TP series

+105℃,High Ripple Current(高纹波),Long load life(长寿命)

◆ FEATURES

- Load life:105℃ 3000 ~7000hours
- Enabled high ripple current by a reduction of ESR at high frequency range
- Ideally suited for use in switching power supply

◆ SPECIFICATIONS

Items	Characteristics
Category Temperature Rance	-40℃~+105℃
Rated Voltage Range	6.3~50V.DC
Nominal Capacitance Rance	1~6800 μF
Capacitance Tolerance	±20%(120Hz,+20℃)
Leakage Current(MAX, 20℃)	I=0.01CV or 3(uA) after 2 minutes with rated working voltage

Dissipation Factor(MAX) Tan δ (20℃,120Hz)

Rated Voltage(V)	6.3	10	16	25	35	50
Tan δ	0.22	0.19	0.16	0.14	0.12	0.10

When nominal capacitance is over 1000 μF,tan δ shall be added 0.02 to the listed value with Increase of every 1000 μF

Load Life

After applying rated voltage with max ripple current for 2000~4000hrs at 105℃,the capacitors shall meet the following requirements

Capacitance Change	Within ±25% of the initial value
Dissipation Factor	Not more than 200% of the specified value
Leakage Current	Not more than the specified value

ΦD	Load life
Φ5~6.3	3000
Φ8	4000
Φ10	5000
Φ12.5~	7000

Shelf Life

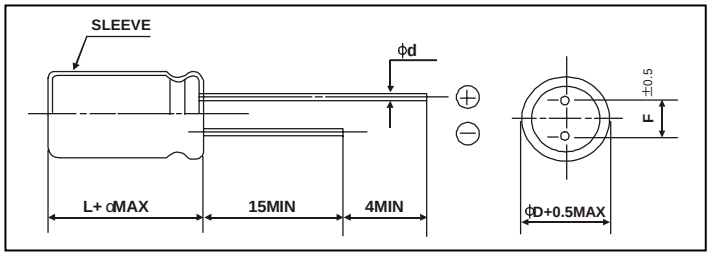
After Leaving capacitors under no load at 105℃ for 1000hrs,they meet the characteristic requirements listed at right

Capacitance change	Within ±25% of the initial value
Tan δ	≤200% of initial specified value
Leakage current	Initial specified value or less

Low Temperature Stability Impedance Rate(MAX)

Rated Voltage(V)	6.3	10	16	25	35	50
Z-25℃/Z+20℃	4	3	2	2	2	2
Z-40℃/Z+20℃	8	6	4	3	3	3

◆ CASE SIZE TABLE



ΦD	5	6.3	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5			0.6		0.8	
α	L≤16: α =1.5			L≥20: α =2.0			

◆ RIPPLE CURRENT MULTIPLIER

Cap(μF)	Frequency(Hz)			
	120	1K	10K	100k
≤180	0.40	0.75	0.90	1.00
220~560	0.50	0.85	0.94	1.00
680~1800	0.60	0.87	0.95	1.00
2200~3900	0.75	0.90	0.95	1.00
≥4700	0.85	0.95	0.98	1.00

◆ STANDARD RATINGS

size:ΦD×L(mm)

Voltage(code) / Item / Cap(μF)	Code	6.3V(0J) Size	Ripple Current	Impedance
100	107	5×11	210	0.58
220	227	6.3×11	340	0.22
330	337	6.3×11	340	0.22
470	477	8×12	640	0.13
680	687	8×12	760	0.10
1000	108	8×12	810	0.08
		10×13	865	0.08
1500	158	8×20	1050	0.044
		10×16	1240	0.046
2200	228	10×20	1460	0.042
3300	338	10×25	2050	0.032
		13×21	1900	0.035
4700	478	10×30	2250	0.026
		13×21	2040	0.035
5600	568	13×25	2450	0.022
6800	688	13×25	2720	0.020

