	76 × 144	-	-	-	-	-	-	-	-
100000	50 × 105	50 × 114	65 × 105	76 × 105	76 × 144	-	-	-	-	-	-	-	-	-
150000	65 × 80	65 × 105	76 × 105	76 × 144	-	-	-	-	-	-	-	-	-	-
220000	65 × 105	76 × 105	76 × 144	-	-	-	-	-	-	-	-	-	-	-
330000	76 × 114	76 × 144	-	-	-	-	-	-	-	-	-	-	-	-

**DIMENSIONS** in millimeters **AND AVAILABLE FORMS**

The capacitors are supplied with M5 terminal screws and washers. The accessories for the mounting of the capacitors must be ordered in addition.

Table 1

<b>DIMENSIONS</b> in millimeters, <b>MASS AND PACKAGING QUANTITIES</b>				
<b>NOMINAL CASE SIZE</b> ØD × L	<b>MAXIMUM SIZE</b> ØD <sub>max</sub> × L <sub>max</sub>	<b>A</b>	<b>D<sub>1</sub> × L<sub>1</sub></b>	<b>PACKAGING QUANTITIES</b> (units per box)
35 × 50	35.5 × 53	13 ± 0.3	M8 × 12	25
35 × 60	35.5 × 63	13 ± 0.3	M8 × 12	25
35 × 80	35.5 × 80	13 ± 0.3	M8 × 12	25
35 × 105	35.5 × 105	13 ± 0.3	M8 × 12	25
35 × 114	35.5 × 115	13 ± 0.3	M8 × 12	25
50 × 80	50.5 × 80	22 ± 0.3	M12 × 16	25
50 × 105	50.5 × 106	22 ± 0.3	M12 × 16	25
50 × 114	50.5 × 118	22 ± 0.3	M12 × 16	25
65 × 80	65.5 × 81	28.5 ± 0.5	M12 × 16	10
65 × 105	65.5 × 106	28.5 ± 0.5	M12 × 16	10
65 × 114	65.5 × 118	28.5 ± 0.5	M12 × 16	10
76 × 105	76.5 × 106	32 ± 0.5	M12 × 16	10
76 × 114	76.5 × 118	32 ± 0.5	M12 × 16	10
76 × 144	76.5 × 145	32 ± 0.5	M12 × 16	10

**Note**

Maximum permissible torque for:

- M5 2.0Nm
- M8 4Nm
- M12 8Nm



ELECTRICAL DATA	
SYMBOL	DESCRIPTION
C <sub>R</sub>	rated capacitance at 100 Hz
U <sub>R</sub>	rated voltage
tan δ	max. dissipation factor at 100 Hz
ESR	max. equivalent series resistance at 100 Hz
Z	max. impedance at 10 kHz
I <sub>R</sub>	rated AC current at 100 Hz and upper category temperature

**Note**

Unless otherwise specified, all electrical values in Tables 2 apply at T<sub>amb</sub> = 20 °C, P = 80 to 120 kPa, RH = 45 to 75%.

**ORDERING EXAMPLE**

Electrolytic capacitor EYM series

EYM / A 22000 µF/25 V; - 10/+30%

Design A (without screw terminal bolt);  
Nominal case size: Ø35 × 105 mm

Catalog number: EYM01CM522E01.

EYM / B 22000 µF/25 V; - 10/+50%

Design A (threaded stem);  
Nominal case size: Ø35 × 105 mm

Catalog number: EYM02CM522E01.

Full insulation (design A only).

Catalog number: EYM01CM522E02.

