

TFS Series

CHIP TYPE, LONG LIFE WITH EXTRA LOWER IMPEDANCE ,SMALL SIZE

- Extra lower impedance
- Endurance 2000~5000 hours
- Miniature (size small than FZ series)
- RoHS & REACH compliant, Halogen-free

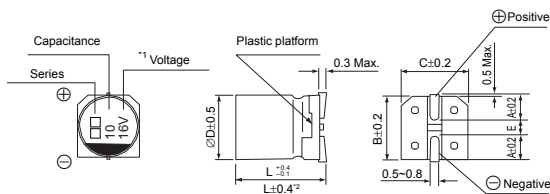


SPECIFICATIONS

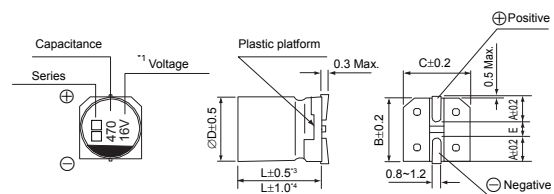
Items	Characteristics														
Category Temperature Range	-55 ~ +105°C														
Voltage Range	6.3 ~ 50V														
Capacitance Range	10 ~ 2200μF														
Capacitance Tolerance	±20% at 120Hz, 20°C														
Leakage Current	Leakage current ≤0.01CV or 3μA, whichever is greater (after 2 minutes 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														
	<table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tan δ (max.)</td> <td>0.26</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	tan δ (max.)	0.26	0.19	0.16	0.14	0.12	0.10
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Stability at Low Temperature	Measurement frequency : 120Hz														
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Endurance	After 5000 hrs. (2000 hrs. for Ø4~Ø6.3×5.8) application of the rated voltage at 105°C, they meet the characteristics listed below. <table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±35% of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>300% or less of initial specified value</td> </tr> <tr> <td>Leakage Current</td> <td>initial specified value or less</td> </tr> </tbody> </table>	Capacitance Change	Within ±35% of initial value	Dissipation Factor	300% or less of initial specified value	Leakage Current	initial specified value or less								
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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.														
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Marking	Black print on the case top.														

DRAWING (Unit: mm)

(Ø4~Ø6.3×7.7)



(Ø8×10.5~Ø10)



*1. Voltage mark for 6.3V is [6V]
 *2. Applicable to Ø6.3×7.7
 *3. Applicable to Ø8×10.5~Ø10

DIMENSIONS (Unit: mm)

∅D x L	4 x 5.8	5 x 5.8	6.3 x 5.8/7.7	8 x 10.5	10 x 10.5
A	2.0	2.2	2.6	3.0	3.3
B	4.3	5.3	6.6	8.4	10.4
C	4.3	5.3	6.6	8.4	10.4
E ± 0.2	1.0	1.4	1.9	3.1	4.7
L	5.8	5.8	5.8/7.7	10.5	10.5

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

WV		6.3			10			16		
μF	Code	0J			1A			1C		
47	476							4 x 5.8	0.85	160
68	686				4 x 5.8	0.85	160	5 x 5.8	0.36	240
100	107	4 x 5.8	0.85	160				5 x 5.8	0.36	240
150	157				5 x 5.8	0.36	240	6.3 x 5.8	0.26	300
220	227	5 x 5.8	0.36	240	6.3 x 5.8	0.26	300	6.3 x 5.8	0.26	300
330	337	6.3 x 5.8	0.26	300	6.3 x 7.7	0.16	600	6.3 x 7.7	0.16	600
470	477	6.3 x 7.7	0.16	600	6.3 x 7.7	0.16	600			
680	687	6.3 x 7.7	0.16	600				8 x 10.5	0.08	850
820	827							8 x 10.5	0.08	850
1000	108				8 x 10.5	0.08	850	10 x 10.5	0.06	1190
1200	128							10 x 10.5	0.06	1190
1500	158	8 x 10.5	0.08	850	10 x 10.5	0.06	1190	Case size	Impedance	Ripple current
2200	228	10 x 10.5	0.06	1190						

WV		25			35			50		
μF	Code	1E			1V			1H		
10	106							5 x 5.8 (4 x 5.8)	0.88 (2.30)	165 (85)
22	226	4 x 5.8	0.85	160	4 x 5.8	0.85	160	5 x 5.8	0.88	165
33	336	4 x 5.8	0.85	160	5 x 5.8	0.36	240			
47	476	5 x 5.8	0.36	240	5 x 5.8	0.36	240	6.3 x 5.8	0.68	195
68	686	5 x 5.8	0.36	240	6.3 x 5.8	0.26	300			
100	107	6.3 x 5.8	0.26	300	6.3 x 5.8	0.26	300	6.3 x 7.7	0.34	350
150	157	6.3 x 7.7	0.16	600	6.3 x 7.7	0.16	600			
220	227	6.3 x 7.7	0.16	600				8 x 10.5	0.18	670
330	337	6.3 x 7.7	0.16	600	8 x 10.5	0.08	850	10 x 10.5	0.12	900
390	397				8 x 10.5	0.08	850			
470	477	8 x 10.5	0.08	850						
560	567	8 x 10.5	0.08	850	10 x 10.5	0.06	1190			
680	687				10 x 10.5	0.06	1190			
820	827	10 x 10.5	0.06	1190				Case size	Impedance	Ripple current
1000	108	10 x 10.5	0.06	1190						

•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	10 ~ 68 μ F	0.35	0.50	0.64	0.83	1.00
	100 ~ 2200 μ F	0.40	0.55	0.70	0.85	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

<u>TFS</u>	<u>A</u>	<u>106</u>	<u>M</u>	<u>0035</u>	<u>0505</u>	<u>R</u>	<u>000</u>
<u>Type</u>	<u>Material Code</u>	<u>Capacitance Code</u>	<u>Tolerance</u>	<u>Rated Voltage</u>	<u>Size Code</u>	<u>Package Code</u>	<u>Suffix Indicate Special Requirement</u>
TFS	<u>A: Aluminum Cap</u> For TCS, TCK TFZ TKZ....etc.	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 106 = 10 μ F 107 = 100 μ F	M: +/-20%	Code 0035: 35VDC <u>For DC Voltage</u> 0006: 6.3VDC 0035: 35VDC 0050: 50VDC 0100: 100VDC	Code 0505: Size 5x5.8mm <u>Size for TFS V-chip E-cap</u> 0405: Size 4x5.4mm 0605: Size 6.3x5.4mm 0607: Size 6.3x7.7mm 1010: Size 10x10.5mm	R: Tape & Reel	000: Indicating Standard