

Aluminum Capacitors, Power General Purpose Screw Terminals



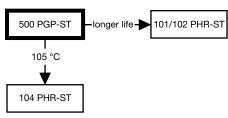


Fig. 1

QUICK REFERENCE DATA							
DESCRIPTION	VAI	_UE					
Nominal case size (Ø D x L in mm)	50 x 80 to	90 x 220					
Rated capacitance range, C _R	680 μF to	22 000 µF					
Tolerance on C _R	± 20 %						
Rated voltage range, U _R	350 V to 450 V	500 V					
Category temperature range	-40 °C to +85 °C	-25 °C to +85 °C					
Endurance test at 85 °C	200	00 h					
Useful life at 85 °C	500	00 h					
Shelf life at 0 V, 85 °C	1000 h						
Based on sectional specification	IEC 60384-4 / EN 130300						
Climatic category IEC 60068	40 / 085 / 56	25 / 085 / 56					

FEATURES

- Useful life: 5000 h at +85 °C
- Efficient design
- Available in case sizes up to Ø 90 mm x 220 mm



- Polarized aluminum electrolytic capacitors, non-solid electrolyte
- Large types, cylindrical aluminum case, insulated with a blue sleeve
- Pressure relief in the sealing disc
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

- UPS
- Energy storage in medical or industrial pulse systems
- Solar inverters

MARKING

The capacitors are marked with the following information:

- Rated capacitance (in µF)
- Tolerance on rated capacitance, code letter in accordance with IEC 60062 (M for ± 20 %)
- Rated voltage (in V)
- Date code
- Name of manufacturer
- Code for factory of origin
- Code number

ELECTION CI	HART FOR C _R , U _R	, AND RELEVANT	T NOMINAL CAS	E SIZES (Ø D x L i	n mm)			
C _R	U _B (V)							
(μ F)	350	400	420	450	500			
680	-	-	=	-	50 x 80			
1000	-	50 x 80	50 x 80	50 x 80	50 x 80			
1200	-	50 x 80	50 x 80	50 x 80	50 x 105			
1500	50 x 80	50 x 105	50 x 105	50 x 105	-			
1800	-	50 x 105	50 x 105	50 x 105	65 x 105			
2200	50 x 105	50 x 105 65 x 105	65 x 105	65 x 105	65 x 105			
2700	-	65 x 105	65 x 105	65 x 105	76 x 105			
3300	65 x 105	65 x 105	65 x 105	76 x 105	76 x 105			
3900	-	65 x 105	76 x 105	76 x 105	-			
4700	65 x 105	76 x 105	76 x 114	76 x 114	76 x 146			
5600	76 x 105	76 x 114	=	76 x 146	76 x 146			
6800	76 x 105	76 x 146	76 x 146	90 x 146	76 x 220			
8200	-	90 x 146	90 x 146	76 x 220	76 x 220			
10 000	76 x 146	76 x 220 90 x 146	76 x 220	76 x 220	-			
12 000	76 x 220	76 x 220	-	90 x 220	90 x 220			
15 000	76 x 220	90 x 220	90 x 220	90 x 220	-			
18 000	-	90 x 220	-	-	-			
22 000	90 x 220	-	-	-	-			

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DIMENSIONS in millimeters **AND AVAILABLE FORMS**

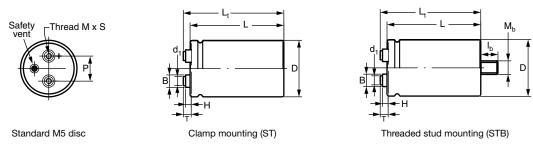


Fig. 2A - Mechanical drawings for standard M5 disc versions. For details refer to Table 1

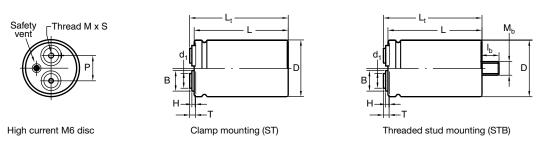


Fig. 2B - Mechanical drawings for high current M6 disc versions.

