

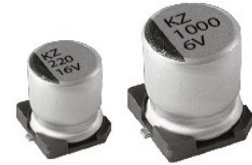
TKZ Series

CHIP TYPE, EXTRA LOWER IMPEDANCE

Extra low impedance

Impedance 40~60% less than LZ series

RoHS & REACH compliant, Halogen-free

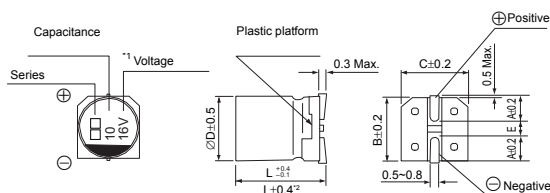


SPECIFICATIONS

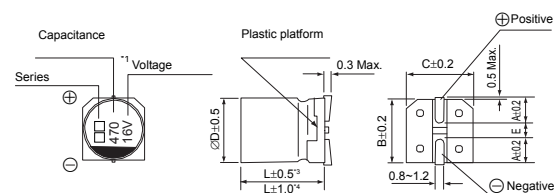
Items	Characteristics								
Category Temperature Range	-55 ~ +105°C								
Voltage Range	6.3 ~ 100V								
Capacitance Range	4.7 ~ 4700μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	Leakage current ≤0.01CV or 3μA (Ø4~Ø10), whichever is greater (after 2 minutes application 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	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 ZT/Z20 (max.)	Ø4~Ø10	Z(-25°C) / Z(20°C)	2	2	2	2	2	
			Z(-55°C) / Z(20°C)	5	4	4	3	3	
		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		
Endurance	After 3000 hrs. (2000 hrs. for Ø4~Ø8) application of the rated voltage at 105°C, they meet the characteristics listed below.								
	Capacitance Change			Within ±25% 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 5.8	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

WV Code µF		6.3			10			16		
		0J			1A			1C		
10	106							4 x 5.8	1.8	80
15	156							4 x 5.8	1.8	80
22	226	4 x 5.8	1.8	80	4 x 5.8	1.8	80	5 x 5.8 (4 x 5.8)	0.76 (1.8)	150 (80)
33	336	5 x 5.8 (4 x 5.8)	0.76 (1.8)	150 (80)	5 x 5.8 (4 x 5.8)	0.76 (1.8)	150 (80)	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)
47	476	5 x 5.8 (4 x 5.8)	0.76 (1.8)	150 (80)	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)
56	566	5 x 5.8	0.76	150	6.3 x 5.8	0.44	230	6.3 x 5.8	0.44	230
68	686	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)	6.3 x 5.8	0.44	230	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)
100	107	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)
150	157	6.3 x 5.8	0.44	230	6.3 x 7.7	0.34	280	6.3 x 7.7	0.34	280
220	227	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)	6.3 x 7.7	0.34	280	8 x 10.5 (6.3 x 7.7)	0.17 (0.34)	450 (280)
330	337	6.3 x 7.7	0.34	280	8 x 10.5	0.17	450	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)
470	477	8 x 10.5	0.17	450	8 x 10.5	0.17	450	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)
680	687	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)	10 x 10.5	0.09	670	10 x 13.5 (10 x 10.5)	0.075 (0.09)	800 (670)
1000	108	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)	10 x 10.5	0.09	670	16 x 16.5 (12.5 x 16) (12.5 x 13.5)	0.055 (0.06) (0.065)	1350 (1050) (900)
1500	158	10 x 13.5 (10 x 10.5)	0.075 (0.09)	800 (670)	12.5 x 13.5	0.065	900	16 x 16.5	0.055	1350
2200	228	12.5 x 13.5	0.065	900	12.5 x 16	0.06	1050	16 x 16.5	0.055	1350
3300	338	12.5 x 16	0.06	1050	16 x 16.5	0.055	1350	Case size ØD x L (mm)	Impedance (Ω) at 20°C, 100KHz	Ripple current (mA rms) at 105°C, 100KHz
4700	478	16 x 16.5	0.055	1350						

