Aluminum Electrolytic Capacitors
Power High Ripple Current Miniaturized Snap-In



LINKS TO ADDITIONAL RESOURCES

3D Models

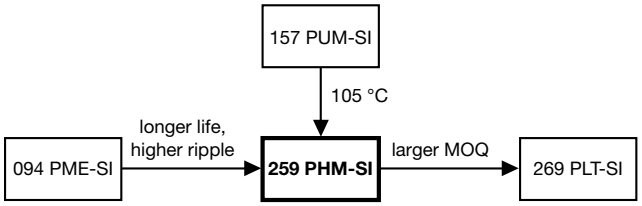


Fig. 1

FEATURES

- Compact design
- Useful life: 3000 h at 105 °C
- > 10 years 24/7 application life up to 60 °C
- **Rated voltages up to 600 V**
- Keyed polarity snap-in version available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

APPLICATIONS

- Motor controls / small drives
- Welding / cutting / melting
- Industrial cooling / heating
- Solar PV inverters
- Industrial lamp driver

MARKING

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

- Rated capacitance (in µF)
- Tolerance code on rated capacitance, code letter in accordance with IEC 60062 (M for ± 20 %)
- Rated voltage (in V)
- Date code (YYMM or in 2 digits according to IEC 60062)
- Name of manufacturer
- Code for factory of origin
- "-" sign to identify the negative terminal, visible from the top and side of the capacitor
- Code number, at least last 8 digits 259 xxxxx
- Climatic category in accordance with IEC 60068

QUICK REFERENCE DATA

DESCRIPTION	VALUE	
Nominal case size (Ø D x L in mm)	22 x 25 to 35 x 60	
Rated capacitance range, C_R	39 µF to 2200 µF	
Tolerance on C_R	± 20 %	
Rated voltage range, U_R	200 V to 450 V	500 V to 600 V
Category temperature range	-40 °C to +105 °C	
Endurance test at 105 °C	3000 h	
Useful life at 105 °C	> 3000 h	
Shelf life at 0 V, 105 °C	1000 h	
Based on sectional specification	IEC 60384-4 / EN 130300	
Climatic category IEC 60068	40 / 105 / 56	25 / 105 / 56 (1)

Note

(1) Capacitors can be operated in temperature range of -40 °C to +105 °C but impedance at -40 °C must be taken into consideration with regards to IEC 60068

SELECTION CHART FOR C_R, U_R, AND RELEVANT NOMINAL CASE SIZES (Ø D x L in mm)

C_R (µF)	U_R (V)						
	200	250	400	450	500	550	600
39	-	-	-	-	22 x 25	22 x 25	22 x 25
47	-	-	-	-	-	22 x 25	22 x 30
56	-	-	-	-	22 x 30 25 x 25	22 x 30	22 x 30
68	-	-	-	22 x 25	22 x 35 25 x 30	22 x 35 25 x 25	22 x 35 25 x 30
82	-	-	22 x 25	25 x 25	-	22 x 35 25 x 30	22 x 40 25 x 30
100	-	-	-	22 x 30	22 x 40 25 x 35 30 x 25	22 x 40 25 x 35 30 x 25	22 x 45 25 x 35 30 x 30

