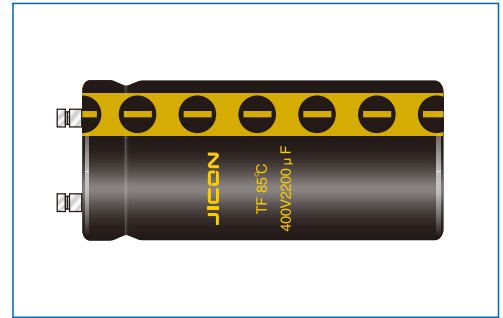


# TF 系列 SERIES

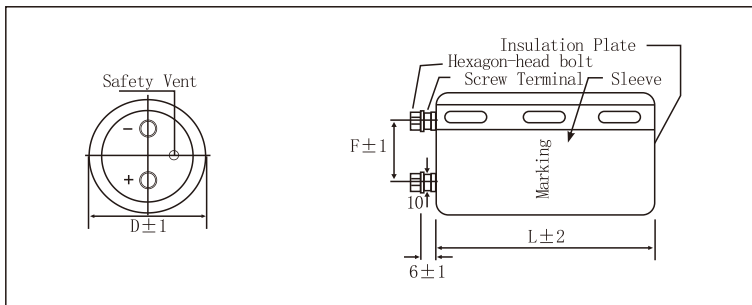
- 2000h at 85°C
- Standard 85°C
- high ripple current
- Power supplies & Inverters

## ◆ SPECIFICATION



Items	Characteristics	
Operating Temperature Range (°C)	-40~+85°C	-25~+85°C
Voltage range (V)	10~250V	350~500V
Capacitance Range (µF)	270~820000	
Capacitance Tolerance	±20% (at 20°C, 120Hz)	
leakage current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 5mA, whichever is smaller, C:Nominal Capacitance (µF) V:Rated Voltage (V)	
Dissipation Factor(Tan δ)	Less than values shown in the standard ratings	
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated rippled current is applied for 2000 hours at 85°C	
	Capacitance change	Within ±20%initial value
	D. F. (Tan δ)	Not more than 200% of specified value
	leakage current	Not more than specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 85°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.	
	Capacitance change	Within ±20%initial value
	D. F. (Tan δ)	Not more than 200% of specified value
	leakage current	Not more than 200% of specified value

## ◆ DIMENSIONS(mm)



D	35	50.8	63.5	76	89	100
F	13	22	28	32	32	42

## ◆ Frequency Coefficient

Rated Voltage(V)	Frequency				
	50/60Hz	120Hz	300Hz	1KHz	≥10KHz
10~50	0.95	1.00	1.04	1.10	1.15
63~100	0.95	1.00	1.06	1.16	1.30
160~450	0.80	1.00	1.10	1.25	1.50