WV Code µF		25			35			50		
		1E			1V			1H		
4.7	475				4 x 5.8	1.8	80	5 x 5.8 (4 x 5.8)	1.52 (3.0)	85 (60)
10	106	4 x 5.8	1.8	80	5 x 5.8 (4 x 5.8)	0.76 (1.8)	150 (80)	6.3 x 5.8 (5 x 5.8)	0.88 (1.52)	165 (85)
15	156	5 x 5.8	0.76	150	5 x 5.8	0.76	150	6.3 x 5.8	0.88	165
22	226	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)	6.3 x 7.7 (6.3 x 5.8)	0.68 (0.88)	185 (165)
33	336	6.3 x 5.8 (5 x 5.8)	0.44 (0.76)	230 (150)	6.3 x 5.8	0.44	230	6.3 x 7.7	0.68	185
47	476	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)	6.3 x 7.7	0.68	185
56	566	6.3 x 7.7 (6.3 x 5.8)	0.34 (0.44)	280 (230)	6.3 x 7.7	0.34	280	8 x 10.5 (6.3 x 7.7)	0.34 (0.68)	350 (185)
68	686	6.3 x 7.7	0.34	280	6.3 x 7.7	0.34	280	8 x 10.5	0.34	350
100	107	6.3 x 7.7	0.34	280	8 x 10.5	0.17	450	10 x 10.5 (8 x 10.5)	0.18 (0.34)	670 (350)
150	157	8 x 10.5 (6.3 x 7.7)	0.17 (0.34)	450 (280)	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)	10 x 10.5	0.18	670
								Case size ØD x L (mm)	Impedance (Ω) at 20°C, 100KHz	Ripple current (mA rms) at 105°C, 100KHz

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

WV Code μF		25			35			50		
		1E			1V			1H		
220	227	8 × 10.5	0.17	450	10 × 10.5 (8 × 10.5)	0.09 (0.17)	670 (450)	10 × 13.5 (10 × 10.5)	0.16 (0.18)	750 (670)
330	337	10 × 10.5 (8 × 10.5)	0.09 (0.17)	670 (450)	10 × 10.5	0.09	670	12.5 × 13.5	0.14	800
470	477	10 × 13.5 (10 × 10.5)	0.075 (0.09)	800 (670)	12.5 × 13.5 (10 × 13.5)	0.065 (0.075)	900 (800)	16 × 16.5 (12.5 × 16)	0.10 (0.12)	1150 (900)
680	687	12.5 × 13.5	0.065	900	12.5 × 16 (12.5 × 13.5)	0.060 (0.065)	1050 (900)			
1000	108	16 × 16.5 (12.5 × 16)	0.055 (0.060)	1350 (1050)	16 × 16.5	0.055	1350	Case size ∅D×L(mm)	Impedance (Ω) at 20°C, 100KHz	Ripple current (mA rms) at 105°C, 100KHz
1500	158	16 × 16.5	0.055	1350						

WV Code μF		100		
		2A		
10	106	8 × 10.5	1.8	110
		Case size ∅D×L(mm)	Impedance (Ω) at 20°C, 100KHz	Ripple current (mA rms) at 105°C, 100KHz

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	∅4 ~ ∅10	4.7 ~ 68μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 1500μF	0.40	0.55	0.70	0.85	1.00
	∅12.5 ~ ∅16	~ 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

TKZ	A	106	M	0035	0505	R	000
Type	Material Code	Capacitance Code	Tolerance	Rated Voltage	Size Code	Package Code	Suffix Indicate Special Requirement
TKZ	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 5x5.8mm	R: Tape & Reel	000: Indicating Standard
				<u>For DC Voltage</u> 0006: 6.3VDC 0035: 35VDC 0050: 50VDC 0100: 100VDC	<u>Size for TKZ V-chip E-cap</u> 0405: Size 4x5.4mm 0605: Size 6.3x5.4mm 0607: Size 6.3x7.7mm 1010: Size 10x10.5mm		