Table 2

ELECTRICAL DATA AND ORDERING INFORMATION								
U <sub>R</sub> (V)	C <sub>R</sub> 100 Hz (µF)	NOMINAL CASE SIZE ØD × L (mm)	I <sub>R</sub> 100 Hz 85 °C (A)	Tan δ 100 Hz	ESR 100 Hz (Ω)	Z 10 kHz (Ω)	WEIGHT (g)	CATALOG NUMBER (note 1) EYM01 .... ..
10	15000	35 × 50	4.3	0.61	0.065	0.060	60	EYM01CD515C02B
	22000	35 × 60	5.0	0.66	0.050	0.045	70	EYM01CF522C02B
	33000	35 × 80	5.9	0.71	0.035	0.030	100	EYM01CJ533C02B
	47000	35 × 105	7.3	0.71	0.025	0.025	140	EYM01CM547C02B
	68000	50 × 80	9.6	0.80	0.020	0.020	200	EYM01EJ568C02B
	100000	50 × 105	11.9	0.81	0.015	0.015	290	EYM01EM610C02B
	150000	65 × 80	16.8	0.85	0.010	0.010	390	EYM01HJ615C02B
	220000	65 × 105	20.8	0.87	0.010	0.010	550	EYM01HM622C02B
	330000	76 × 114	23.3	1.10	0.010	<0.010	820	EYM01KO633C02B
16	15000	35 × 50	4.2	0.57	0.060	0.055	60	EYM01CD515D02B
	22000	35 × 80	6.0	0.51	0.040	0.035	90	EYM01CJ522D02B
	33000	35 × 105	7.4	0.52	0.025	0.025	130	EYM01CM533D02B
	47000	35 × 114	7.6	0.63	0.025	0.020	170	EYM01CO547D02B
	68000	50 × 80	9.2	0.79	0.020	0.015	230	EYM01EJ568D02B
	100000	50 × 114	12.2	0.74	0.015	0.010	340	EYM01EO610D02B
	150000	65 × 105	16.5	0.81	0.010	0.010	500	EYM01HM615D02B
	220000	76 × 105	21.5	0.86	0.010	0.010	710	EYM01KM622D02B
	330000	76 × 144	26.6	0.90	<0.010	<0.010	1030	EYM01KT633D02B
25	10000	35 × 50	4.1	0.39	0.065	0.055	60	EYM01CD510E02B
	15000	35 × 60	4.7	0.44	0.045	0.040	80	EYM01CF515E02B
	22000	35 × 105	7.3	0.36	0.030	0.025	130	EYM01CM522E02B
	33000	50 × 80	9.6	0.42	0.020	0.020	190	EYM01EJ533E02B
	47000	50 × 80	9.0	0.57	0.020	0.015	230	EYM01EJ547E02B
	68000	50 × 105	11.2	0.58	0.015	0.015	320	EYM01EM568E02B
	100000	65 × 105	16.1	0.57	0.010	0.010	490	EYM01HM610E02B
	150000	76 × 105	20.7	0.63	0.010	0.010	700	EYM01KM615E02B
	220000	76 × 144	25.5	0.65	<0.010	<0.010	1000	EYM01KT622E02B
40	6800	35 × 50	4.0	0.28	0.065	0.055	60	EYM01CD468G02B
	10000	35 × 60	4.6	0.31	0.050	0.040	80	EYM01CF510G02B
	15000	35 × 105	7.0	0.26	0.030	0.025	130	EYM01CM515G02B
	22000	50 × 80	9.3	0.29	0.025	0.020	190	EYM01EJ522G02B
	33000	50 × 105	11.4	0.30	0.015	0.015	270	EYM01EM533G02B
	47000	50 × 114	11.7	0.38	0.015	0.010	340	EYM01EO547G02B
	68000	65 × 105	15.6	0.41	0.010	0.010	490	EYM01HM568G02B
	100000	76 × 105	19.9	0.45	0.010	0.010	700	EYM01KM610G02B
	150000	76 × 144	24.5	0.48	<0.010	<0.010	1010	EYM01KT615G02B