## ◆ Temperature Coefficient

Temperature (°C)	+40	+60	+70	+85
Coefficient	2.7	2.00	1.70	1.00

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◆ STANDARD RATINGS

UR (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C 120Hz	Rated Ripple Current 85°C 120Hz	Size ΦD×L
(V)	(μF)	tan δ	(mA rms)	(mm)
10 (13) 1A	33000	0.80	4300	35×53
	39000	0.80	4700	35×53
	47000	0.80	5200	35×65
	56000	0.80	6100	35×83
	68000	0.80	6700	35×83
	82000	0.80	7700	35×100
	100000	0.80	8800	35×100
	120000	0.80	10000	35×121
	150000	1.00	10800	35×121
	180000	1.00	12000	50.8×96
	220000	1.50	11200	50.8×121
	270000	1.50	12800	50.8×121
	330000	1.50	15300	63.5×96
	390000	1.50	17300	63.5×115
	470000	2.00	16700	63.5×130
	560000	2.00	19000	76×115
680000	2.00	21700	76×130	
820000	2.00	24700	76×155	
16 (20) 1C	22000	0.60	4100	35×53
	27000	0.60	4500	35×53
	33000	0.60	5000	35×53
	39000	0.60	5900	35×65
	47000	0.60	6400	35×83
	56000	0.60	7300	35×83
	68000	0.60	8400	35×100
	82000	0.80	8300	35×100
	100000	0.80	9500	35×121
	120000	0.80	10900	35×121
	150000	1.00	11300	50.8×96
	180000	1.00	12800	50.8×115
	220000	1.00	15300	50.8×130
	270000	1.00	17600	63.5×96
	330000	1.50	16800	63.5×115
	390000	1.50	18300	63.5×130
470000	1.50	21300	76×115	
560000	1.50	23600	76×130	
680000	1.50	27600	76×155	
820000	2.00	27100	90×157	
25 (32) 1E	15000	0.50	3700	35×53
	18000	0.50	4100	35×53
	22000	0.50	4500	35×53
	27000	0.50	5000	35×65
	33000	0.50	5900	35×83
	39000	0.50	6700	35×83
	47000	0.50	7700	35×100
	56000	0.60	7900	35×100
	68000	0.60	9200	35×121
	82000	0.60	10400	35×121
	100000	0.60	10300	50.8×96
	120000	0.80	11700	50.8×115
	150000	0.80	14100	50.8×130
	180000	0.80	15700	63.5×96
	220000	1.00	16100	63.5×115
	270000	1.00	18600	63.5×130
	330000	1.00	21900	63.5×155
	390000	1.20	22000	76×115
	470000	1.20	25600	76×155
	560000	1.20	27900	90×131
680000	1.20	32500	90×157	

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◆ STANDARD RATINGS

UR (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C120Hz	Rated Ripple Current 85°C 120Hz	Size φD×L
(V)	(μF)	tan δ	(mA rms)	(mm)
35 (44) 1V	10000	0.40	3400	35×53
	12000	0.40	3700	35×53
	15000	0.40	4200	35×65
	18000	0.40	4700	35×83
	22000	0.40	5700	35×83
	27000	0.40	6300	35×100
	33000	0.40	7200	35×100
	39000	0.50	2300	35×121
	47000	0.50	8700	50.8×96
	56000	0.60	8600	50.8×96
	68000	0.60	9800	50.8×115
	82000	0.60	11600	63.5×96
	100000	0.60	13300	63.5×115
	120000	0.80	14800	63.5×121
	150000	0.80	14900	63.5×130
	180000	0.80	17000	76×115
	220000	0.80	20000	76×130
	50 (63) 1H	270000	0.80	20300
330000		0.80	23500	90×131
390000		0.80	26400	90×157
470000		0.80	29600	90×157
5600		0.30	3000	35×53
6800		0.30	3300	35×53
8200		0.30	3600	35×53
10000		0.30	4000	35×65
12000		0.30	4700	35×83
15000		0.30	5500	35×83
18000		0.30	6200	35×100
22000		0.40	6300	35×121
27000		0.40	7100	35×121
33000		0.40	8200	50.8×96
39000		0.50	8100	50.8×96
47000		0.50	9300	50.8×115
56000		0.50	10500	63.5×96
68000		0.50	12000	63.5×96
82000	0.50	13700	63.5×115	
100000	0.60	14700	76×115	
120000	0.60	16700	76×115	
150000	0.60	19300	76×130	
180000	0.60	21900	76×155	
220000	0.60	21400	89×131	
270000	0.60	24600	89×157	
63 (79) 1J	3900	0.25	2700	35×53
	4700	0.25	3000	35×53
	5600	0.25	3300	35×53
	6800	0.25	3600	35×65
	8200	0.25	4300	35×83
	10000	0.25	4900	35×83
	12000	0.25	5600	35×100
	15000	0.30	5900	35×100
	18000	0.30	6700	35×121
	22000	0.30	7800	35×121
	27000	0.40	7400	50.8×96
	33000	0.40	8400	50.8×96
	39000	0.40	9500	50.8×115
	47000	0.40	11300	50.8×130
	56000	0.40	12800	63.5×115
	68000	0.50	12700	63.5×121
	82000	0.50	14500	63.5×130
	100000	0.50	16700	76×115
	120000	0.50	18900	76×130
	150000	0.50	22400	76×155
180000	0.60	22400	90×131	
220000	0.60	26200	90×157	