For details refer to Table 1

Notes

- Maximum permissible torque which may be applied to the termination screws: 2 Nm for M5; 2.5 Nm for M6
 For accessories refer to document "Mounting Accessories", see www.vishay.com/doc?28348
 The capacitors are delivered with screws and washers
- High current disc with 1/4 28 UNF (US) thread is available on request

Table 1

DIMENSIO	NS in millin	neters	AND I	MASS										
DESIGN	DRAWING	L±1	L _t ± 1	D ± 1	P ± 0.3	T ± 0.2	H ± 0.3	B ± 0.3	D ₁ ± 0.1	М	S - 0	M _b	l _b ± 0.1	MASS (g)
50 x 80	2A	82.8	88.8	51.0	22.2	7.1	4.8	11.0	7.9	M5	9.5	M12	16.0	200
50 x 105	2A	104.8	110.8	51.0	22.2	7.1	4.8	11.0	7.9	M5	9.5	M12	16.0	300
65 x 105	2A	104.8	110.7	65.0	28.5	7.0	4.6	11.9	7.9	M5	9.5	M12	16.0	480
65 x 105 HC	2B	104.8	109.2	65.0	28.5	5.5	3.5	18.0	13.0	M6	8.5	M12	16.0	480
76 x 105	2A	105.8	111.7	76.4	31.8	7.0	4.6	11.7	7.9	M5	9.5	M12	16.0	700
76 x 105 HC	2B	105.8	110.2	76.4	31.8	5.5	3.5	18.3	13.0	M6	8.5	M12	16.0	700
76 x 114	2A	115.8	121.7	76.4	31.8	7.0	4.6	11.7	7.9	M5	9.5	M12	16.0	800
76 x 114 HC	2B	115.8	120.2	76.4	31.8	5.5	3.5	18.3	13.0	M6	8.5	M12	16.0	800
76 x 146	2A	145.8	151.7	76.4	31.8	7.0	4.6	11.7	7.9	M5	9.5	M12	16.0	1000
76 x 146 HC	2B	145.8	150.2	76.4	31.8	5.5	3.5	18.3	13.0	M6	8.5	M12	16.0	1000
76 x 220	2A	219.8	225.7	76.4	31.8	7.0	4.6	11.7	7.9	M5	9.5	M12	16.0	1500
76 x 220 HC	2B	219.8	224.2	76.4	31.8	5.5	3.5	18.3	13.0	M6	8.5	M12	16.0	1500
90 x 146 HC	2B	150.1	155.4	89.4	31.8	7.9	0.0	13.0	13.0	M6	10.0	M12	16.0	1300
90 x 220 HC	2B	218.1	223.4	89.4	31.8	7.9	0.0	13.0	13.0	M6	10.0	M12	16.0	2000



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PACKAGING QUANTITIES AND DIMENSIONS in millimeters							
DESIGN	PACKAGING QUANTITIES (units per box)	CARDBOARD BOX DIMENSIONS L x W x H					
50 x 80	25	377 x 375 x 123					
50 x 105	25	377 x 375 x 129					
65 x 105	16	377 x 375 x 129					
65 x 105 HC	16	377 x 375 x 129					
76 x 105	12	377 x 375 x 129					
76 x 105 HC	12	377 x 375 x 129					
76 x 114	12	377 x 375 x 140					
76 x 114 HC	12	377 x 375 x 140					
76 x 146	12	377 x 375 x 168					
76 x 146 HC	12	377 x 375 x 168					
76 x 220	12	377 x 375 x 242					
76 x 220 HC	12	377 x 375 x 242					
90 x 146 HC	8	377 x 375 x 168					
90 x 220 HC	8	377 x 375 x 242					

Note

For STB version holds:
 H of cardboard box: + 10 mm

ELECTRICAL DATA								
SYMBOL	DESCRIPTION							
C _R	Rated capacitance at 100 Hz, tolerance ± 20 %							
I _R	Rated RMS ripple current at 100 Hz, 85 °C							
I _{L5}	Max. leakage current after 5 min at U _R							
ESR	Max. equivalent series resistance at 100 Hz							
Z	Max. impedance at 10 kHz							

Note

Unless otherwise specified, all electrical values in Table 2 and 3 apply at T_{amb} = 20 °C, P = 86 kPa to 106 kPa, RH = 45 % to 75 %

ORDERING EXAMPLE

Electrolytic capacitor 500 series $4700 \mu F / 400 V; \pm 20 \%$

Nominal case size: Ø 76 mm x 105 mm;

STB version; standard M5 disc Ordering code: MAL2 500 56472 E3 Former 12NC: 2222 500 56472