ELECTRICAL DATA AND ORDERING INFORMATION								
U <sub>R</sub> (V)	C <sub>R</sub> 100 Hz (μF)	NOMINAL CASE SIZE ØD x L (mm)	I <sub>R</sub> 100 Hz 85 °C (A)	Tan δ 100 Hz	ESR 100 Hz (Ω)	Z 10 kHz (Ω)	WEIGHT (g)	CATALOG NUMBER (note 1) EYM01KT ....
50	4700	35 x 50	3.9	0.21	0.070	0.055	60	EYM01CD447H02B
	6800	35 x 60	4.5	0.23	0.055	0.045	70	EYM01CF468H02B
	10000	35 x 80	5.5	0.24	0.040	0.030	100	EYM01CJ510H02B
	15000	35 x 105	6.7	0.25	0.030	0.020	150	EYM01CM515H02B
	22000	50 x 80	8.8	0.29	0.025	0.015	210	EYM01EJ522H02B
	33000	50 x 105	10.9	0.30	0.015	0.015	310	EYM01EM533H02B
	47000	65 x 105	15.6	0.30	0.010	0.010	460	EYM01HM547H02B
	68000	65 x 114	15.8	0.39	0.010	0.010	590	EYM01HO568H02B
	100000	76 x 144	24.4	0.33	0.010	<0.010	920	EYM01KT610H02B
63	3300	35 x 50	3.5	0.17	0.080	0.055	60	EYM01CD433J02B
	4700	35 x 60	4.2	0.17	0.060	0.045	70	EYM01CF447J02B
	6800	35 x 80	5.1	0.18	0.045	0.030	100	EYM01CJ468J02B
	10000	35 x 105	6.3	0.18	0.030	0.025	140	EYM01CM510J02B
	15000	50 x 80	8.4	0.22	0.025	0.015	210	EYM01EJ515J02B
	22000	50 x 105	10.4	0.22	0.020	0.015	300	EYM01EM522J02B
	33000	65 x 105	14.8	0.23	0.015	0.010	460	EYM01HM533J02B
	47000	65 x 114	15.3	0.29	0.010	0.010	590	EYM01HO547J02B
	68000	76 x 144	23.4	0.24	0.010	<0.010	910	EYM01KT568J02B
100	2200	35 x 50	2.9	0.14	0.100	0.055	60	EYM01CD422L02B
	3300	35 x 80	3.9	0.13	0.060	0.035	100	EYM01CJ433L02B
	4700	35 x 105	4.8	0.13	0.045	0.025	140	EYM01CM447L02B
	6800	50 x 80	6.8	0.14	0.035	0.020	200	EYM01EJ468L02B
	10000	50 x 105	8.5	0.14	0.025	0.015	280	EYM01EM510L02B
	15000	65 x 80	10.2	0.19	0.020	0.010	380	EYM01HJ515L02B
	22000	65 x 114	13.4	0.18	0.015	0.010	560	EYM01HO522L02B
	33000	76 x 114	17.4	0.20	0.010	<0.010	800	EYM01KO533L02B
	47000	76 x 144	21.0	0.20	0.012	<0.010	910	EYM01KT547L02B
160	470	35 x 50	2.0	0.09	0.305	0.105	50	EYM01CD347M02B
	680	35 x 60	2.4	0.09	0.210	0.075	70	EYM01CF368M02B
	1000	35 x 80	3.0	0.09	0.145	0.055	90	EYM01CJ410M02B
	1500	35 x 105	3.8	0.09	0.095	0.035	130	EYM01CM415M02B
	2200	50 x 80	5.6	0.09	0.065	0.025	180	EYM01EJ422M02B
	3300	50 x 105	7.1	0.09	0.045	0.020	260	EYM01EM433M02B
	4700	65 x 80	9.1	0.11	0.035	0.015	340	EYM01HJ447M02B
	6800	65 x 105	11.4	0.11	0.025	0.010	480	EYM01HM468M02B
	10000	76 x 114	15.5	0.11	0.020	0.010	710	EYM01KO510M02B
200	470	35 x 50	2.0	0.10	0.340	0.165	60	EYM01CD347S02B
	680	35 x 60	2.5	0.10	0.235	0.115	70	EYM01CF368S02B
	1000	35 x 105	3.2	0.10	0.160	0.075	120	EYM01CM410S02B
	1500	50 x 80	4.9	0.10	0.105	0.055	170	EYM01EJ415S02B
	2200	50 x 80	5.7	0.11	0.080	0.040	210	EYM01EJ422S02B
	3300	50 x 114	7.4	0.11	0.055	0.025	310	EYM01EO433S02B
	4700	65 x 105	10.3	0.11	0.035	0.020	450	EYM01HM447S02B
	6800	76 x 105	13.6	0.11	0.025	0.015	630	EYM01KM468S02B
	250	330	35 x 50	1.8	0.10	0.485	0.185	50
470		35 x 60	2.2	0.10	0.340	0.135	70	EYM01CF347N02B
680		35 x 80	2.7	0.10	0.235	0.095	100	EYM01CJ368N02B
1000		35 x 105	3.4	0.10	0.160	0.065	130	EYM01CM410N02B
1500		50 x 80	5.1	0.10	0.105	0.045	190	EYM01EJ415N02B
2200		50 x 105	6.4	0.10	0.070	0.030	270	EYM01EM422N02B
3300		65 x 105	9.1	0.10	0.050	0.020	430	EYM01HM433N02B
4700		65 x 114	10.7	0.10	0.035	0.015	540	EYM01HO447N02B
6800		76 x 144	15.1	0.10	0.025	0.010	830	EYM01KT468N02B
350	220	35 x 50	1.4	0.11	0.795	0.395	50	EYM01CD322O02B
	330	35 x 60	1.8	0.11	0.530	0.270	70	EYM01CF333O02B
	470	35 x 80	2.3	0.11	0.375	0.190	90	EYM01CJ347O02B
	680	35 x 105	2.8	0.11	0.260	0.130	130	EYM01CM368O02B
	1000	50 x 80	4.2	0.11	0.175	0.090	190	EYM01EJ410O02B
	1500	50 x 105	5.4	0.11	0.115	0.065	270	EYM01EM415O02B
	2200	65 x 80	7.2	0.11	0.080	0.045	360	EYM01HJ422O02B
	3300	65 x 114	9.3	0.11	0.055	0.030	540	EYM01HO433O02B
	4700	76 x 144	12.0	0.11	0.035	0.025	830	EYM01KT447O02B



