

TM series

Upgrade



+105 ,High Ripple Current(高纹波), Low Impedance(低阻抗品)

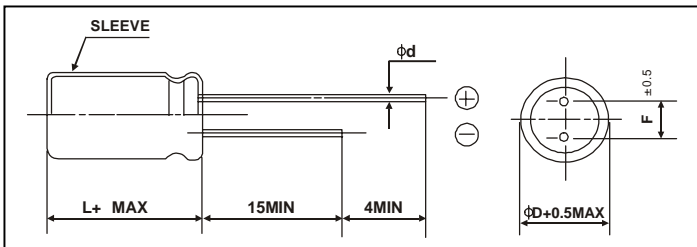
◆ FEATURES

- Load life:105 2000 ~4000hours
- Enabled high ripple current by a reduction of ESR at high frequency range
- switching power supply

◆ SPECIFICATIONS

Items	Characteristics																																		
Category Temperature Range 使用温度范围:	-40 ~+105 (6.3~100V)	-25 ~+105 (160~450V)																																	
Rated Voltage Range																																			
Nominal Capacitance Range	μF																																		
Capacitance Tolerance	± 20%(120Hz,+20)																																		
Leakage Current(MAX, 20)	I=0.01CV or 3(μA) after 2 minutes with rated working voltage	I=0.03CV+40(μA) after 2 minutes with rated working voltage																																	
Dissipation Factor(MAX) Tan (20 ,120Hz)	<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> <th>63</th> <th>100</th> <th>~250</th> <th>350~</th> </tr> </thead> <tbody> <tr> <td>Tan</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td>0.20</td> <td>0.24</td> </tr> </tbody> </table> <p>When nominal capacitance is over 1000 μF,tan shall be added 0.02 to the listed value with Increase of every 1000 μF</p>		Rated Voltage(V)	6.3	10	16	25	35	50	63	100	~250	350~	Tan	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.20	0.24											
Rated Voltage(V)	6.3	10	16	25	35	50	63	100	~250	350~																									
Tan	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.20	0.24																									
Load Life 耐久性	<p>After applying rated voltage with max ripple current for 2000~4000hrs at 105 ,the capacitors shall meet the following requirements</p> <table border="1"> <thead> <tr> <th>Capacitance Change</th> <th>Within ± 25% of the initial value</th> </tr> </thead> <tbody> <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> </tbody> </table> <table border="1"> <thead> <tr> <th>D</th> <th>Load life</th> </tr> </thead> <tbody> <tr> <td>5~6.3</td> <td>2000</td> </tr> <tr> <td>8~10</td> <td>3000</td> </tr> <tr> <td>12.5~</td> <td>4000</td> </tr> </tbody> </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	D	Load life	5~6.3	2000	8~10	3000	12.5~	4000																			
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5~6.3	2000																																		
8~10	3000																																		
12.5~	4000																																		
Shelf Life 高温存储性	<p>After Leaving capacitors under no load at 105 for 1000hrs,they meet the characteristic requirements listed at right</p> <table border="1"> <thead> <tr> <th>Capacitance change</th> <th>Within ± 25% of the initial value</th> </tr> </thead> <tbody> <tr> <td>Tan</td> <td>200% of initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Initial specified value or less</td> </tr> </tbody> </table>	Capacitance change	Within ± 25% of the initial value	Tan	200% of initial specified value	Leakage current	Initial specified value or less																												
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Low Temperature Stability Impedance Rate(MAX)	<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> <th>63</th> <th>100</th> <th>~250</th> <th>350~</th> </tr> </thead> <tbody> <tr> <td>Z-25 /Z+20</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>5</td> </tr> <tr> <td>Z-40 /Z+20</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>---</td> <td>---</td> </tr> </tbody> </table>		Rated Voltage(V)	6.3	10	16	25	35	50	63	100	~250	350~	Z-25 /Z+20	4	3	2	2	2	2	2	2	3	5	Z-40 /Z+20	8	6	4	3	3	3	3	3	---	---
Rated Voltage(V)	6.3	10	16	25	35	50	63	100	~250	350~																									
Z-25 /Z+20	4	3	2	2	2	2	2	2	3	5																									
Z-40 /Z+20	8	6	4	3	3	3	3	3	---	---																									

◆ CASE SIZE TABLE



D	5	6.3	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
d	0.5		0.6		0.8		
	L 16: =1.5			L 20: =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

Upgrade

◆ **STANDARD RATINGS**

Size: D×L(mm)

Voltage(code)		6.3V(0J)			
Cap(μF)	Code	Item	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() at 20 100KHZ

◆ **STANDARD RATINGS**

Size: D×L(mm)

Voltage(code)		10V(1A)			
Cap(μF)	Code	Item	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() at 20 100KHZ

Upgrade

◆ **STANDARD RATINGS**

Size: D×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 100KHz
 Maximum Impedance() at 20 100KHZ

◆ **STANDARD RATINGS**

Size: D×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 100KHz
 Maximum Impedance() at 20 100KHZ

Upgrade

◆ **STANDARD RATINGS**

SIZE: D × L(mm)

Voltage(code)		35V(1V)			
Cap(μF)	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 100KHZ

Maximum Impedance() at 20 100KHZ

◆ **STANDARD RATINGS**

size: D × L(mm)