Maximum Allowable Ripple Current(mA rms) at 105℃ 100KHz
Maximum Impedance(Ω) at 20℃ 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Voltage(code) / Item / Cap(μF)	Code	10V(1A) Size	Ripple Current	Impedance
100	107	5×11	210	0.58
220	227	6.3×11	340	0.22
330	337	6.3×11	390	0.22
470	477	6.3×11	450	0.18
		8×12	640	0.13
680	687	8×14	820	0.087
1000	108	8×20	1050	0.069
		10×16	1210	0.06
1500	158	10×16	1380	0.055
		10×20	1560	0.042
2200	228	10×20	1650	0.038
		10×25	1840	0.035
3300	338	10×30	2140	0.026
		13×21	2060	0.035
4700	478	13×25	2355	0.028
5600	568	16×25	2552	0.028
6800	688	16×25	2640	0.024

Maximum Allowable Ripple Current(mA rms) at 105℃ 100KHz
Maximum Impedance(Ω) at 20℃ 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Cap(μF)	Code	16V(1C) Size	Ripple Current	Impedance
47	476	5×11	210	0.58
100	107	5×11	210	0.58
220	227	6.3×11	340	0.22
330	337	8×12	640	0.13
470	477	8×12	705	0.10
		8×14	780	0.087
680	687	8×16	1020	0.069
		10×13	1050	0.070
1000	108	8×20	1230	0.058
		10×16	1305	0.052
		10×20	1400	0.046
1500	158	10×20	1780	0.040
		13×21	1900	0.035
2200	228	10×25	1980	0.035
		13×21	2095	0.030
3300	338	10×32	2372	0.022
		13×25	2510	0.030
4700	478	16×30	3029	0.022
		18×25	2771	0.024
5600	568	16×30	2875	0.020
6800	688	16×35	3720	0.017

Maximum Allowable Ripple Current(mA rms) at 105℃ 100KHz
Maximum Impedance(Ω) at 20℃ 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Cap(μF)	Code	25V(1E) Size	Ripple Current	Impedance
47	476	5×11	210	0.58
100	107	6.3×11	340	0.22
220	227	8×12	640	0.13
330	337	8×14	795	0.087
		8×16	840	0.087
470	477	8×14	905	0.069
		10×13	1120	0.060
680	687	10×20	1400	0.046
1000	108	10×20	1720	0.035
		13×21	1900	0.035
1500	158	13×21	2052	0.030
2200	228	13×25	2560	0.022
		16×20	2320	0.034
3300	338	16×30	3029	0.022
		18×25	2771	0.022
4700	478	16×35	3260	0.019
5600	568	16×35	3482	0.017
6800	688	18×35	3960	0.015

Maximum Allowable Ripple Current(mA rms) at 105℃ 100KHz
Maximum Impedance(Ω) at 20℃ 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Cap(μF)	Code	35V(1V) Size	Ripple Current	Impedance
22	226	5×11	210	0.58
33	336	5×11	210	0.58
47	476	6.3×11	340	0.22
100	107	8×12	640	0.13
220	227	8×12	680	0.10
		8×14	820	0.09
330	337	8×20	1050	0.069
		10×13	980	0.072
470	477	10×16	1326	0.046
		10×20	1400	0.046
680	687	10×20	1595	0.040
		13×21	1780	0.035
1000	108	10×25	2190	0.030
		13×21	2235	0.030
1500	158	13×25	2650	0.022
2200	228	16×30	3498	0.022
		18×25	3201	0.024
3300	338	18×30	4090	0.018
4700	478	18×35	4367	0.015

Maximum Allowable Ripple Current(mA rms) at 105℃ 100KHz
Maximum Impedance(Ω) at 20℃ 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Cap(μF)	Code	50V(1H) Size	Ripple Current	Impedance
1	105	5×11	180	2.4
2.2	225	5×11	180	1.3
3.3	335	5×11	180	1.3
4.7	475	5×11	180	1.3
10	106	5×11	180	1.3
22	226	5×11	180	1.3
33	336	6.3×11	295	0.30
47	476	6.3×11	295	0.30
100	107	8×12	680	0.12
220	227	10×16	1050	0.060
330	337	10×16	1290	0.055
		10×20	1460	0.050
470	477	10×20	1560	0.043
		13×21	1720	0.034
680	687	13×21	2180	0.030
1000	108	13×25	2640	0.021
		16×25	2555	0.025
1500	158	16×30	3040	0.019
2200	228	18×30	3410	0.017
		18×35	3680	0.017
3300	338	18×35	4200	0.015

Maximum Allowable Ripple Current(mA rms) at 105℃ 100KHz
Maximum Impedance(Ω) at 20℃ 100KHZ