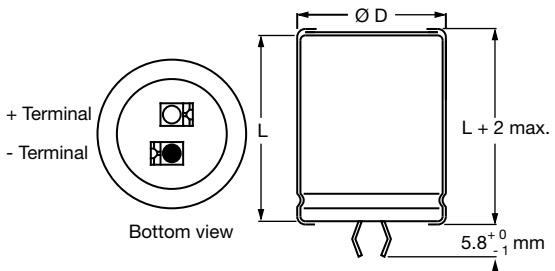
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SELECTION CHART FOR C_R, U_R, AND RELEVANT NOMINAL CASE SIZES (Ø D x L in mm)							
C_R (µF)	U_R (V)						
	200	250	400	450	500	550	600
120	-	-	22 x 30 25 x 25	22 x 35 25 x 30 30 x 25	22 x 45 25 x 40 30 x 30 35 x 25	22 x 50 25 x 40 30 x 30	25 x 40 30 x 30 35 x 25
150	-	-	22 x 35 25 x 30	22 x 40 25 x 35	25 x 45 30 x 35	25 x 45 30 x 35 35 x 30	25 x 45 30 x 35 35 x 30
180	-	-	22 x 40 30 x 25	22 x 45 25 x 40 30 x 30 35 x 25	25 x 50 30 x 40 35 x 30	30 x 40 35 x 30	30 x 40 35 x 30
220	-	22 x 30	22 x 45 25 x 35 30 x 30	25 x 50 30 x 35 35 x 30	30 x 45 35 x 35	30 x 45 35 x 35	30 x 45 35 x 35
270	22 x 25	22 x 30 25 x 25	25 x 45 35 x 25	30 x 40	30 x 50 35 x 40	35 x 40	35 x 40
330	22 x 30	22 x 35	25 x 50 30 x 35 35 x 30	30 x 45 35 x 35	35 x 45	35 x 45	35 x 45
390	22 x 30	22 x 40 25 x 30 30 x 25	30 x 40	35 x 40	35 x 55	35 x 50	35 x 55
470	22 x 35 25 x 30	25 x 35 30 x 30	30 x 45 35 x 35	35 x 45	35 x 60	35 x 55	-
560	22 x 40 25 x 35 30 x 25	25 x 40 30 x 30 35 x 25	35 x 45	35 x 55	-	-	-
680	25 x 40 30 x 30	25 x 45 30 x 35 35 x 30	35 x 50	35 x 60	-	-	-
820	25 x 45 30 x 30 35 x 25	25 x 50 30 x 40 35 x 30	35 x 60	-	-	-	-
1000	25 x 50 30 x 35 35 x 30	30 x 45 35 x 35	-	-	-	-	-
1200	30 x 40	30 x 50 35 x 40	-	-	-	-	-
1500	30 x 45 35 x 35	35 x 45	-	-	-	-	-
1800	35 x 40	35 x 55	-	-	-	-	-
2200	35 x 50	-	-	-	-	-	-

DIMENSIONS in millimeters AND AVAILABLE FORMS

TWO TERMINAL SNAP-IN



The minus terminal can be marked with a black dot or with an imprinted "-" sign.

Fig. 2 - Two terminal snap-in

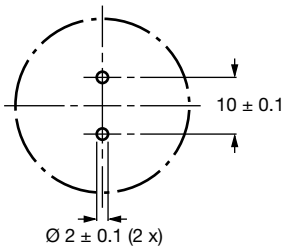
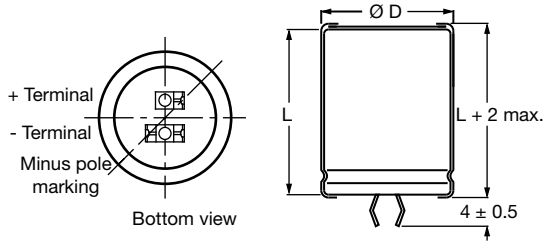


Fig. 3 - Mounting hole diagram

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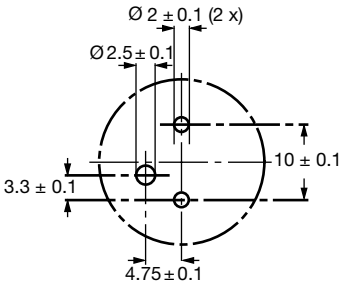
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THREE TERMINAL SNAP-IN



The negative terminal has **TWO** pins which are **BOTH** electrically connected

Fig. 4 - Three terminal snap-in



The 10 mm spacing of the 2 pin snap-in is used as the base layout and a third hole is added. The third hole is closer to the negative primary hole so that polarization is always maintained, together with added mechanical stability.