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◆ STANDARD RATINGS

UR (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C 120Hz	Rated Ripple Current 85°C 120Hz	Size ΦD×L
(V)	(μF)	-	(mA rms)	(mm)
80 (100) 1K	3300	0.25	2500	35×53
	3900	0.25	2800	35×53
	4700	0.25	3000	35×65
	5600	0.25	3600	35×83
	6800	0.25	3900	35×83
	8200	0.25	4500	35×83
	10000	0.25	5200	35×100
	12000	0.25	5900	35×100
	15000	0.25	6800	35×121
	18000	0.25	7800	35×121
	22000	0.3	8000	50.8×96
	27000	0.3	9200	50.8×96
	33000	0.3	10500	50.8×115
	39000	0.3	12000	50.8×130
	47000	0.3	13600	63.5×115
	56000	0.4	13400	63.5×130
	68000	0.4	15400	76×115
	82000	0.4	17500	76×130
100000	0.4	20500	76×155	
120000	0.4	22400	89×131	
150000	0.4	26500	89×157	
100 (125) 2A	1800	0.25	1900	35×53
	2200	0.25	2100	35×53
	2700	0.25	2300	35×53
	3300	0.25	2600	35×65
	3900	0.25	3000	35×83
	4700	0.25	3500	35×83
	5600	0.25	3900	35×100
	6800	0.25	4500	35×100
	8200	0.25	5100	35×121
	10000	0.25	5900	35×121
	12000	0.25	6400	50.8×75
	15000	0.25	7000	50.8×96
	18000	0.25	8300	50.8×115
	22000	0.25	10000	50.8×130
	27000	0.25	11500	63.5×115
	33000	0.25	11900	63.5×130
	39000	0.25	13400	76×115
	47000	0.35	14200	76×130
56000	0.35	16000	76×155	
68000	0.35	18800	89×131	
82000	0.35	20500	89×157	
100000	0.35	24000	89×171	
160 (200) 2C	3300	0.25	5200	35×121
	3900	0.25	5300	50.8×75
	4700	0.25	5900	50.8×75
	5600	0.25	7000	50.8×96
	6800	0.25	7800	50.8×96
	8200	0.25	9100	50.8×115
	10000	0.25	10400	63.5×96
	12000	0.25	11300	63.5×96
	15000	0.25	14300	63.5×130
	18000	0.25	15600	63.5×130
	22000	0.25	18300	76×130
	27000	0.25	20200	76×130
	33000	0.25	23800	89×131
	39000	0.25	27900	89×157
200 (250) 2D	2200	0.25	3900	35×100
	2700	0.25	4700	35×121
	3300	0.25	4900	50.8×75
	3900	0.25	5300	50.8×75
	4700	0.25	6400	50.8×96
	5600	0.25	7600	50.8×115