ELECTRICAL DATA AND ORDERING INFORMATION								
U <sub>R</sub> (V)	C <sub>R</sub> 100 Hz (μF)	NOMINAL CASE SIZE ØD × L (mm)	I <sub>R</sub> 100 Hz 85 °C (A)	Tan δ 100 Hz	ESR 100 Hz (Ω)	Z 10 kHz (Ω)	WEIGHT (g)	CATALOG NUMBER (note 1) EYM01 .... ..
385	220	35 × 50	1.4	0.10	0.725	0.360	50	EYM01CD322R02B
	330	35 × 60	1.8	0.10	0.485	0.245	70	EYM01CF333R02B
	470	35 × 105	2.3	0.10	0.340	0.170	120	EYM01CM347R02B
	680	35 × 114	2.9	0.10	0.235	0.120	150	EYM01CO368R02B
	1000	50 × 80	4.2	0.10	0.160	0.085	200	EYM01EJ410R02B
	1500	50 × 105	5.4	0.10	0.105	0.060	290	EYM01EM415R02B
	2200	65 × 105	7.7	0.10	0.070	0.040	440	EYM01HM422R02B
	3300	76 × 105	10.5	0.10	0.050	0.030	630	EYM01KM433R02B
	4700	76 × 144	13.0	0.10	0.035	0.020	880	EYM01KT447R02B
400	220	35 × 50	1.4	0.12	0.870	0.545	60	EYM01CD322X02B
	330	35 × 80	1.8	0.12	0.580	0.360	90	EYM01CJ333X02B
	470	35 × 105	2.2	0.12	0.405	0.255	120	EYM01CM347X02B
	680	50 × 80	3.4	0.12	0.280	0.180	170	EYM01EJ368X02B
	1000	50 × 105	4.2	0.12	0.190	0.120	240	EYM01EM410X02B
	1500	50 × 114	5.4	0.13	0.140	0.085	310	EYM01EO415X02B
	2200	65 × 105	7.6	0.13	0.095	0.060	460	EYM01HM422X02B
	3300	76 × 105	10.3	0.13	0.065	0.040	660	EYM01KM433X02B
	4700	76 × 144	12.8	0.13	0.045	0.030	920	EYM01KT447X02B
450	150	35 × 50	1.2	0.10	1.060	0.430	50	EYM01CD315P02B
	220	35 × 60	1.5	0.10	0.725	0.295	70	EYM01CF322P02B
	330	35 × 80	1.9	0.10	0.485	0.200	90	EYM01CJ333P02B
	470	35 × 105	2.3	0.10	0.340	0.140	130	EYM01CM347P02B
	680	50 × 80	3.4	0.10	0.235	0.100	190	EYM01EJ368P02B
	1000	50 × 105	4.3	0.10	0.160	0.070	260	EYM01EM410P02B
	1500	65 × 80	6.1	0.10	0.105	0.050	350	EYM01HJ415P02B
	2200	65 × 105	7.7	0.10	0.070	0.035	500	EYM01HM422P02B
	3300	76 × 114	10.6	0.10	0.050	0.025	730	EYM01KO433P02B