Table 2

ELI	ELECTRICAL DATA AND ORDERING INFORMATION										
		NOMINAL ID . ESR ESR		z	STANDAR	D M5 DISC	HIGH CURRE	ENT M6 DISC			
U _R (V)	C _R 100 Hz (µF)	CASE SIZE Ø D x L (mm)	I _R 100 Hz 85 °C (A)	I _{L5} 5 min (mA)	TYP. 100 Hz (mΩ)	MAX. 100 Hz (mΩ)	MAX. 10 kHz (mΩ)	ST ORDERING CODE MAL2500	STB ORDERING CODE MAL2500	ST ORDERING CODE MAL2500	STB ORDERING CODE MAL2500
	1500	50 x 80	5.56	1.05	58	70	47	15152E3	55152E3	-	-
	2200	50 x 105	6.87	1.54	41	50	34	15222E3	55222E3	-	-
	3300	65 x 105	9.79	2.31	27	33	23	15332E3	55332E3	35332E3	75332E3
	4700	65 x 105	11.6	3.29	20	25	17	15472E3	55472E3	35472E3	75472E3
350	5600	76 x 105	13.5	3.92	18	22	15	15562E3	55562E3	35562E3	75562E3
330	6800	76 x 105	15	4.76	14	17	13	15682E3	55682E3	35682E3	75682E3
	10 000	76 x 146	18.3	7	10	13	9	15103E3	55103E3	35103E3	75103E3
	12 000	76 x 220	20.6	8.4	9	11	9	15123E3	55123E3	35123E3	75123E3
	15 000	76 x 220	23	10.5	7	9	8	15153E3	55153E3	35153E3	75153E3
	22 000	90 x 220	30.2	15.4	5	7	5	-	-	35223E3	75223E3



