

## LOW LEAKAGE CURRENT

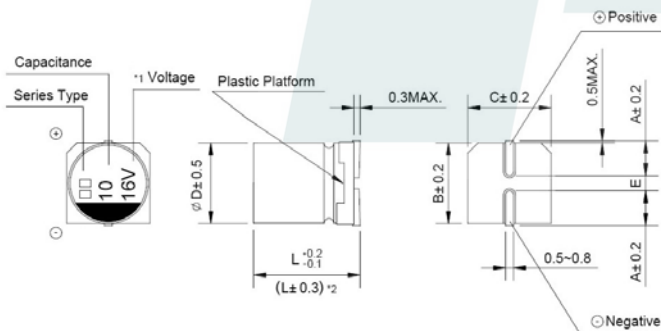
- Low leakage current (0.5 ~ 3.3μA max.)
- Low cost for replacement of some tantalum applications
- Comply with the RoHS directive  
RoHS



### SPECIFICATIONS

Items	Characteristics							
Operation Temperature Range	-40 ~ +85°C							
Voltage Range	6.3 ~ 50V							
Capacitance Range	0.1 ~ 220μF							
Capacitance Tolerance	±20% at 120Hz, 20°C							
Leakage Current	Leakage current ≦ 0.002CV or 0.5μA, whichever is greater (after 2 minutes application of rated voltage)							
Surge Voltage & Dissipation Factor (tan δ)	Measurement frequency : 120Hz, Temperature : 20°C							
	Rated Voltage (V)	6.3	10	16	25	35	50	
	Surge voltage	8.0	13	20	32	44	63	
	tan δ (max.)	0.24	0.20	0.16	0.14	0.12	0.10	
Stability at Low Temperature	Measurement frequency : 120Hz							
	Rated Voltage (V)	6.3	10	16, 25	35, 50			
	Impedance Ratio ZT/Z20 (max.)	Z(-25°C) / Z(20°C)	4	3	2	2		
		Z(-40°C) / Z(20°C)	8	6	4	3		
Load Life	After 2000 hours application of the rated voltage at 85°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						
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)



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

\*2. Applicable to  $\phi 6.3 \times 7.7$

### DIMENSIONS (Unit: mm)

∅D x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7
A	1.8	2.1	2.4	2.4
B	4.3	5.3	6.6	6.6
C	4.3	5.3	6.6	6.6
E ± 0.2	1.0	1.3	2.2	2.2
L	5.4	5.4	5.4	7.7

**NOTE:** All designs and specifications are for reference only and are subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.

**□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & ESR**

WV		6.3 (0J)			10 (1A)			16 (1C)		
Parameter		Case size ØD×L (mm)	E.S.R. (Ω) 20°C 120Hz E.S.R.	Ripple current (mA rms) at 85°C 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C 120Hz E.S.R.	Ripple current (mA rms) at 85°C 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C 120Hz E.S.R.	Ripple current (mA rms) at 85°C 120Hz
μF										
10	100							4 × 5.4	34.5	25
22	220	4 × 5.4	23.5	31	5 × 5.4	19.6	35	5 × 5.4	15.7	39
33	330	5 × 5.4	15.7	39	5 × 5.4	13.1	43	6.3 × 5.4	10.5	57
47	470	5 × 5.4	11.0	47	6.3 × 5.4	9.2	59	6.3 × 5.4	7.3	68
100	101	6.3 × 5.4	5.2	75	6.3 × 5.4	4.3	76	6.3 × 7.7	3.5	96
220	221	6.3 × 7.7	2.4	85						

WV		25 (1E)			35 (1V)			50 (1H)		
Parameter		Case size ØD×L (mm)	E.S.R. (Ω) 20°C 120Hz E.S.R.	Ripple current (mA rms) at 85°C 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C 120Hz E.S.R.	Ripple current (mA rms) at 85°C 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C 120Hz E.S.R.	Ripple current (mA rms) at 85°C 120Hz
μF										
0.1	0R1							4 × 5.4	2156	1.0
0.22	R22							4 × 5.4	980	2.3
0.33	R33							4 × 5.4	653	3.5
0.47	R47							4 × 5.4	459	5
1	010							4 × 5.4	216	10
2.2	2R2							4 × 5.4	98	15
3.3	3R3							4 × 5.4	65	18
4.7	4R7	4 × 5.4	64.2	19	4 × 5.4	55.1	20	5 × 5.4	46	23
10	100	5 × 5.4	30.2	28	5 × 5.4	25.9	30	6.3 × 5.4	22	34
22	220	6.3 × 5.4	13.7	52	6.3 × 5.4	11.8	54	6.3 × 7.7	9.8	85
33	330	6.3 × 5.4	9.1	63	6.3 × 7.7	7.8	105			
47	470	6.3 × 7.7	6.4	100	6.3 × 7.7	5.5	110			

**□ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT**

Frequency	~50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	0.70	1.00	1.17	1.36	1.50

- Taping specifications are given in page 11.
- Please refer to page 12 for the minimum package quantity.

**NOTE:** All designs and specifications are for reference only and are subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.