Fig. 5 - Mounting hole diagram

Table 1

DIMENSIONS in millimeters, **MASS AND PACKAGING QUANTITIES**					
NOMINAL CASE SIZE Ø D x L	**Ø $D_{max.}$**	**$L_{max.}$**	**MASS (g)**	**PACKAGING QUANTITIES (units per box)**	**CARDBOARD BOX DIMENSIONS L x W x H**
22 x 25	23	27	≈ 12	100	260 x 250 x 39
22 x 30	23	32	≈ 16	100	260 x 250 x 44
22 x 35	23	37	≈ 20	100	260 x 250 x 49
22 x 40	23	42	≈ 23	100	260 x 250 x 54
22 x 45	23	47	≈ 26	100	260 x 250 x 59
25 x 25	26	27	≈ 20	100	290 x 280 x 39
25 x 30	26	32	≈ 22	100	290 x 280 x 44
25 x 35	26	37	≈ 24	100	290 x 280 x 49
25 x 40	26	42	≈ 27	100	290 x 280 x 54
25 x 45	26	47	≈ 32	100	290 x 280 x 59
25 x 50	26	52	≈ 38	100	290 x 280 x 64
30 x 25	31	27	≈ 25	100	340 x 330 x 39
30 x 30	31	32	≈ 30	100	340 x 330 x 44
30 x 35	31	37	≈ 35	100	340 x 330 x 49
30 x 40	31	42	≈ 40	100	340 x 330 x 54
30 x 45	31	47	≈ 45	100	340 x 330 x 59
30 x 50	31	52	≈ 50	100	340 x 330 x 64
35 x 25	36	27	≈ 33	50	390 x 198 x 39
35 x 30	36	32	≈ 40	50	390 x 198 x 44
35 x 35	36	37	≈ 48	50	390 x 198 x 49
35 x 40	36	42	≈ 55	50	390 x 198 x 54
35 x 45	36	47	≈ 63	50	390 x 198 x 59
35 x 50	36	52	≈ 72	50	390 x 198 x 64
35 x 55	36	57	≈ 80	50	390 x 198 x 69
35 x 60	36	62	≈ 82	50	390 x 198 x 74

ELECTRICAL DATA	
SYMBOL	**DESCRIPTION**
C_R	Rated capacitance at 100 Hz
I_R	Rated RMS ripple current at 100 Hz, 105 °C
I_{L5}	Max. leakage current after 5 min at U_R
tan δ	Max. dissipation factor at 100 Hz
ESR	Max. equivalent series resistance at 100 Hz
Z	Max. impedance at 10 kHz

Notes

- Unless otherwise specified, all electrical values in Table 2 apply at T_{amb} = 20 °C, P = 86 kPa to 106 kPa, RH = 45 % to 75 %

ORDERING EXAMPLE

Electrolytic capacitor 259 series

1000 µF / 200 V; ± 20 %

Nominal case size: Ø 25 mm x 50 mm

2-terminal snap-in:

Ordering code: MAL225942102E3

3-terminal snap-in:

Ordering code: MAL225982102E3

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Table 2

ELECTRICAL DATA AND ORDERING INFORMATION									
U_R (V)	C_R 100 Hz (µF)	NOMINAL CASE SIZE Ø D x L (mm)	I_R 100 Hz 105 °C (A)	I_{L5} 5 min (mA)	tan δ 100 Hz	MAX. ESR 100 Hz (mΩ)	MAX. Z 10 kHz (mΩ)	ORDERING CODE MAL2259.....	
								2-TERM.	3-TERM.
200	270	22 x 25	1.44	0.54	0.15	420	260	52271E3	12271E3
	330	22 x 30	1.68	0.66	0.15	340	210	52331E3	12331E3
	390	22 x 30	1.78	0.78	0.15	290	180	52391E3	12391E3
	470	22 x 35	2.05	0.94	0.15	240	150	52471E3	12471E3
	470	25 x 30	1.99	0.94	0.15	250	160	42471E3	82471E3
	560	22 x 40	2.31	1.12	0.15	230	160	52561E3	12561E3
	560	25 x 35	2.29	1.12	0.15	210	130	42561E3	82561E3
	560	30 x 25	1.98	1.12	0.15	260	180	32561E3	72561E3
	680	25 x 40	2.61	1.36	0.15	180	110	42681E3	82681E3
	680	30 x 30	2.38	1.36	0.15	200	140	32681E3	72681E3
	820	25 x 45	2.99	1.64	0.15	150	90	42821E3	82821E3
	820	30 x 30	2.43	1.64	0.15	180	130	32821E3	72821E3
	820	35 x 25	2.23	1.64	0.15	240	170	22821E3	62821E3
	1000	25 x 50	3.39	2.00	0.15	120	80	42102E3	82102E3
	1000	30 x 35	2.83	2.00	0.15	150	100	32102E3	72102E3
	1000	35 x 30	2.75	2.00	0.15	170	120	22102E3	62102E3
	1200	30 x 40	3.17	2.40	0.15	120	90	32122E3	72122E3
	1500	30 x 45	3.58	3.00	0.15	100	70	32152E3	72152E3
	1500	35 x 35	3.15	3.00	0.15	130	90	22152E3	62152E3
	1800	35 x 40	3.49	3.60	0.15	110	80	22182E3	62182E3
	2200	35 x 50	4.20	4.40	0.15	90	60	22222E3	62222E3
250	220	22 x 30	1.45	0.55	0.15	420	240	53221E3	13221E3
	270	22 x 30	1.57	0.68	0.15	350	210	53271E3	13271E3
	270	25 x 25	1.51	0.68	0.15	380	230	43271E3	83271E3
	330	22 x 35	1.82	0.83	0.15	290	170	53331E3	13331E3
	390	22 x 40	2.06	0.98	0.15	250	140	53391E3	13391E3
	390	25 x 30	1.87	0.98	0.15	260	160	43391E3	83391E3
	390	30 x 25	1.83	0.98	0.15	300	190	33391E3	73391E3
	470	25 x 35	2.16	1.18	0.15	220	130	43471E3	83471E3
	470	30 x 30	2.17	1.18	0.15	230	150	33471E3	73471E3
	560	25 x 40	2.45	1.40	0.15	180	110	43561E3	83561E3
	560	30 x 30	2.24	1.40	0.15	210	140	33561E3	73561E3
	560	35 x 25	2.13	1.40	0.15	260	180	23561E3	63561E3
	680	25 x 45	2.82	1.70	0.15	150	90	43681E3	83681E3
	680	30 x 35	2.60	1.70	0.15	170	110	33681E3	73681E3
	680	35 x 30	2.59	1.70	0.15	190	130	23681E3	63681E3
	820	25 x 50	3.19	2.05	0.15	130	80	43821E3	83821E3
	820	30 x 40	2.92	2.05	0.15	140	90	33821E3	73821E3
	820	35 x 30	2.60	2.05	0.15	180	130	23821E3	63821E3
	1000	30 x 45	3.31	2.50	0.15	120	80	33102E3	73102E3
	1000	35 x 35	3.01	2.50	0.15	140	100	23102E3	63102E3
	1200	30 x 50	3.70	3.00	0.15	100	70	33122E3	73122E3
	1200	35 x 40	3.34	3.00	0.15	120	90	23122E3	63122E3
	1500	35 x 45	3.71	3.75	0.15	100	70	23152E3	63152E3
	1800	35 x 55	4.42	4.50	0.15	80	60	23182E3	63182E3