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100					ATION	FORM/	RING IN	ORDEF	AND	AL DATA	ECTRIC	ELI
No. Ca. Ca.	T M6 DISC	HIGH CURRE	D M5 DISC	STANDAR	_				_	NOMINAL		
1200	STB ORDERIN CODE MAL2500	ORDERING CODE	ORDERING CODE	ORDERING CODE	MAX. 10 kHz	MAX. 100 Hz	TYP. 100 Hz	5 min	100 Hz 85 °C	SIZE Ø D x L	100 Hz	
1500	-	-			135	166	138	0.8	4.46	50 x 80		
1800 50 x 105 6.01 1.44 80 97 79 16182E3 56182E3 - 2 200 50 x 105 6.43 1.76 68 82 69 16222E3 56222E3 46222E3 86 2700 65 x 105 7.49 1.76 68 82 69 26222E3 56222E3 46222E3 86 2700 65 x 105 8.56 2.16 53 64 53 16272E3 5632E3 3632E3 3633E3 3632E3 3632E	-	-			112	137	114		4.81	50 x 80	1200	
2200	-	-			92	112	93	1.2	5.6	50 x 105		
2200	-	-	56182E3	16182E3	79	97	80	1.44	6.01	50 x 105	1800	
400	-	-	56222E3		69	82	68	1.76	6.43	50 x 105	2200	
3300	86222E3	46222E3	66222E3	26222E3	69	82	68	1.76	7.49	65 x 105	2200	
400	76272E3	36272E3	56272E3	16272E3	53	64	53	2.16	8.56	65 x 105	2700	
4700	76332E3	36332E3	56332E3	16332E3	47	55	45	2.64	9.16	65 x 105	3300	
4700 76 x 105 12.5 3.76 31 38 31 16472E3 56472E3 36472E3 76 6800 76 x 114 13.7 4.48 26 32 27 16562E3 56562E3 36562E3 76 6800 76 x 146 14.7 5.44 22 27 16562E3 56562E3 36662E3 76 8200 90 x 146 18 6.56 18 22 19 36822E3 76 10 000 76 x 220 18.4 8 16 20 17 16103E3 56103E3 36103E3 76 10 000 90 x 146 19.9 8 15 19 17 46103E3 86 12 000 76 x 220 20.4 9.6 13 16 14 16123E3 56123E3 36123E3 76 18 000 90 x 220 24.8 12 10 13 11 36153E3 76 18 000 90 x 220 27 14.4 9 111 10 36153E3 76 18 000 90 x 220 27 14.4 9 111 10 36153E3 76 1800 50 x 80 4.82 1.01 112 135 109 14122E3 54122E3 - 1500 50 x 80 4.82 1.01 112 135 109 14122E3 54122E3 - 1500 50 x 105 6.03 1.51 77 93 75 14182E3 54152E3 - 2200 65 x 105 6.03 1.51 77 93 75 14182E3 54152E3 - 2200 65 x 105 9.63 2.77 41 50 44 36 14392E3 54332E3 34222E3 74 420 3300 65 x 105 9.63 2.77 41 50 44 36 14392E3 54332E3 34322E3 74 420 3300 65 x 105 11.4 3.28 36 44 36 14392E3 54332E3 34322E3 74 420 3300 76 x 146 15.4 5.71 21 266 22 14682E3 54682E3 34692E3 74 420 300 00 x 220 24.9 12.6 10 13 11 34822E3 74 6800 76 x 146 18.8 6.89 17 21 18 34822E3 74 6800 76 x 146 18.8 6.89 17 21 18 34822E3 74 10 000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 - 34332E3 74 15 000 90 x 220 65 x 105 6.06 1.62 74 89 73 11 1472E3 54103E3 34622E3 74 15 000 90 x 146 18.8 6.89 17 21 18 34822E3 74 15 000 90 x 146 18.8 6.89 17 21 18 34822E3 74 15 000 90 x 146 18.8 6.89 17 21 18 34822E3 74 15 000 90 x 105 5.69 1.35 84 101 80 17152E3 57132E3 34153E3 74 15 000 90 x 105 5.69 1.35 84 101 80 17152E3 57132E3 34153E3 74 15 000 65 x 105 5.69 1.35 84 101 80 17152E3 57132E3 34822E3 77 15 000 65 x 105 5.69 1.35 84 101 80 17152E3 57132E3 34822E3 77 15 000 76 x 105 5.69 1.35 84 101 80 17152E3 57132E3 34822E3 77 15 000 76 x 105 5.06 5.06 1.62 74 89 73 17182E3 57132E3 34822E3 77 15 000 76 x 105 5.06 5.06 1.62 74 89 73 71 7132E3 57132E3 3732E3 3732E3 3732E3 3732E3 37332E3 37	76392E3	36392E3	56392E3	16392E3	39	46	38	3.12	10.2	65 x 105	3900	400
6800 76 x 146 14.7 5.44 22 27 23 16682E3 56682E3 3682E3 76 8200 90 x 146 18 6.56 18 22 19 - - 3682E3 76 10 000 76 x 220 18.4 8 16 20 17 16103E3 36103E3 36103E3 76 10 000 76 x 220 20.4 9.6 13 16 14 16123E3 56123E3 36123E3 76 18 000 90 x 220 24.8 12 10 13 11 - - 36158E3 76 18 000 90 x 220 27 14.4 9 11 10 - - 36189E3 76 1500 50 x 80 4.82 1.01 112 135 109 14122E3 54122E3 - 1500 50 x 105 5.64 1.26 90 109 87 14182E3 54122E3 - <t< td=""><td>76472E3</td><td>36472E3</td><td>56472E3</td><td>16472E3</td><td>31</td><td>38</td><td>31</td><td>3.76</td><td>12.5</td><td>76 x 105</td><td>4700</td><td>400</td></t<>	76472E3	36472E3	56472E3	16472E3	31	38	31	3.76	12.5	76 x 105	4700	400
