

TFZ Series Extra Low Impedance SMD Electrolytic Capacitor

Extra lower impedance with temperature range -55~+105°C

Load life of 2000~5000 hours

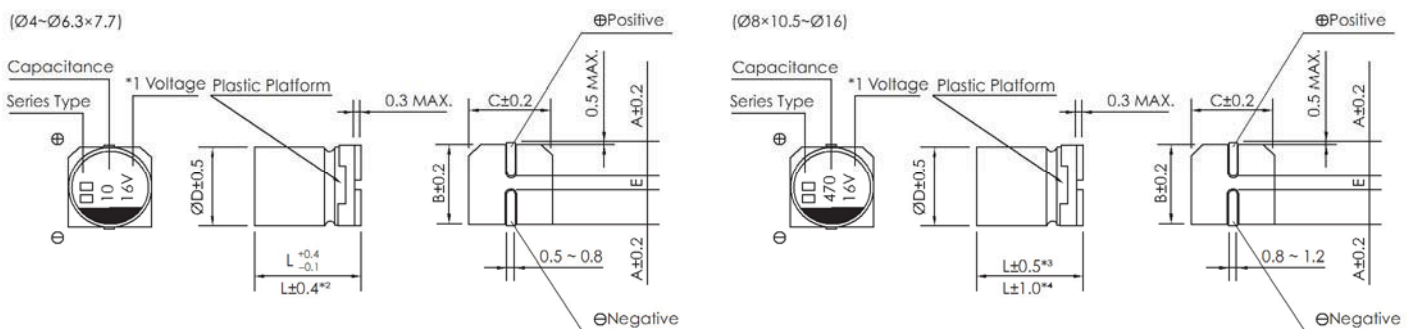
Comply with the RoHS directive



SPECIFICATIONS

Items	Characteristics																										
Operation Temperature Range	-55 ~ +105°C																										
Voltage Range	6.3 ~ 100V																										
Capacitance Range	3.3 ~ 4700μF																										
Capacitance Tolerance	±20% at 120Hz, 20°C																										
Leakage Current	Leakage current (∅4~∅10) ≤0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage) Leakage current (∅12.5~∅16) ≤0.03CV or 4μA, whichever is greater (after 1 minute application of rated voltage)																										
Dissipation Factor (tan δ)	Measurement frequency : 120Hz, Temperature : 20°C <table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63~80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">tan δ (max.)</td> <td>∅4~∅10</td> <td>0.26</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> </tr> <tr> <td>∅12.5~∅16</td> <td>0.26</td> <td>0.19</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.10</td> <td>0.08</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63~80	100	tan δ (max.)	∅4~∅10	0.26	0.19	0.16	0.14	0.12	0.10	0.08	∅12.5~∅16	0.26	0.19	0.18	0.16	0.14	0.10	0.08
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Stability at Low Temperature	Measurement frequency : 120Hz <table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3 ~ 16</th> <th>25 ~ 100</th> </tr> </thead> <tbody> <tr> <td>Impedance Ratio 阻抗比</td> <td>Z(-25°C) / Z(20°C)</td> <td>2</td> </tr> <tr> <td>Z(-40°C) / Z(20°C)</td> <td>3</td> <td>3</td> </tr> <tr> <td>ZT/Z20 (max.)</td> <td>Z(-55°C) / Z(20°C)</td> <td>4</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3 ~ 16	25 ~ 100	Impedance Ratio 阻抗比	Z(-25°C) / Z(20°C)	2	Z(-40°C) / Z(20°C)	3	3	ZT/Z20 (max.)	Z(-55°C) / Z(20°C)	4														
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Load Life	After 5000 hrs. (2000 hrs. for ∅4~∅6.3×5.8) application of the rated voltage at 105°C, they meet the characteristics listed below. <table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>200% or less of initial specified value</td> </tr> <tr> <td>Leakage Current</td> <td>initial specified value or less</td> </tr> </tbody> </table>	Capacitance Change	Within ±30% of initial value	Dissipation Factor	200% or less of initial specified value	Leakage Current	initial specified value or less																				
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Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above.																										
Resistance to Soldering Heat	After reflow soldering and restored at room temperature, they meet the characteristics listed below. <table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±10% of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>initial specified value or less</td> </tr> <tr> <td>Leakage Current</td> <td>initial specified value or less</td> </tr> </tbody> </table>	Capacitance Change	Within ±10% of initial value	Dissipation Factor	initial specified value or less	Leakage Current	initial specified value or less																				
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Marking	Black print on the case top.																										

