

TP series

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

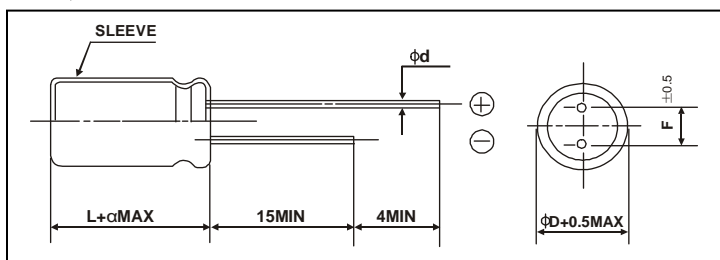
◆ FEATURES

- Load life: 105°C 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 Range	-40°C ~ +105°C																					
Rated Voltage Range	6.3~50V.DC																					
Nominal Capacitance Range	1~6800μF																					
Capacitance Tolerance	±20%(120Hz, +20°C)																					
Leakage Current(MAX, 20°C)	I=0.01CV or 3(μA) after 2 minutes with rated working voltage																					
Dissipation Factor(MAX) Tanδ (20°C, 120Hz)	<table border="1" style="width: 100%; text-align: center;"> <tr> <th>Rated Voltage(V)</th> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <th>Tanδ</th> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table>	Rated Voltage(V)	6.3	10	16	25	35	50	Tanδ	0.22	0.19	0.16	0.14	0.12	0.10							
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Tanδ	0.22	0.19	0.16	0.14	0.12	0.10																
When nominal capacitance is over 1000μF, tanδ shall be added 0.02 to the listed value with Increase of every 1000μF																						
Load Life	After applying rated voltage with max ripple current for 2000~4000hrs at 105°C, the capacitors shall meet the following requirements																					
	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>Capacitance Change</td> <td>Within ±25% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> </table>	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															
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ΦD	Load life																					
Φ5~6.3	3000																					
Φ8	4000																					
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Shelf Life	After Leaving capacitors under no load at 105°C for 1000hrs, they meet the characteristic requirements listed at right																					
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Low Temperature Stability Impedance Rate(MAX)	<table border="1" style="width: 100%; text-align: center;"> <tr> <th>Rated Voltage(V)</th> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <th>Z-25°C/Z+20°C</th> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <th>Z-40°C/Z+20°C</th> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated 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	8	6	4	3	3	3
	Rated 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	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: $\phi D \times L$ (mm)

Voltage(code)		6.3V(0J)		
Cap(μ F)	Item Code	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°C 100KHz
 Maximum Impedance(Ω) at 20°C 100KHZ

◆ STANDARD RATINGS

size: $\phi D \times L$ (mm)

Voltage(code)		10V(1A)		
Cap(μ F)	Item Code	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°C 100KHz
 Maximum Impedance(Ω) at 20°C 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Voltage(code)		16V(1C)			
Cap(μF)	Code	Item	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°C 100KHz
Maximum Impedance(Ω) at 20°C 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Voltage(code)		25V(1E)			
Cap(μF)	Code	Item	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°C 100KHz
Maximum Impedance(Ω) at 20°C 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Voltage(code)		35V(1V)			
Cap(μ F)	Code	Item	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°C 100KHz
 Maximum Impedance(Ω) at 20°C 100KHZ

◆ STANDARD RATINGS

size:ΦD×L(mm)

Voltage(code)		50V(1H)			
Cap(μ F)	Code	Item	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
			10×25	1800	0.038
			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°C 100KHz
 Maximum Impedance(Ω) at 20°C 100KHZ