8200 90 x 146 18 6.56 18 22 19 36822E3 766 10 000 76 x 220 18.4 8 16 20 17 16103E3 56103E3 36103E3 76 10 000 90 x 146 19.9 8 15 19 17 46103E3 36103E3 76 12 000 76 x 220 20.4 9.6 13 16 14 16123E3 56123E3 36123E3 76 15 000 90 x 220 24.8 12 10 13 11 36153E3 76 18 000 90 x 220 27 14.4 9 111 10 36183E3 76 18 000 90 x 220 27 14.4 9 111 10 36183E3 76 12 000 50 x 80 4.49 0.84 132 159 127 14102E3 54102E3 - 1200 50 x 80 4.82 1.01 1112 135 109 14122E3 54122E3 - 1500 50 x 80 4.82 1.01 1112 135 109 14122E3 54122E3 - 1500 50 x 105 5.64 1.26 90 109 87 14152E3 54122E3 - 2200 65 x 105 7.97 1.85 61 74 60 14222E3 5422E3 34222E3 74. 2700 65 x 105 8.6 2.27 51 62 50 14272E3 5422E3 34222E3 74. 3300 65 x 105 9.63 2.77 41 50 41 14332E3 54332E3 34332E3 74. 3900 76 x 105 11.4 3.28 36 44 36 14392E3 54392E3 34392E3 74. 420 3300 65 x 104 12.5 3.95 30 37 31 14472E3 54472E3 34472E3 74. 4700 76 x 114 12.5 3.95 30 37 31 14472E3 54492E3 34492E3 74. 8200 90 x 146 18.8 6.89 17 21 18 3482E3 74. 8200 90 x 146 18.8 6.89 17 21 18 3482E3 74. 8200 90 x 146 18.8 6.89 17 21 18 3482E3 74. 8200 90 x 146 18.8 6.89 17 21 18 3482E3 74. 8200 50 x 80 4.63 0.9 124 149 117 17102E3 57102E3 34153E3 74. 8200 50 x 80 4.65 1.08 106 128 101 17122E3 57102E3 1500 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 1500 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 1500 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 1500 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 1500 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 34153E3 77. 8450 3900 76 x 105 1.8 3.51 33 40 32 17732E3 57302E3 37322E3 77. 8450 3900 76 x 105 1.8 3.51 33 40 32 17732E3 57392E3 37322E3 77. 8450 3900 76 x 105 1.8 3.51 33 40 32 17732E3 57392E3 37322E3 77. 8450 3900 76 x 105 1.8 3.51 33 40 32 17732E3 57392E3 37322E3 77. 8450 3900 76 x 105 1.18 3.51 33 40 32 17732E3 5732E3 37322E3 77. 8450 3900 76 x 105 1.18 3.51 33 40 32 17732E3 5732E3 3732E3 77. 8450 3900 76 x 105 1.18 3.51 33 40 32 17732E3 5732E3 37322E3 77. 8450 3900 76 x 105 1.18 3.51 33 40 32 17732E	76562E3	36562E3	56562E3	16562E3	27	32	26	4.48	13.7	76 x 114	5600	
10 000	76682E3	36682E3	56682E3	16682E3	23	27	22	5.44	14.7	76 x 146	6800	
10 000	76822E3	36822E3	-	-	19	22	18	6.56	18	90 x 146	8200	
12 000	76103E3	36103E3	56103E3	16103E3	17	20	16	8	18.4	76 x 220	10 000	
15 000	86103E3	46103E3	-	-	17	19	15	8	19.9	90 x 146	10 000	
18 000 90 x 220 27	76123E3	36123E3	56123E3	16123E3	14	16	13	9.6	20.4	76 x 220	12 000	
1000	76153E3	36153E3	-	-	11	13	10	12	24.8	90 x 220	15 000	
1200	76183E3	36183E3	-	-	10	11	9	14.4	27	90 x 220	18 000	
1500	-	-	54102E3	14102E3	127	159	132	0.84	4.49	50 x 80	1000	
1800	-	-	54122E3	14122E3	109	135	112	1.01	4.82	50 x 80	1200	
2200 65 x 105 7.97 1.85 61 74 60 14222E3 54222E3 34222E3 74. 2700 65 x 105 8.6 2.27 51 62 50 14272E3 54272E3 34272E3 74. 3300 65 x 105 9.63 2.77 41 50 41 14332E3 54332E3 34332E3 74. 3900 76 x 105 11.4 3.28 36 44 36 14392E3 54392E3 34392E3 74. 4700 76 x 114 12.5 3.95 30 37 31 14472E3 54472E3 34472E3 74. 6800 76 x 146 15.4 5.71 21 26 22 14682E3 54682E3 34682E3 74. 8200 90 x 146 18.8 6.89 17 21 18 - - 34822E3 74. 15000 90 x 220 24.9 12.6 10 13 11 -	-	-	54152E3	14152E3	87	109	90	1.26	5.64	50 x 105	1500	
420 65 x 105 8.6 2.27 51 62 50 14272E3 54272E3 34272E3 74. 420 3300 65 x 105 9.63 2.77 41 50 41 14332E3 54332E3 34332E3 74. 3900 76 x 105 11.4 3.28 36 44 36 14392E3 54392E3 34392E3 74. 4700 76 x 114 12.5 3.95 30 37 31 14472E3 54472E3 34472E3 74. 6800 76 x 146 15.4 5.71 21 26 22 14682E3 54682E3 34682E3 74. 8200 90 x 146 18.8 6.89 17 21 18 - - 34822E3 74. 10000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 34103E3 74 15000 50 x 80 4.53 0.9 124 149 117	-	-	54182E3	14182E3	75	93	77	1.51	6.03	50 x 105	1800	
420 3300 65 x 105 9.63 2.77 41 50 41 14332E3 54332E3 34332E3 74 3900 76 x 105 11.4 3.28 36 44 36 14392E3 54392E3 34392E3 74 4700 76 x 114 12.5 3.95 30 37 31 14472E3 54472E3 34472E3 74 6800 76 x 146 15.4 5.71 21 26 22 14682E3 54682E3 34682E3 74 8200 90 x 146 18.8 6.89 17 21 18 - - 3482E3 74 10000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 34103E3 74 15000 90 x 220 24.9 12.6 10 13 11 - - 34153E3 74 1200 50 x 80 4.86 1.08 106 128 101 17122E3 <td>74222E3</td> <td>34222E3</td> <td>54222E3</td> <td>14222E3</td> <td>60</td> <td>74</td> <td>61</td> <td>1.85</td> <td>7.97</td> <td>65 x 105</td> <td>2200</td> <td></td>	74222E3	34222E3	54222E3	14222E3	60	74	61	1.85	7.97	65 x 105	2200	
