Topdiode Manufacturing Company Limited
Diode | Capacitors
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TSC 85°C 2000H. Low Leakage Current SMD Electrolytic Capacitor

Low leakage current (0.5~3.3μA max.)

Low cost for replacement of some tantalum applications

RoHS & REACH compliant, Halogen-free

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 at 20°C) C: Nominal capacitance (μF) V: Rated voltage (V)
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

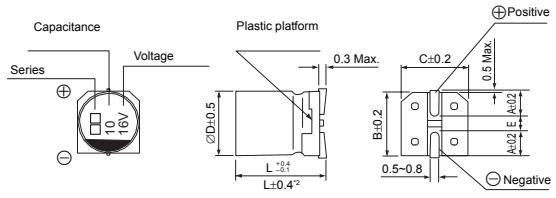
Resistance to Soldering Heat

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 ∅6.3×7.7

DIMENSIONS (Unit: mm)

ØD x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7
A	2.0	2.2	2.6	2.6
B	4.3	5.3	6.6	6.6
C	4.3	5.3	6.6	6.6
E ± 0.2	1.0	1.4	1.9	1.9
L	5.4	5.4	5.4	7.7

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DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & ESR

WV / Parameter / μF		6.3			10			16		
		Case size ØD×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz
10	106							4× 5.4	34.5	25
22	226	4 × 5.4	23.5	31	5 × 5.4	19.6	35	5 × 5.4	15.7	39
33	336	5 × 5.4	15.7	39	5 × 5.4	13.1	43	6.3 × 5.4	10.5	57
47	476	5 × 5.4	11.0	47	6.3 × 5.4	9.2	59	6.3 × 5.4	7.3	68
100	107	6.3 × 5.4	5.2	75	6.3 × 5.4	4.3	76	6.3 × 7.7	3.5	96
220	227	6.3 × 7.7	2.4	85						

WV / Parameter / μF		25			35			50		
		Case size ØD×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ØD×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz
0.1	104							4 × 5.4	2156	1.0
0.22	224							4 × 5.4	980	2.3
0.33	334							4 × 5.4	653	3.5
0.47	474							4 × 5.4	459	5
1	105							4 × 5.4	216	10
2.2	225							4 × 5.4	98	15
3.3	335							4 × 5.4	65	18
4.7	475	4 × 5.4	64.2	19	4 × 5.4	55.1	20	5 × 5.4	46	23
10	106	5 × 5.4	30.2	28	5 × 5.4	25.9	30	6.3 × 5.4	22	34
22	226	6.3 × 5.4	13.7	52	6.3 × 5.4	11.8	54	6.3 × 7.7	9.8	85
33	336	6.3 × 5.4	9.1	63	6.3 × 7.7	7.8	105			
47	476	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

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

TSC | A | 106 | M | 0035 | 0505 | R | 000

Type
TSC

Material Code
A: Aluminum Cap
For TCS, TCK
TFZ TKZ....etc.

Capacitance Code
pF Code: 1st two digits represent significant figures
3rd digit represents multiplier (number of zeros to follow)
106 = 10uF
107 = 100uF

Tolerance
M: +/-20%

Rated Voltage
Code 0035: 35VDC

For DC Voltage
0006: 6.3VDC
0035: 35VDC
0050: 50VDC

Size Code
Code 0505: Size 5x5.4mm

Size for V-chip E-cap
0405: Size 4x5.4mm
0605: Size 6.3x5.4mm
0607: Size 6.3x7.7mm

Package Code
R: Tape & Reel

Suffix Indicate Special Requirement
000: Indicating Standard