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ELECTRICAL DATA AND ORDERING INFORMATION

U_R (V)	C_R 100 Hz (µF)	NOMINAL CASE SIZE Ø D x L (mm)	I_R 100 Hz 105 °C (A)	I_{L5} 5 min (mA)	tan δ 100 Hz	MAX. ESR 100 Hz (mΩ)	MAX. Z 10 kHz (mΩ)	ORDERING CODE MAL2259.....	
								2-TERM.	3-TERM.
400	82	22 x 25	0.74	0.33	0.15	1570	1130	56829E3	16829E3
	120	22 x 30	0.93	0.48	0.15	1080	780	56121E3	16121E3
	120	25 x 25	0.92	0.48	0.15	1100	800	66121E3	26121E3
	150	22 x 35	1.08	0.60	0.15	860	620	56151E3	16151E3
	150	25 x 30	1.07	0.60	0.15	870	630	66151E3	26151E3
	180	22 x 40	1.24	0.72	0.15	720	520	56181E3	16181E3
	180	30 x 25	1.18	0.72	0.15	770	570	66181E3	26181E3
	220	22 x 45	1.41	0.88	0.15	590	430	56221E3	16221E3
	220	25 x 35	1.34	0.88	0.15	600	440	66221E3	26221E3
	220	30 x 30	1.38	0.88	0.15	620	460	76221E3	36221E3
	270	25 x 45	1.64	1.08	0.15	490	350	56271E3	16271E3
	270	35 x 25	1.49	1.08	0.15	570	440	66271E3	26271E3
	330	25 x 50	1.89	1.32	0.15	400	290	56331E3	16331E3
	330	30 x 35	1.71	1.32	0.15	420	320	66331E3	26331E3
	330	35 x 30	1.77	1.32	0.15	450	340	76331E3	36331E3
	390	30 x 40	1.92	1.56	0.15	360	270	56391E3	16391E3
	470	30 x 45	2.18	1.88	0.15	300	220	56471E3	16471E3
	470	35 x 35	2.09	1.88	0.15	320	250	66471E3	26471E3
	560	35 x 45	2.50	2.24	0.15	260	200	66561E3	26561E3
	680	35 x 50	2.79	2.72	0.15	220	170	56681E3	16681E3
	820	35 x 60	3.25	3.28	0.15	180	140	56821E3	16821E3
450	68	22 x 25	0.69	0.31	0.20	1640	1120	57689E3	17689E3
	82	25 x 25	0.79	0.37	0.20	1370	940	57829E3	17829E3
	100	22 x 30	0.87	0.45	0.20	1120	760	57101E3	17101E3
	120	22 x 35	0.99	0.54	0.20	930	630	57121E3	17121E3
	120	25 x 30	0.99	0.54	0.20	940	640	67121E3	27121E3
	120	30 x 25	1.03	0.54	0.20	970	670	77121E3	37121E3
	150	22 x 40	1.16	0.68	0.20	750	510	57151E3	17151E3
	150	25 x 35	1.15	0.68	0.20	750	520	67151E3	27151E3
	180	22 x 45	1.31	0.81	0.20	620	430	57181E3	17181E3
	180	25 x 40	1.32	0.81	0.20	630	430	67181E3	27181E3
	180	30 x 30	1.29	0.81	0.20	650	460	77181E3	37181E3
	180	35 x 25	1.34	0.81	0.20	700	500	87181E3	47181E3
	220	25 x 50	1.60	0.99	0.20	530	360	57221E3	17221E3
	220	30 x 35	1.48	0.99	0.20	540	380	67221E3	27221E3
	220	35 x 30	1.56	0.99	0.20	560	400	77221E3	37221E3
	270	30 x 40	1.68	1.22	0.20	450	310	57271E3	17271E3
	330	30 x 45	1.92	1.49	0.20	370	260	57331E3	17331E3
	330	35 x 35	1.89	1.49	0.20	390	280	67331E3	27331E3
	390	35 x 40	2.11	1.76	0.20	330	240	57391E3	17391E3
	470	35 x 45	2.36	2.12	0.20	280	200	57471E3	17471E3
	560	35 x 55	2.76	2.52	0.20	230	170	57561E3	17561E3
	680	35 x 60	3.06	3.06	0.20	190	140	57681E3	17681E3