**Note**

- Order number applies to the standard version 'Design A'. For the bolt version, 'Design B', replace the 5th digit of the catalog number by 2 instead of 1.

**LOW TEMPERATURE BEHAVIOUR**

Table for the calculation of the maximum 10 KHz impedance at low temperatures:

$$Z(10\text{ kHz})[\Omega] = \frac{\text{Tabular value}}{C_R[\mu\text{F}]}$$

T <sub>a</sub> (°C)	RATED VOLTAGE (V)													
	10	16	25	40	50	63	100	160	200	250	350	385	400	450
-25	11000	9000	6000	4000	3000	2000	1000	700	2100	2100	2100	1800	2700	1800
-40	38500	31500	21000	14000	10500	7000	3500	2450	7000	7000	7000	6000	9000	6000

**Note**

The smallest possible equivalent series resistance and impedance is determined by the ohmic share of the contact connections and the foil resistances. For this reason any calculated values below 0.01 Ω might not be realised in any case.

**LEAKAGE CURRENT**

Formula for calculation of the maximum leakage current for acceptance tests I<sub>L</sub>:  
(Test conditions: U<sub>R</sub>, 20 °C, 5 minutes)

$$I_{L5} [\mu\text{A}] \leq 0.002 \cdot C_R [\mu\text{F}] \cdot U_R [\text{V}] \quad \text{for } U_R \leq 100\text{V}$$

$$I_{L5} [\mu\text{A}] \leq 0.015 \cdot C_R [\mu\text{F}] \cdot U_R [\text{V}] \quad \text{for } U_R > 100\text{V}$$

## LIFETIME TABLE

<b>INTERRELATION BETWEEN ALTERNATING CURRENT, AMBIENT TEMPERATURE AND LIFETIME - rated voltage <math>\leq 100</math> V</b>																	
$I/I_R$ (FREQUENCY-DEPENDANT)						SURFACE TEMPERATURE RISE $\Delta T_O$ (°C)	LIFETIME MULTIPLIER L (DEPENDING ON $I/I_R$ AND $T_a$ )										
FREQUENCY (Hz)							AMBIENT TEMPERATURE $T_a$ (°C)										
50	100	250	500	1000	>2500		40	45	50	55	60	65	70	75	80	85	
0.19	0.20	0.21	0.23	0.24	0.24	0.2	63	40	26	17	11	7.4	5.0	3.4	2.4	1.64	
0.38	0.40	0.43	0.45	0.47	0.49	0.6	56	36	23	15	10	6.8	4.6	3.1	2.2	1.53	
0.57	0.60	0.64	0.68	0.71	0.73	1.3	47	31	20	13	8.8	5.9	4.1	2.8	1.9	1.36	
0.76	0.80	0.85	0.91	0.95	0.98	2.3	38	25	16	11	7.3	5.0	3.4	2.4	1.7	1.18	
0.95	1.00	1.07	1.13	1.19	1.22	3.4	29	19	13	8.7	5.9	4.0	2.8	2.0	1.4	1.00	
1.14	1.20	1.28	1.36	1.42	1.46	4.6	21	14	9.7	6.6	4.6	3.2	2.2	1.6	1.1	-	
1.33	1.40	1.49	1.59	1.66	1.71	6.4	15	10	7.1	4.9	3.4	2.4	1.7	1.2	-	-	
1.52	1.60	1.71	1.81	1.90	1.95	8.4	10	7.2	5.0	3.5	2.5	1.8	1.3	-	-	-	
1.71	1.80	1.92	2.04	2.14	2.20	11	6.9	4.9	3.5	2.5	1.8	1.3	-	-	-	-	
1.90	2.00	2.14	2.27	2.37	2.44	13	4.5	3.2	2.3	1.7	1.2	-	-	-	-	-	
2.09	2.20	2.35	2.49	2.61	2.68	16	2.9	2.1	1.5	1.1	-	-	-	-	-	-	
2.29	2.40	2.56	2.72	2.85	2.93	19	1.8	1.3	-	-	-	-	-	-	-	-	
2.48	2.60	2.78	2.95	3.09	3.17	22	1.1	-	-	-	-	-	-	-	-	-	

