

TLZ Series, Low Impedance SMD Electrolytic Capacitors 105°C

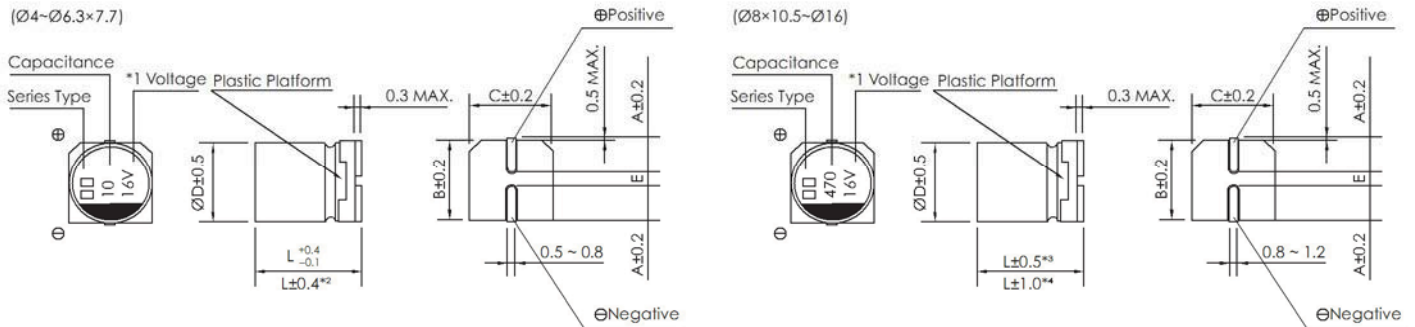
Low impedance with temperature range -55~+105°C
 Load life of 1000~2000 hours
 Comply with the RoHS directive



SPECIFICATIONS

Items	Characteristics																																						
Operation Temperature Range	-55 ~ +105°C																																						
Voltage Range	6.3 ~ 50V																																						
Capacitance Range	1 ~ 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> </tr> </thead> <tbody> <tr> <td>tan δ (max.) ∅4~∅10</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> </tr> <tr> <td>∅12.5~∅16</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	tan δ (max.) ∅4~∅10	0.22	0.19	0.16	0.14	0.12	0.12	∅12.5~∅16	0.26	0.22	0.18	0.16	0.14	0.12																	
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Stability at Low Temperature	Measurement frequency : 120Hz <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance Ratio ∅4~∅10</td> <td>Z(-25°C) / Z(20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-55°C) / Z(20°C)</td> <td>5</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td rowspan="2">ZT/Z20 (max.) ∅12.5~∅16</td> <td>Z(-25°C) / Z(20°C)</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-55°C) / Z(20°C)</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Rated Voltage (V)		6.3	10	16	25	35	50	Impedance Ratio ∅4~∅10	Z(-25°C) / Z(20°C)	2	2	2	2	2	2	Z(-55°C) / Z(20°C)	5	4	4	3	3	3	ZT/Z20 (max.) ∅12.5~∅16	Z(-25°C) / Z(20°C)	3	3	2	2	2	2	Z(-55°C) / Z(20°C)	10	8	6	4	3	3
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Load Life	After 2000 hrs. (1000 hrs. for ∅4~∅6.3×5.4) application of the rated voltage at 105°C, they meet the characteristics listed below. <table border="1"> <tr> <td>Capacitance Change</td> <td>Within ±20% 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> </table>	Capacitance Change	Within ±20% 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"> <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> </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 5.4	5 x 5.4	6.3 x 5.4	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	5.4	5.4	5.4	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 5.4	3.0	60
15	156							5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)
22	226	4 x 5.4	3.0	60	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)
33	336	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)
47	476	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)
68	686	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4	1.0	140	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)
100	107	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)
150	157	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7	0.6	230
220	227	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7	0.6	230	8 x 10.5 (6.3 x 7.7)	0.30 (0.6)	450 (230)
330	337	6.3 x 7.7	0.6	230	8 x 10.5	0.30	450	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)
470	477	8 x 10.5	0.30	450	8 x 10.5	0.30	450	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)
680	687	8 x 10.5	0.30	450	10 x 10.5	0.15	670	10x 10.5	0.15	670
1000	108	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)	10 x 10.5	0.15	670	10 x 10.5	0.15	670
1500	158	10 x 13.5 (10 x 10.5)	0.13 (0.15)	750 (670)	12.5 x 13.5 (10 x 13.5)	0.11 (0.13)	820 (750)	12.5 x 13.5	0.11	820
2200	228	12.5 x 13.5 (10 x 13.5)	0.11 (0.13)	820 (750)	12.5 x 16	0.09	950	16 x 16.5 (12.5 x 16)	0.08 (0.09)	1260 (950)
3300	338	12.5 x 16 (12.5 x 13.5)	0.09 (0.11)	950 (820)	16 x 16.5	0.08	1260	16 x 16.5	0.08	1260
4700	478	16 x 16.5	0.08	1260	16 x 16.5	0.08	1260			