Voltage(code)		50V(1H)			
Cap(μF)	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
			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() at 20 100KHZ

Upgrade

◆ STANDARD RATINGS

size: D × L(mm)

Voltage(code)		63V(1J)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
10	106		5 × 11	95	2.5
22	226		6.3 × 11	115	1.2
33	336		6.3 × 11	115	1.2
47	476		8 × 12	232	0.63
100	107		8 × 16	300	0.45
			10 × 13	288	0.43
220	227		10 × 20	466	0.21
			10 × 25	531	0.20
			13 × 21	690	0.16
330	337		10 × 20	580	0.15
470	477		13 × 21	860	0.10
680	687		13 × 25	980	0.083
1000	108		16 × 25	1380	0.054
1500	158		18 × 30	1620	0.040
2200	228		18 × 35	1890	0.035

◆ STANDARD RATINGS

size: D × L(mm)

Voltage(code)		100V(2A)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
6.8	685		5 × 11	55	2.3
10	106		6.3 × 11	105	2.0
22	226		8 × 12	165	1.0
33	336		8 × 14	210	0.8
47	476		8 × 16	288	0.43
			10 × 13	288	0.43
68	686		10 × 16	357	0.31
100	107		10 × 20	490	0.20
220	227		13 × 25	810	0.12
330	337		16 × 25	1380	0.080
470	477		16 × 30	1740	0.045
680	687		18 × 30	1890	0.040
1000	108		18 × 40	1920	0.035

◆ STANDARD RATINGS

size: D × L(mm)

Voltage(code)		160V(2C)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
1	105		5 × 11	25	19.6
2.2	225		5 × 11	35	13.0
3.3	335		6.3 × 11	50	10.7
4.7	475		6.3 × 11	55	10.4
6.8	685		8 × 12	70	7.80
10	106		8 × 12	80	6.70
22	226		10 × 13	180	3.25
33	336		10 × 20	210	2.75
47	476		13 × 21	320	2.28
68	686		13 × 21	375	1.40
100	107		16 × 25	500	1.18
220	227		16 × 35	820	0.48
330	337		18 × 35	950	0.40

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

◆ STANDARD RATINGS

size: D × L(mm)

Voltage(code)		200V(2D)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
1	105		6.3 × 11	45	19.4
2.2	225		6.3 × 11	55	13.0
3.3	335		6.3 × 11	60	10.6
4.7	475		6.3 × 11	65	8.88
6.8	685		8 × 12	85	6.78
10	106		8 × 12	95	5.05
22	226		10 × 16	195	3.00
33	336		10 × 20	265	1.55
47	476		13 × 21	360	1.28
68	686		13 × 21	405	1.13
100	107		16 × 25	700	0.98
220	227		16 × 30	900	0.35
330	337		18 × 40	1100	0.28

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

Upgrade

◆ **STANDARD RATINGS**

size: D × L(mm)

Voltage(code)		250V(2E)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
1	105		6.3 × 11	50	16.4
2.2	225		6.3 × 11	60	10.3
3.3	335		6.3 × 11	65	9.63
4.7	475		8 × 12	70	7.13
6.8	685		10 × 13	95	4.65
10	106		10 × 13	125	3.5
22	226		10 × 20	185	3.25
33	336		13 × 21	260	2.25
47	476		13 × 25	405	1.13
68	686		13 × 25	450	0.95
100	107		16 × 25	750	0.75
220	227		18 × 35	860	0.33

◆ **STANDARD RATINGS**

size: D × L(mm)

Voltage(code)		350V(2V)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
1	105		6.3 × 11	55	15.9
2.2	225		6.3 × 11	65	10.1
3.3	335		6.3 × 11	70	8.8
4.7	475		8 × 12	95	5.68
6.8	685		10 × 13	105	4.12
10	106		10 × 13	145	3.38
22	226		10 × 20	200	3.13
33	336		13 × 21	290	2.15
47	476		13 × 25	415	1.55
68	686		13 × 25	465	1.40
100	107		18 × 32	500	1.38

◆ **STANDARD RATINGS**

size: D × L(mm)

Voltage(code)		400V(2G)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
1	105		6.3 × 11	32	41.3
2.2	225		8 × 12	45	24.0
3.3	335		8 × 12	65	12.5
4.7	475		10 × 13	75	12.1
6.8	685		10 × 16	105	8.88
10	106		10 × 20	115	8.30
22	226		13 × 21	145	6.55
33	336		16 × 25	277	3.03
47	476		18 × 20	315	2.30
68	686		18 × 25	385	1.88
100	107		18 × 35	485	1.30

◆ **STANDARD RATINGS**

size: D × L(mm)

Voltage(code)		450V(2W)			
Cap(μF)	Code	Item	Size	Ripple Current	Impedance
1	105		6.3 × 11	28	43.4
2.2	225		8 × 12	38	25.6
3.3	335		8 × 12	55	14.1
4.7	475		10 × 13	65	12.5
6.8	685		10 × 16	90	10.6
10	106		10 × 20	100	9.45
22	226		13 × 25	125	7.63
33	336		16 × 25	205	5.50
47	476		18 × 25	325	2.55
68	686		18 × 30	405	1.95
100	107		18 × 40	495	1.50

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

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