3900 76 x 105 11.4 3.28 36 44 36 14392E3 54392E3 34392E3 74400 4700 76 x 114 12.5 3.95 30 37 31 14472E3 54472E3 34472E3 744668263 34682E3 744668263 34682E3 744682E3 744682E3 34103E3 34103E3 744682E3 744682E3 744682E3 744682E3 744682E3 744682E3 744682E3 74103E3 7417482E3 7417482E3 </td <td>74272E3</td> <td>34272E3</td> <td>54272E3</td> <td>14272E3</td> <td>50</td> <td>62</td> <td>51</td> <td>2.27</td> <td>8.6</td> <td>65 x 105</td> <td>2700</td> <td></td>	74272E3	34272E3	54272E3	14272E3	50	62	51	2.27	8.6	65 x 105	2700	
4700 76 x 114 12.5 3.95 30 37 31 14472E3 54472E3 34472E3 74 6800 76 x 146 15.4 5.71 21 26 22 14682E3 54682E3 34682E3 74 8200 90 x 146 18.8 6.89 17 21 18 - - 34822E3 74 10 000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 34103E3 74 15 000 90 x 220 24.9 12.6 10 13 11 - - 34153E3 74 1000 50 x 80 4.53 0.9 124 149 117 17102E3 57102E3 - 1200 50 x 80 4.86 1.08 106 128 101 17122E3 57122E3 - 1500 50 x 105 5.69 1.35 84 101 80 17152E3 57122E3 -	74332E3	34332E3	54332E3	14332E3	41	50	41	2.77	9.63	65 x 105	3300	420
6800 76 x 146 15.4 5.71 21 26 22 14682E3 54682E3 34682E3 744 8200 90 x 146 18.8 6.89 17 21 18 - - 34822E3 744 10 000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 34103E3 74 15 000 90 x 220 24.9 12.6 10 13 11 - - 34153E3 74 1000 50 x 80 4.53 0.9 124 149 117 17102E3 57102E3 - - 1200 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 - 1500 50 x 105 5.69 1.35 84 101 80 17152E3 57152E3 - 1800 50 x 105 6.06 1.62 74 89 73 17182E3 57182E3 -	74392E3	34392E3	54392E3	14392E3	36	44	36	3.28	11.4	76 x 105	3900	
8200 90 x 146 18.8 6.89 17 21 18 - - 34822E3 74. 10 000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 34103E3 74 15 000 90 x 220 24.9 12.6 10 13 11 - - 34153E3 74 1000 50 x 80 4.86 1.08 106 128 101 17122E3 57102E3 - 1200 50 x 80 4.86 1.08 106 128 101 17122E3 57122E3 - 1500 50 x 105 5.69 1.35 84 101 80 17152E3 - 1800 50 x 105 6.06 1.62 74 89 73 17182E3 57182E3 - 2200 65 x 105 8.04 1.98 57 69 54 17222E3 5722E3 3722E3 77 2700 65 x 105 8.65 2.43 48 58 47 17272E3 57272E3 3722E3	74472E3	34472E3	54472E3	14472E3	31	37	30	3.95	12.5	76 x 114	4700	
10 000 76 x 220 18.5 8.4 15 19 17 14103E3 54103E3 34103E3 74 15 000 90 x 220 24.9 12.6 10 13 11 - - 34153E3 74 1000 50 x 80 4.53 0.9 124 149 117 17102E3 57102E3 - - 1200 50 x 80 4.86 1.08 106 128 101 1712E3 57102E3 - - 1500 50 x 105 5.69 1.35 84 101 80 17152E3 57152E3 - - 1800 50 x 105 6.06 1.62 74 89 73 17182E3 57182E3 -	74682E3	34682E3	54682E3	14682E3	22	26	21	5.71	15.4	76 x 146	6800	
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1000 50 x 80 4.53 0.9 124 149 117 17102E3 57102E3 - 1200 50 x 80 4.86 1.08 106 128 101 17122E3 57122E3 - 1500 50 x 105 5.69 1.35 84 101 80 17152E3 57152E3 - 1800 50 x 105 6.06 1.62 74 89 73 17182E3 57182E3 - 2200 65 x 105 8.04 1.98 57 69 54 1722E3 5722E3 3722E3 773 2700 65 x 105 8.65 2.43 48 58 47 17272E3 57272E3 37272E3 773 3300 76 x 105 10.8 2.97 39 47 37 17332E3 57332E3 37332E3 773 450 3900 76 x 105 11.8 3.51 33 40 32 17392E3 57392E3 37472E3 773 4700 76 x 114 13 4.23 27 33 27 <td< td=""><td>74103E3</td><td>34103E3</td><td>54103E3</td><td>14103E3</td><td>17</td><td>19</td><td>15</td><td>8.4</td><td>18.5</td><td>76 x 220</td><td>10 000</td><td></td></td<>	74103E3	34103E3	54103E3	14103E3	17	19	15	8.4	18.5	76 x 220	10 000	
1200 50 x 80 4.86 1.08 106 128 101 17122E3 57122E3 - 1500 50 x 105 5.69 1.35 84 101 80 17152E3 57152E3 - 1800 50 x 105 6.06 1.62 74 89 73 17182E3 57182E3 - 2200 65 x 105 8.04 1.98 57 69 54 1722E3 5722E3 3722E3 773 2700 65 x 105 8.65 2.43 48 58 47 17272E3 57272E3 37272E3 773 3300 76 x 105 10.8 2.97 39 47 37 17332E3 57332E3 37332E3 37332E3 773 450 3900 76 x 105 11.8 3.51 33 40 32 17392E3 57392E3 37392E3 773 4700 76 x 114 13 4.23 27 33 27 17472E3 57472E3 37472E3 773 5600 76 x 146 14 5.04 24	74153E3	34153E3	-	-	11	13	10	12.6	24.9	90 x 220	15 000	
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	77153E3											