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U_R (V)	C_R 100 Hz (µF)	NOMINAL CASE SIZE Ø D x L (mm)	I_R 100 Hz 105 °C (A)	I_{L5} 5 min (mA)	tan δ 100 Hz	MAX. ESR 100 Hz (mΩ)	MAX. Z 10 kHz (mΩ)	ORDERING CODE MAL2259.....	
								2-TERM.	3-TERM.
500	39	22 x 25	0.53	0.20	0.20	3310	2440	59399E3	19399E3
	56	22 x 30	0.67	0.28	0.20	2310	1700	59569E3	19569E3
	56	25 x 25	0.66	0.28	0.20	2440	1830	69569E3	29569E3
	68	22 x 35	0.76	0.34	0.20	1900	1400	59689E3	19689E3
	68	25 x 30	0.77	0.34	0.20	1910	1410	69689E3	29689E3
	100	22 x 40	0.97	0.50	0.20	1300	960	59101E3	19101E3
	100	25 x 35	0.96	0.50	0.20	1310	960	69101E3	29101E3
	100	30 x 25	0.95	0.50	0.20	1410	1070	79101E3	39101E3
	120	22 x 45	1.09	0.60	0.20	1140	850	59121E3	19121E3
	120	25 x 40	1.10	0.60	0.20	1090	810	69121E3	29121E3
	120	30 x 30	1.09	0.60	0.20	1110	830	79121E3	39121E3
	120	35 x 25	1.16	0.60	0.20	1200	920	89121E3	49121E3
	150	25 x 45	1.29	0.75	0.20	870	650	59151E3	19151E3
	150	30 x 35	1.27	0.75	0.20	890	660	69151E3	29151E3
	180	25 x 50	1.48	0.90	0.20	730	540	59181E3	19181E3
	180	30 x 40	1.44	0.90	0.20	730	540	69181E3	29181E3
	180	35 x 30	1.44	0.90	0.20	770	590	79181E3	39181E3
	220	30 x 45	1.64	1.10	0.20	610	450	59221E3	19221E3
	220	35 x 35	1.64	1.10	0.20	630	480	69221E3	29221E3
	270	30 x 50	1.89	1.35	0.20	490	370	59271E3	19271E3
	270	35 x 40	1.85	1.35	0.20	520	390	69271E3	29271E3
	330	35 x 45	2.09	1.65	0.20	430	320	59331E3	19331E3
	390	35 x 55	2.42	1.95	0.20	360	270	59391E3	19391E3
	470	35 x 60	2.70	2.35	0.20	300	230	59471E3	19471E3
550	39	22 x 25	0.40	0.22	0.20	3050	2260	50399E3	10399E3
	47	22 x 25	0.48	0.26	0.20	2860	2125	50479E3	10479E3
	56	22 x 30	0.60	0.31	0.20	2380	1770	50569E3	10569E3
	68	22 x 35	0.74	0.37	0.20	1960	1455	50689E3	10689E3
	68	25 x 25	0.74	0.37	0.20	1915	1425	60689E3	20689E3
	82	22 x 35	0.85	0.45	0.20	1630	1210	50829E3	10829E3
	82	25 x 30	0.85	0.45	0.20	1535	1140	60829E3	20829E3
	100	22 x 40	0.98	0.55	0.20	1340	995	50101E3	10101E3
	100	25 x 35	0.98	0.55	0.20	1260	935	60101E3	20101E3
	100	30 x 25	0.98	0.55	0.20	1255	840	70101E3	30101E3
	120	22 x 50	1.10	0.66	0.20	1100	815	50121E3	10121E3
	120	25 x 40	1.10	0.66	0.20	1070	795	60121E3	20121E3
	120	30 x 30	1.10	0.66	0.20	1025	680	70121E3	30121E3
	150	25 x 45	1.26	0.83	0.20	980	730	50151E3	10151E3
	150	30 x 35	1.26	0.83	0.20	920	560	60151E3	20151E3
	150	35 x 30	1.26	0.83	0.20	890	590	70151E3	30151E3
	180	30 x 40	1.38	0.99	0.20	800	490	50181E3	10181E3
	180	35 x 30	1.38	0.99	0.20	765	510	60181E3	20181E3
	220	30 x 45	1.54	1.21	0.20	675	490	50221E3	10221E3
	220	35 x 35	1.54	1.21	0.20	635	420	60221E3	20221E3
	270	35 x 40	1.74	1.49	0.20	520	325	50271E3	10271E3
	330	35 x 45	2.14	1.82	0.20	505	335	50331E3	10331E3
	390	35 x 50	2.33	2.15	0.20	455	295	50391E3	10391E3
	470	35 x 55	2.58	2.59	0.20	400	265	50471E3	10471E3