WV Code	μF	25			35			50		
		0025			0035			0050		
1	105				4 x 5.4	3.0	60	4 x 5.4	5.0	30
1.5	155				4 x 5.4	3.0	60	4 x 5.4	5.0	30
2.2	225				4 x 5.4	3.0	60	4 x 5.4	5.0	30
3.3	335				4 x 5.4	3.0	60	4 x 5.4	5.0	30
4.7	475	4 x 5.4	3.0	60	4 x 5.4	3.0	60	5 x 5.4	3.0	50
6.8	685	4 x 5.4	3.0	60	5 x 5.4	1.8	95	6.3 x 5.4	2.0	70
10	106	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	6.3 x 5.4	2.0	70
15	156	6.3 x 5.4	1.8	95	5 x 5.4	1.8	95	6.3 x 5.4	2.0	70
22	226	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 7.7 (6.3 x 5.4)	1.0 (2.0)	120 (70)
33	336	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4	1.0	140	6.3 x 7.7	1.0	120
47	476	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7 (6.3 x 5.4)	0.60 (1.0)	230 (140)	6.3 x 7.7	1.0	120
68	686	6.3 x 7.7	0.6	230	6.3 x 7.7	0.60	230	8 x 10.5	0.60	300
100	107	6.3 x 7.7	0.6	230	8 x 10.5	0.30	450	8 x 10.5	0.60	300
150	157	8 x 10.5 (6.3 x 7.7)	0.30 (0.6)	450 (230)	8 x 10.5	0.30	450	10 x 10.5	0.30	500

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

μF	WV Code	25			35			50		
		0025			0035			0050		
220	227	8 x 10.5	0.30	450	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)	10 x 10.5	0.30	500
330	337	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)	10 x 10.5	0.15	670	16 x 16.5 (12.5 x 13.5) (10 x 13.5)	0.12 (0.20) (0.25)	1060 (650) (580)
470	477	10 x 10.5	0.15	670	10 x 13.5	0.13	750	16 x 16.5 (12.5 x 16)	0.12 (0.15)	1060 (700)
680	687	10 x 13.5	0.13	750	12.5 x 13.5 (10 x 13.5)	0.11 (0.13)	820 (750)	16 x 16.5	0.12	1060
1000	108	16 x 16.5 (12.5 x 13.5)	0.08 (0.11)	1260 (820)	16 x 16.5 (12.5 x 16)	0.08 (0.09)	1260 (950)			
1500	158	12.5 x 16	0.09	950	16 x 16.5	0.08	1260			
2200	228	16 x 16.5	0.08	1260						

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency		50Hz	120Hz	300Hz	1KHz	10KHz~	
Coefficient	$\varnothing 4 \sim \varnothing 10$	1 ~ 68 μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 2200 μF	0.40	0.55	0.70	0.85	1.00
	$\varnothing 12.5 \sim \varnothing 16$	~ 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>TLZ</u>	<u>A</u>	<u>106</u>	<u>M</u>	<u>0035</u>	<u>0505</u>	<u>R</u>	<u>000</u>
↓	↓	↓	↓	↓	↓	↓	↓
Type	Material Code	Capacitance Code	Tolerance	Rated Voltage	Size Code	Package Code	Suffix Indicate Special Requirement
TLZ	<u>A: Aluminum Cap</u> For TCS, TCK TFZ TKZ....etc.	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 106 = 10uF 107 = 100uF	M: +/-20%	Code 0035: 35VDC <u>For DC Voltage</u> 0006: 6.3VDC 0035: 35VDC 0050: 50VDC 0100: 100VDC	Code 0505: Size 5x5.4mm <u>Size for TLZ 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