<b>INTERRELATION BETWEEN ALTERNATING CURRENT, AMBIENT TEMPERATURE AND LIFETIME - rated voltage <math>&gt; 100</math> V</b>																	
$I/I_R$ (FREQUENCY-DEPENDANT)						SURFACE TEMPERATURE RISE $\Delta T_O$ (°C)	LIFETIME MULTIPLIER L (DEPENDING ON $I/I_R$ AND $T_a$ )										
FREQUENCY (Hz)							AMBIENT TEMPERATURE $T_a$ (°C)										
50	100	250	500	1000	>2500		40	45	50	55	60	65	70	75	80	85	
0.16	0.20	0.26	0.29	0.31	0.33	0.2	63	40	26	17	11	7.4	5.0	3.4	2.4	1.64	
0.31	0.40	0.51	0.58	0.62	0.65	0.6	55	35	23	15	10	6.7	4.6	3.1	2.2	1.53	
0.47	0.60	0.77	0.86	0.93	0.98	1.3	45	29	19	13	8.7	5.9	4.0	2.8	1.9	1.37	
0.62	0.80	1.02	1.15	1.24	1.30	2.3	35	23	16	11	7.2	4.9	3.4	2.4	1.7	1.18	
0.78	1.00	1.28	1.44	1.55	1.63	3.4	26	18	12	8.3	5.7	4.0	2.8	2.0	1.4	1.00	
0.94	1.20	1.53	1.73	1.86	1.96	5.3	19	13	9.0	6.3	4.4	3.1	2.2	1.6	1.1	-	
1.09	1.40	1.79	2.01	2.16	2.28	7.2	13	9.2	6.5	4.6	3.3	2.3	1.7	1.2	-	-	
1.25	1.60	2.04	2.30	2.47	2.61	9.3	8.9	6.4	4.6	3.3	2.4	1.7	1.3	-	-	-	
1.40	1.80	2.30	2.59	2.78	2.93	12	5.9	4.4	3.2	2.3	1.7	1.3	-	-	-	-	
1.56	2.00	2.56	2.88	3.09	3.26	14	3.9	2.9	2.2	1.6	1.2	-	-	-	-	-	
1.72	2.20	2.81	3.16	3.40	3.59	17	2.5	1.9	1.4	1.1	-	-	-	-	-	-	
1.87	2.40	3.07	3.45	3.71	3.91	19	1.6	1.2	-	-	-	-	-	-	-	-	
2.03	2.60	3.32	3.74	4.02	4.24	22	1.0	-	-	-	-	-	-	-	-	-	

## Note

- $I_R$  100 Hz alternating current (A) at upper category temperature  $T_{UC}$  taken from data sheet.  
 $I$  User current (A).  
 $T_O$  Ambient temperature of capacitor (°C).  
 $\Delta T_O$  Surface temperature rise of capacitor caused by AC load (°C).  
 $L$  Lifetime multiplier.