

FEATURES

- Load life of 3,000/5,000 hours at 105°C
- Reflow soldering is available
- Available for high density surface mounting



SPECIFICATIONS

Item	Performance Characteristics						
Operating Temperature Range	-40 to +105°C						
Rated Working Voltage Range	6.3 to 50V						
Nominal Capacitance Range	0.1 to 1000μF						
Capacitance Tolerance	±20% at 120Hz, +20°C						
Leakage Current	I ≤0.01CV or 3(μA) whichever is greater measure after 2 minutes application of rated working voltage at +20°C						
tanδ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50
	tanδ	0.30	0.24	0.20	0.16	0.14	0.14
Low Temperature Characteristics	Impedance ratio max. at 120Hz						
	Working Voltage (V)	6.3	10	16	25	35	50
	Z-25°C / Z+20°C	4	3	2	2	2	2
	Z-40°C / Z+20°C	12	8	6	4	3	3
High Temperature Loading	Test time	: 3,000 hours (Φ4~6.3); 5,000 hours (Φ8~10)					Post test requirements at +20°C
	Test temperature	: +105°C					Leakage current : ≤Initial specified value
	Test conditions	: Rated DC working voltage					Cap. change : within ±30% of the initial measured value
							tanδ : ≤300% of the initial specified value
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits						
	Leakage current	: ≤Initial specified value					
	Cap. change	: within ±30% of the initial measured value					
	tanδ	: ≤300% of the initial specified value					
Industrial Standard	JIS C – 5101-4 (IEC 60384-4)						

DIMENSIONS & MARKING

(Φ4~Φ6.3 × 6.0)

Size	Φ4 × 6.0	Φ5 × 6.0	Φ6.3 × 6.0	Φ6.3 × 8.0	Φ8 × 10.5	Φ10 × 10.5
A	1.8	2.1	2.4	2.5	2.9	3.2
B	4.3	5.3	6.6	6.6	8.3	10.3
C	4.3	5.3	6.6	6.6	8.3	10.3
D	4.0	5.0	6.3	6.3	8.0	10.0
E	1.0	1.3	2.2	2.2	3.1	4.5
L	6.0	6.0	6.0	8.0	10.5	10.5
H	0.5 ~ 0.9				0.9 ~ 1.1	

(Φ6.3 × 8.0)

(Φ8~Φ10 × 10.5)

PART NUMBER SYSTEM (EXAMPLE: 25V 470μF)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
V	TL	477	M	1E	G	1K	TR

Type (Taping)
 Case Length (10.5mm)
 Diameter (10mm)
 Voltage (25V)
 Tolerance (±20%)
 Capacitance (470μF)
 Series
 V-CHIP

STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475							4 x 6.0	13
10	106					4 x 6.0	18	4 x 6.0	20
22	226	4 x 6.0	22	4 x 6.0	27	5 x 6.0	30	6.3 x 6.0	34
33	336	5 x 6.0	30	5 x 6.0	35	6.3 x 6.0	40	6.3 x 6.0	50
47	476	5 x 6.0	38	6.3 x 6.0	48	6.3 x 6.0	50	6.3 x 8.0	63
100	107	6.3 x 6.0	69	6.3 x 8.0	80	6.3 x 8.0	81	6.3 x 8.0	90
220	227	6.3 x 8.0	120	6.3 x 8.0	130	8 x 10.5	115	8 x 10.5	170
330	337	6.3 x 8.0	130	8 x 10.5	180	8 x 10.5	195	10 x 10.5	230
470	477	8 x 10.5	210	8 x 10.5	210	10 x 10.5	260	10 x 10.5	280
1000	108	10 x 10.5	300	10 x 10.5	300				

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
0.1	104			4 x 6.0	1.0
0.22	224			4 x 6.0	2.6
0.33	334			4 x 6.0	3.2
0.47	474			4 x 6.0	4.0
1	105			4 x 6.0	8.0
2.2	225			4 x 6.0	11
3.3	335			4 x 6.0	14
4.7	475	4 x 6.0	16	5 x 6.0	19
10	106	5 x 6.0	27	6.3 x 6.0	32
22	226	6.3 x 6.0	44	6.3 x 8.0	58
33	336	6.3 x 8.0	57	6.3 x 8.0	70
47	476	6.3 x 8.0	68	8 x 10.5	124
100	107	8 x 10.5	120	10 x 10.5	200
220	227	10 x 10.5	220	10 x 10.5	230
330	337	10 x 10.5	260		

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size Φ D x L (mm)