

TLZ Series, Low Impedance SMD Electrolytic Capacitors 105°C

Low impedance with temperature range -55~+105°C

Endurance 2000 hours

RoHS & REACH compliant, Halogen-free

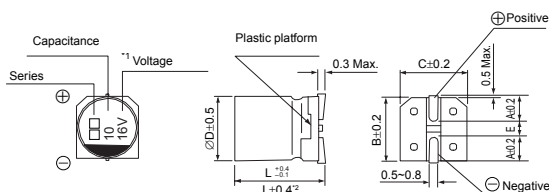


SPECIFICATIONS

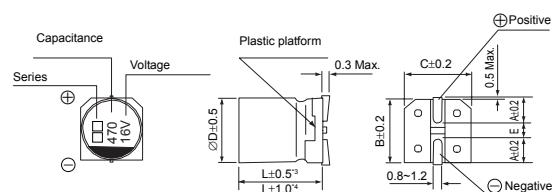
Items	Characteristics								
Operation Temperature Range	-55 ~ +105°C								
Voltage Range	6.3 ~ 100V								
Capacitance Range	1 ~ 4700μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	Leakage current ≤0.01CV or 3μA (Ø4~Ø10), whichever is greater (after 2 minutes application of rated voltage at 20°C)								
	Leakage current ≤0.03CV or 4μA (Ø12.5~Ø16), whichever is greater (after 1 minute application of rated voltage at 20°C)								
	C: Nominal capacitance (μF) , V: Rated voltage (V)								
Dissipation Factor (tan δ)	Measurement frequency : 120Hz, Temperature : 20°C								
	Rated Voltage (V)		6.3	10	16	25	35	50 , 63	80 , 100
	tan δ (max.)	Ø4~Ø10	0.22	0.19	0.16	0.14	0.12	0.12	0.10
Ø12.5~Ø16		0.26	0.22	0.18	0.16	0.14	0.12	0.10	
Stability at Low Temperature	Measurement frequency : 120Hz								
	Rated Voltage (V)		6.3	10	16	25	35 ~ 100		
	Impedance Ratio	Ø4~Ø10	Z(-25°C) / Z(20°C)	2	2	2	2	2	
			Z(-55°C) / Z(20°C)	5	4	4	3	3	
	ZT/Z20 (max.)	Ø12.5~Ø16	Z(-25°C) / Z(20°C)	3	3	2	2	2	
Z(-55°C) / Z(20°C)			10	8	6	4	3		
Load Life	After 2000 hours application of the rated voltage at 105°C, they meet the characteristics listed below.								
	Capacitance Change		Within ±20% of initial value						
	Dissipation Factor		200% or less of initial specified value						
	Leakage Current		initial specified value or less						
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.								
	Capacitance Change		Within ±10% of initial value						
	Dissipation Factor		initial specified value or less						
	Leakage Current		initial specified value or less						
Marking	Black print on the case top.								

DRAWING (Unit: mm)

(Ø4~Ø6.3×7.7)



(Ø8×10.5~Ø16)



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

*2. Applicable to Ø6.3×7.7

*3. Applicable to Ø8×10.5~Ø10

*4. Applicable to Ø12.5~Ø16


DIMENSIONS (Unit: mm)

ØD 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

WV Code µF		6.3			10			16		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
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)	0.3 (0.6)	450 (230)
330	337	6.3 x 7.7	0.6	230	8 x 10.5	0.3	450	10 x 10.5 (8 x 10.5)	0.15 (0.3)	670 (450)
470	477	8 x 10.5 (6.3 x 7.7)	0.3 (0.6)	450 (230)	8 x 10.5	0.3	450	10 x 10.5 (8 x 10.5)	0.15 (0.3)	670 (450)
680	687	8 x 10.5	0.3	450	10 x 10.5	0.15	670	10 x 10.5	0.15	670
1000	108	10 x 10.5 (8 x 10.5)	0.15 (0.3)	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		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
1	104				4 x 5.4	3.0	60	4 x 5.4	5.0	30
1.5	154				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 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (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)	0.6 (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	0.6	230	8 x 10.5	0.6	300
100	107	6.3 x 7.7	0.6	230	8 x 10.5 (6.3 x 7.7)	0.3 (0.6)	450 (230)	8 x 10.5 (10 x 10.5)	0.6 (0.3)	300 (500)
150	157	8 x 10.5 (6.3 x 7.7)	0.3 (0.6)	450 (230)	8 x 10.5	0.3	450	10 x 10.5	0.3	500

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

WV Code μF		25			35			50		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
220	227	8 × 10.5	0.3	450	10 × 10.5 (8 × 10.5)	0.15 (0.3)	670 (450)	10 × 10.5	0.3	500
330	337	10 × 10.5 (8 × 10.5)	0.15 (0.3)	670 (450)	10 × 10.5	0.15	670	16 × 16.5 (12.5 × 13.5) (10 × 13.5)	0.12 (0.2) (0.25)	1060 (650) (580)
470	477	10 × 10.5	0.15	670	10 × 13.5 (10 × 10.5)	0.13 (0.15)	750 (670)	16 × 16.5 (12.5 × 16)	0.12 (0.15)	1060 (700)
680	687	10 × 13.5	0.13	750	12.5 × 13.5 (10 × 13.5)	0.11 (0.13)	820 (750)	16 × 16.5	0.12	1060
1000	108	16 × 16.5 (12.5 × 13.5)	0.08 (0.11)	1260 (820)	16 × 16.5 (12.5 × 16)	0.08 (0.09)	1260 (950)			
1500	158	12.5 × 16	0.09	950	16 × 16.5	0.08	1260			
2200	228	16 × 16.5	0.08	1260						

WV Code μF		63			80			80		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
10	106	6.3 × 7.7	1.5	95				6.3 × 7.7	4.0	65
22	226	6.3 × 7.7	1.0	130	6.3 × 7.7	2.0	130			
47	476	8 × 10.5	0.65	250				10 × 10.5	0.65	350
100	107	10 × 10.5	0.50	430				12.5 × 13.5	0.60	500
220	227	12.5 × 13.5	0.30	550						

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	Ø4 ~ Ø10	1 ~ 68μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 2200μF	0.40	0.55	0.70	0.85	1.00
	Ø12.5 ~ Ø16	~ 680μF	0.45	0.65	0.80	0.90	1.00
		1000 ~ 4700μF	0.65	0.85	0.95	1.00	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5~10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

How to order

TLZ	A	106	M	0035	0505	R	000
Type	Material Code	Capacitance Code	Tolerance	Rated Voltage	Size Code	Package Code	Suffix Indicate Special Requirement
TLZ	A: Aluminum Cap	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	Code 0505: Size 5x5.4mm	R: Tape & Reel	000: Indicating Standard
				For DC Voltage 0006: 6.3VDC 0035: 35VDC 0050: 50VDC 0100: 100VDC	Size for TLZ 0405: Size 4x5.4mm 0605: Size 6.3x5.4mm 0607: Size 6.3x7.7mm 1010: Size 10x10.5mm		