DRAWING (Unit: mm)



*1. Voltage mark for 6.3V is [6V]

*2. Applicable to ∅6.3×7.7

*3. Applicable to ∅8×10.5~∅10

*4. Applicable to ∅12.5~∅16



DIMENSIONS (Unit: mm)

∅D x L	4 x 5.8	5 x 5.8	6.3 x 5.8	6.3 x 7.7	8 x 10.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	2.0	2.2	2.6	2.6	3.0	3.3	3.3	4.9	4.9	5.8
B	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0
E ± 0.2	1.0	1.4	1.9	1.9	3.1	4.7	4.7	4.7	4.7	6.4
L	5.8	5.8	5.8	7.7	10.5	10.5	13.5	13.5	16.0	16.5

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

•Case size ∅D x L(mm), impedance (Ω) at 20°C 100KHz, ripple current (mA rms) at 105°C 100KHz

WV Code μF	6.3			10			16		
	0006			0010			0016		
10 106							4 x 5.8	1.35	90
15 156							4 x 5.8	1.35	90
22 226	4 x 5.8	1.35	90	4 x 5.8	1.35	90	5 x 5.8	0.70	160
33 336	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)	5 x 5.8	0.70	160	6.3 x 5.8	0.36	240
47 476	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)	6.3 x 5.8	0.36	240	6.3 x 5.8	0.36	240
56 566	5 x 5.8	0.70	160	6.3 x 5.8	0.36	240	6.3 x 5.8	0.36	240
68 686	6.3 x 5.8	0.36	240	6.3 x 5.8	0.36	240	6.3 x 7.7 (6.3 x 5.8)	0.26 (0.36)	300 (240)
100 107	6.3 x 5.8	0.36	240	6.3 x 7.7	0.26	300	6.3 x 7.7	0.26	300
150 157	6.3 x 5.8	0.36	240	6.3 x 7.7	0.26	300	6.3 x 7.7	0.26	300
220 227	6.3 x 7.7	0.26	300	6.3 x 7.7	0.26	300	8 x 10.5 (6.3 x 7.7)	0.16 0.25	600 400
330 337	8 x 10.5	0.16	600	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)
470 477	8 x 10.5	0.16	600	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5	0.08	850
680 687	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5	0.08	850	10 x 13.5	0.07	950
1000 108	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 13.5 (10 x 10.5)	0.07 (0.08)	950 (850)	16 x 16.5 (12.5 x 16) (12.5 x 13.5)	0.05 (0.055) (0.06)	1450 (1200) (1100)
1500 158	10 x 13.5	0.07	950	12.5 x 13.5	0.06	1100	16 x 16.5	0.05	1450
2200 228	12.5 x 13.5	0.06	1100	12.5 x 16	0.055	1200			
3300 338	12.5 x 16	0.055	1200	16 x 16.5	0.05	1450			
4700 478	16 x 16.5	0.05	1450						

WV Code μF	25			35			50		
	0025			0035			0050		
4.7 475				4 x 5.8	1.35	90	5 x 5.8	1.52	85
10 106	4 x 5.8	1.35	90	5 x 5.8	0.70	160	6.3 x 7.7 (6.3 x 5.8)	0.68 (0.88)	195 (165)
15 156	5 x 5.8	0.70	160	5 x 5.8	0.70	160	6.3 x 5.8	0.88	165
22 226	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 5.8	0.36	240	6.3 x 7.7 (6.3 x 5.8)	0.68 (0.88)	195 (165)
33 336	6.3 x 5.8	0.36	240	6.3 x 5.8	0.36	240	6.3 x 7.7	0.68	195
47 476	6.3 x 7.7	0.26	300	6.3 x 7.7 6.3 x 5.8	0.26 0.36	300 240	8 x 10.5 (6.3 x 7.7)	0.34 (0.68)	350 (195)
56 566	6.3 x 7.7	0.26	300	6.3 x 7.7	0.26	300	8 x 10.5	0.34	350
68 686	6.3 x 7.7	0.26	300	8 x 10.5	0.16	600	8 x 10.5	0.34	350
100 107	8 x 10.5 6.3 x 7.7	0.16 0.34	600 280	8 x 10.5	0.16	600	10 x 10.5	0.18	670
150 157	8 x 10.5	0.16	600	10 x 10.5	0.08	850	10 x 13.5	0.14	780
220 227	8 x 10.5	0.16	600	10 x 10.5	0.08	850	12.5 x 13.5 (10 x 13.5)	0.12 (0.14)	900 (780)
330 337	10 x 10.5 8 x 10.5	0.08 0.17	850 450	12.5 x 13.5 (10 x 13.5) (10 x 10.5)	0.06 (0.07) (0.09)	1100 (950) (670)	12.5 x 13.5	0.12	900
470 477	10 x 13.5	0.07	950	12.5 x 13.5	0.06	1100	16 x 16.5 (12.5 x 16)	0.08 (0.10)	1250 (1050)
680 687	12.5 x 13.5	0.06	1100	12.5 x 16	0.055	1200			
1000 108	16 x 16.5 (12.5 x 16)	0.05 (0.055)	1450 (1200)	16 x 16.5	0.05	1450			
1500 158	16 x 16.5	0.05	1450						