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ELI	ELECTRICAL DATA AND ORDERING INFORMATION										
		NOMINAL	1_		ESR	ESR	Z	STANDAR	D M5 DISC	HIGH CURRE	ENT M6 DISC
U _R (V)	C _R 100 Hz (µF)	CASE SIZE Ø D x L (mm)	I _R 100 Hz 85 °C (A)	I _{L5} 5 min (mA)	TYP. 100 Hz (mΩ)	MAX. 100 Hz (mΩ)	MAX. 10 kHz (mΩ)	ST ORDERING CODE MAL2500	STB ORDERING CODE MAL2500	ST ORDERING CODE MAL2500	STB ORDERING CODE MAL2500
	680	50 x 80	3.72	0.68	256	308	275	19681E3	59681E3	-	-
	1000	50 x 80	4.36	1	179	215	193	19102E3	59102E3	-	-
	1200	50 x 105	5.03	1.2	148	178	161	19122E3	59122E3	-	-
	1800	65 x 105	7.17	1.8	99	119	108	19182E3	59182E3	39182E3	79182E3
	2200	65 x 105	7.74	2.2	82	99	91	19222E3	59222E3	39222E3	79222E3
500	2700	76 x 105	9.64	2.7	66	80	73	19272E3	59272E3	39272E3	79272E3
300	3300	76 x 105	10.7	3.3	54	65	60	19332E3	59332E3	39332E3	79332E3
	4700	76 x 146	13.1	4.7	38	46	43	19472E3	59472E3	39472E3	79472E3
	5600	76 x 146	13.9	5.6	33	40	36	19562E3	59562E3	39562E3	79562E3
	6800	76 x 220	15.9	6.8	27	33	31	19682E3	59682E3	39682E3	79682E3
	8200	76 x 220	17.5	8.2	23	28	26	19822E3	59822E3	39822E3	79822E3
	12 000	90 x 220	23.1	12	16	20	18	=	=	39123E3	79123E3