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◆ STANDARD RATINGS

UR (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C120Hz	Rated Ripple Current 85°C 120Hz	Size ΦD×L
(V)	(μF)	-	(mA rms)	(mm)
200 (250) 2D	6800	0.25	8800	50.8×130
	8200	0.25	9400	63.5×96
	10000	0.25	10400	63.5×96
	12000	0.25	12100	76×96
	15000	0.25	14400	76×96
	18000	0.25	16500	76×130
	22000	0.25	19600	76×155
	27000	0.25	21500	89×131
250 (300) 2E	33000	0.25	25300	89×157
	1500	0.25	3200	35×100
	1800	0.25	3500	35×100
	2200	0.25	4000	50.8×75
	2700	0.25	4400	50.8×75
	3300	0.25	5400	50.8×96
	3900	0.25	6300	50.8×115
	4700	0.25	7100	63.5×96
	5600	0.25	7800	63.5×96
	6800	0.25	9100	63.5×115
	8200	0.25	10000	63.5×115
	10000	0.25	11700	63.5×130
	12000	0.25	12900	76×115
	15000	0.25	15100	76×130
	18000	0.25	17700	76×155
	22000	0.25	20900	89×157
350 (400) 2V	390	0.20	1700	35×53
	470	0.20	2200	35×83
	560	0.20	2400	35×83
	680	0.20	2600	35×83
	820	0.20	3100	35×100
	1000	0.20	3400	35×100
	1200	0.20	3800	50.8×75
	1500	0.20	4300	50.8×75
	1800	0.20	5100	50.8×96
	2200	0.20	5700	50.8×96
	2700	0.20	7100	50.8×130
	3300	0.20	7900	50.8×130
	3900	0.20	9000	63.5×115
	4700	0.20	10300	63.5×130
	5600	0.20	11400	76×115
	6800	0.20	13100	76×130
	8200	0.20	15400	76×155
	10000	0.20	18100	89×157
	12000	0.20	20000	89×157
	15000	0.20	24500	89×196
18000	0.20	28800	89×236	
400 (450) 2G	330	0.20	1500	35×53
	390	0.20	2000	35×83
	470	0.20	2200	35×83
	560	0.20	2400	35×83
	680	0.20	2800	35×100
	820	0.20	3100	35×100
	1000	0.20	3500	50.8×75
	1200	0.20	3800	50.8×75
	1500	0.20	4700	50.8×96
	1800	0.20	5200	50.8×96
	2200	0.20	6400	50.8×120
	2700	0.20	7000	63.5×96
	3300	0.20	8200	63.5×115
	3900	0.20	9400	63.5×130
	4700	0.20	10400	76×115
	5600	0.20	11900	76×130
	6800	0.20	14100	76×155
	8200	0.20	16400	89×157

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◆ STANDARD RATINGS

UR (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C120Hz	Rated Ripple Current 85°C 120Hz	Size φD×L
(V)	(μF)	tan δ	(mA rms)	(mm)
400 (450) 2G	10000	0.20	18300	89×157
	12000	0.20	21800	89×196
	15000	0.20	26300	89×236
450 (500) 2W	270	0.20	1400	35×53
	330	0.20	1800	35×83
	390	0.20	2000	35×83
	470	0.20	2200	35×83
	560	0.20	2600	35×100
	680	0.20	2800	35×100
	820	0.20	3200	50.8×75
	1000	0.20	3500	50.8×75
	1200	0.20	4200	50.8×96
	1500	0.20	5000	50.8×115
	1800	0.20	5900	50.8×130
	2200	0.20	6300	63.5×96
450 (500) 2W	2700	0.20	7500	63.5×115
	3300	0.20	8700	63.5×115
	3900	0.20	9500	76×115
	4700	0.20	10900	76×130
	5600	0.20	12800	76×155
	6800	0.20	15000	89×157
	8200	0.20	16500	89×157
	10000	0.20	20000	89×196
	12000	0.20	23600	89×236
	500 (550) 2H	1200	0.20	6200
		0.20	6300	63.5×96
1500		0.20	7300	50.8×130
		0.20	7100	63.5×96
1800		0.20	8300	63.5×115
2200		0.20	9600	63.5×130
2700		0.20	10700	76×115
3300		0.20	12400	76×130
3900		0.20	14400	76×155
4700		0.20	16500	76×171
		0.20	15800	89×131
5600		0.20	19000	76×195
		0.20	18600	89×157
6800		0.20	21200	89×171
8200		0.20	24500	89×196
		0.20	24200	100×175
10000		0.20	29300	89×236
		0.20	27900	100×195
12000	0.20	33100	100×237	

Customer products are available on request