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ELECTRICAL DATA AND ORDERING INFORMATION

U_R (V)	C_R 100 Hz (µF)	NOMINAL CASE SIZE Ø D x L (mm)	I_R 100 Hz 105 °C (A)	I_{L5} 5 min (mA)	tan δ 100 Hz	MAX. ESR 100 Hz (mΩ)	MAX. Z 10 kHz (mΩ)	ORDERING CODE MAL2259.....	
								2-TERM.	3-TERM.
	39	22 x 25	0.46	0.23	0.20	3855	3250	51399E3	11399E3
	47	22 x 30	0.52	0.28	0.20	3195	2565	51479E3	11479E3
	56	22 x 30	0.62	0.34	0.20	2700	2165	51569E3	11569E3
	68	22 x 35	0.74	0.41	0.20	2200	1770	51689E3	11689E3
	68	25 x 30	0.74	0.41	0.20	2215	1775	61689E3	21689E3
	82	22 x 40	0.85	0.49	0.20	1830	1470	51829E3	11829E3
	82	25 x 30	0.85	0.49	0.20	2035	1635	61829E3	21829E3
	100	22 x 45	1.01	0.60	0.20	1735	1395	51101E3	11101E3
	100	25 x 35	1.01	0.60	0.20	1730	1390	61101E3	21101E3
	100	30 x 30	1.01	0.60	0.20	1585	1220	71101E3	31101E3
	120	25 x 40	1.08	0.72	0.20	1495	1200	51121E3	11121E3
600	120	30 x 30	1.08	0.72	0.20	1425	995	61121E3	21121E3
	120	35 x 25	1.08	0.72	0.20	1410	995	71121E3	31121E3
	150	25 x 45	1.29	0.90	0.20	1315	1060	51151E3	11151E3
	150	30 x 35	1.29	0.90	0.20	1265	1030	61151E3	21151E3
	150	35 x 30	1.29	0.90	0.20	1260	885	71151E3	31151E3
	180	30 x 40	1.42	1.08	0.20	1090	860	51181E3	11181E3
	180	35 x 30	1.50	1.08	0.20	1080	760	61181E3	21181E3
	220	30 x 45	1.58	1.32	0.20	905	710	51221E3	11221E3
	220	35 x 35	1.58	1.32	0.20	900	715	61221E3	21221E3
	270	35 x 40	1.80	1.62	0.20	815	640	51271E3	11271E3
	330	35 x 45	2.16	1.98	0.20	700	550	51331E3	11331E3
	390	35 x 55	2.28	2.34	0.20	625	535	51391E3	11391E3