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

•Case size $\varnothing D \times L$ (mm), impedance (Ω) at 20 °C 100KHz, ripple current (mA rms) at 105 °C 100KHz

WV		63			80			100		
μF	Code									
		0063			0080			0100		
3.3	335				5 × 5.8	5.0	25			
4.7	475	5 × 5.8	3.0	50	6.3 × 5.8	3.0	40			
10	106	6.3 × 7.7 (6.3 × 5.8)	1.2 (1.5)	120 (80)	6.3 × 7.7	2.4	60	8 × 10.5	1.3	130
22	226	8 × 10.5 (6.3 × 7.7)	0.65 (1.2)	250 (120)	8 × 10.5	1.3	130	10 × 10.5	0.7	200
33	336	8 × 10.5	0.65	250	10 × 10.5	0.7	200	10 × 13.5	0.7	200
47	476	10 × 10.5	0.65	250	10 × 13.5	0.45	300	12.5 × 13.5	0.32	500
68	686	12.5 × 13.5 (10 × 10.5)	0.16 (0.65)	800 (250)	12.5 × 13.5	0.32	500	12.5 × 13.5	0.32	500
100	107	12.5 × 13.5 (10 × 13.5)	0.16 (0.25)	800 (400)	12.5 × 13.5	0.32	500	16 × 16.5 (12.5 × 16)	0.17 (0.26)	795 (550)
150	157	12.5 × 13.5 (10 × 13.5)	0.16 (0.25)	800 (650)	12.5 × 13.5	0.32	500			
220	227	12.5 × 13.5	0.16	800	12.5 × 16	0.26	550			
330	337	16 × 16.5	0.082	1400	16 × 16.5	0.17	795			

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency		50Hz	120Hz	300Hz	1KHz	10KHz~	
Coefficient	$\varnothing 4 \sim \varnothing 10$	4.7 ~ 68 μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 1500 μF	0.40	0.55	0.70	0.85	1.00
	$\varnothing 12.5 \sim \varnothing 16$	~ 68 μF	0.40	0.55	0.70	0.85	1.00
		100 ~ 680 μF	0.45	0.65	0.80	0.90	1.00
		1000 ~ 4700 μF	0.65	0.85	0.95	1.00	1.00

◆ How to order

<u>TFZ</u>	<u>A</u>	<u>106</u>	<u>M</u>	<u>0035</u>	<u>0505</u>	<u>R</u>	<u>000</u>
<u>Type</u>	<u>Material Code</u>	<u>Capacitance Code</u>	<u>Tolerance</u>	<u>Rated Voltage</u>	<u>Size Code</u>	<u>Package Code</u>	<u>Suffix Indicate Special Requirement</u>
TFZ	A: Aluminum Cap For TCS, TCK TFZ TKZ....etc.	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 106 = 10 μF 107 = 100 μF	M: +/-20%	Code 0035: 35VDC <u>For DC Voltage</u> 0006: 6.3VDC 0035: 35VDC 0050: 50VDC 0100: 100VDC	Code 0505: Size 5x5.8mm <u>Size for TFZ V-chip E-cap</u> 0405: Size 4x5.4mm 0605: Size 6.3x5.4mm 0607: Size 6.3x7.7mm 1010: Size 10x10.5mm	R: Tape & Reel	000: Indicating Standard