ADDITIONAL ELECTRICAL DAT	ADDITIONAL ELECTRICAL DATA								
PARAMETER	CONDITIONS	VALUE							
Voltage									
Surge voltage	≥ 350 V versions	$U_s = 1.1 \times U_R$							
Reverse voltage		$U_{rev} \le 1 \text{ V}$							
Current									
Leakage current	After 1 min at U _R	$I_{L1} \le 0.006 \ C_R \ x \ U_R + 4 \ \mu A$							
Leakage Current	After 5 min at U _R	$I_{L5} \le 0.002 C_R \times U_R + 4 \mu A$							
Inductance									
	Case Ø D = 50 mm	Typ. 16 nH							
Equivalent perios industance (ESL)	Case Ø D = 65 mm	Typ. 19 nH							
Equivalent series inductance (ESL)	Case Ø D = 76 mm	Typ. 20 nH							
	Case Ø D = 90 mm	Typ. 20 nH							

RIPPLE CURRENT AND USEFUL LIFE

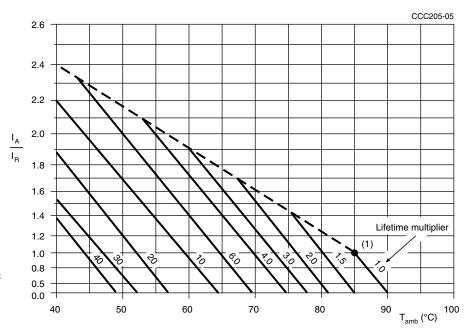
Table 3

ENDURANCE TEST DURATION AND USEFUL LIFE						
ENDURANCE AT 85 °C (h) USEFUL LIFE AT 85 °C (h)						
2000	5000					

Note

• Multiplier of useful life code: CCC205-05

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 $\rm I_A$ = Actual ripple current at 100 Hz $\rm I_R$ = Rated ripple current at 100 Hz and 85 °C $^{(1)}$ Useful life at 85 °C and $\rm I_R$ applied: 5000 h

Fig. 3 - Multiplier of useful life as a function of ambient temperature and ripple current load

Table 4

MULTIPLIER O	MULTIPLIER OF RIPPLE CURRENT (IR) AS A FUNCTION OF FREQUENCY								
	FREQUENCY (Hz)								
50	100	120	500	1000	≥ 10 000				
I _R MULTIPLIER									
0.80 1.00 1.05 1.30 1.40 1.50									

Table 5

TEST PROCEDURES AND REQUIREMENTS							
	TEST	PROCEDURE	REQUIREMENTS				
NAME OF TEST	REFERENCE	(quick reference)	NEGOINEMENTS				
Endurance	IEC 60384-4 / EN 130300 subclause 4.13	T _{amb} = 85 °C; U _R applied; 2000 h	Δ C/C: \pm 10 % ESR \leq 1.3 x spec. limit Z \leq 2 x spec. limit I _{L5} \leq spec. limit				
Useful life	CECC 30301 subclause 1.8.1	T _{amb} = 85 °C; U _R and I _R applied; 5000 h	Δ C/C: \pm 30 % ESR \leq 3 x spec. limit Z \leq 3 x spec. limit $I_{L5} \leq$ spec. limit no short or open circuit, no visible damage total failure percentage: \leq 3 %				
Shelf life (storage at high temperature)	IEC 60384-4 / EN 130300 subclause 4.17	T _{amb} = 85 °C; no voltage applied; 1000 h after test: U _R to be applied for 30 min, 24 h to 48 h before measurement	Δ C/C: ± 10 % ESR ≤ 1.2 x spec. limit $I_{L5} \le 2$ 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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