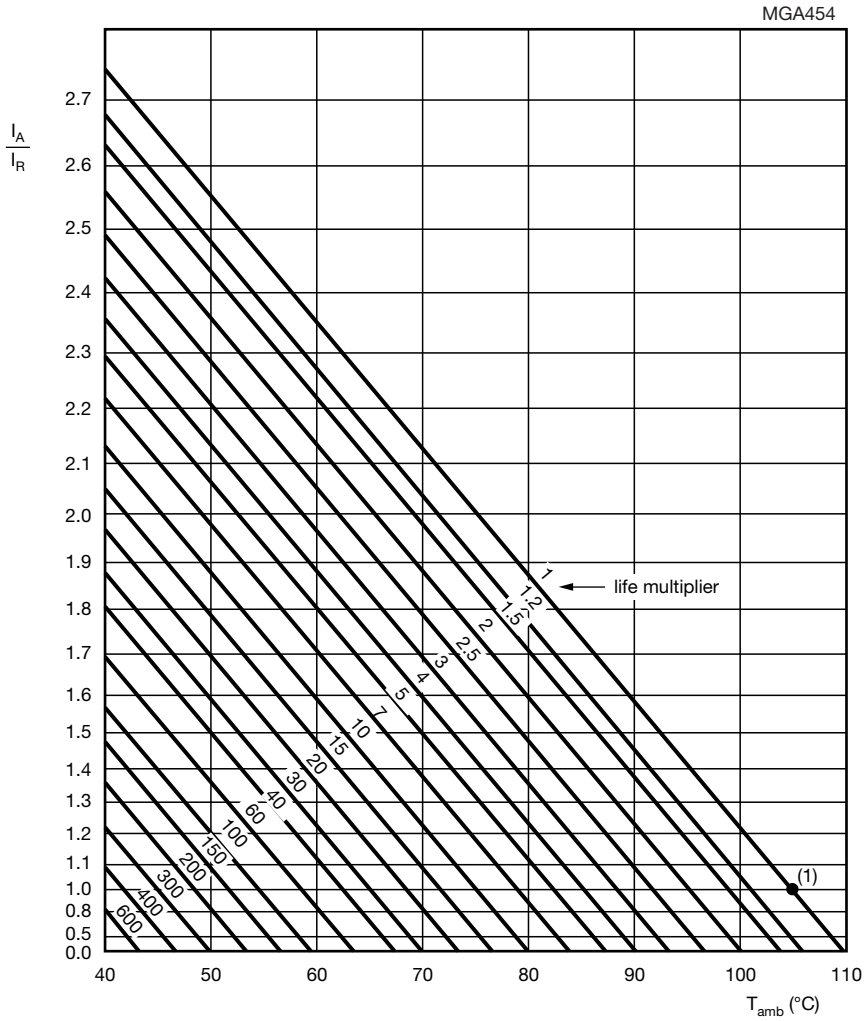
ADDITIONAL ELECTRICAL DATA

PARAMETER	CONDITIONS	VALUE
Voltage		
Surge voltage	≥ 400 V versions	$U_S = 1.1 \times U_R$
	≤ 250 V versions	$U_S = 1.15 \times U_R$
Reverse voltage		≤ 1 V
Current		
Leakage current	After 5 min at U_R	$I_{L5} \leq 0.01\ C_R \times U_R$
Inductance		
Equivalent series inductance (ESL)	All case sizes	Typ. 19 nH
		Max. 25 nH

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RIPPLE CURRENT AND USEFUL LIFE



I_A = Actual ripple current at 100 Hz

I_R = Rated ripple current at 100 Hz and 105 °C

(1) Useful life at 105 °C and I_R applied: > 3000 h

Fig. 6 - Multiplier of useful life as a function of ambient temperature and ripple current load

Table 3

ENDURANCE TEST DURATION AND USEFUL LIFE	
ENDURANCE AT 105 °C (h)	USEFUL LIFE AT 105 °C (h)
3000	> 3000

Note

- Multiplier of useful life code: MGA454

Table 4

MULTIPLIER OF RIPPLE CURRENT (I_R) AS A FUNCTION OF FREQUENCY					
FREQUENCY (Hz)					
50	100	120	200	1000	≥ 10 000
I_R MULTIPLIER					
0.8	1.0	1.05	1.2	1.4	1.5

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Table 5

TEST PROCEDURES AND REQUIREMENTS			
TEST		**PROCEDURE (quick reference)**	**REQUIREMENTS**
NAME OF TEST	**REFERENCE**		
Endurance	IEC 60384-4 / EN 130300 subclause 4.13	T_{amb} = 105 °C; U_R applied; 2000 h	ΔC/C: ± 10 % ESR ≤ 1.3 x spec. limit I_{L5} ≤ spec. limit
Useful life		T_{amb} = 105 °C; U_R and I_R applied; > 3000 h	ΔC/C: ≤ ± 20 % tan δ ≤ 2 times initial spec. limit I_{L5} ≤ spec. limit
Shelf life	IEC 60384-4 / EN 130300 subclause 4.17	T_{amb} = 105 °C; no voltage applied; 1000 h after test: U_R to be applied for 30 min, 24 h to 48 h before measurement	ΔC/C: ± 10 % ESR ≤ 1.2 x spec. limit I_{L5} ≤ 2 x spec. limit

Statements about product lifetime are based on calculations and internal testing. They should only be interpreted as estimations. Also due to external factors, the lifetime in the field application may deviate from the calculated lifetime. In general, nothing stated herein shall be construed as a guarantee of durability.

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