

# RESISTOR & CAPACITOR

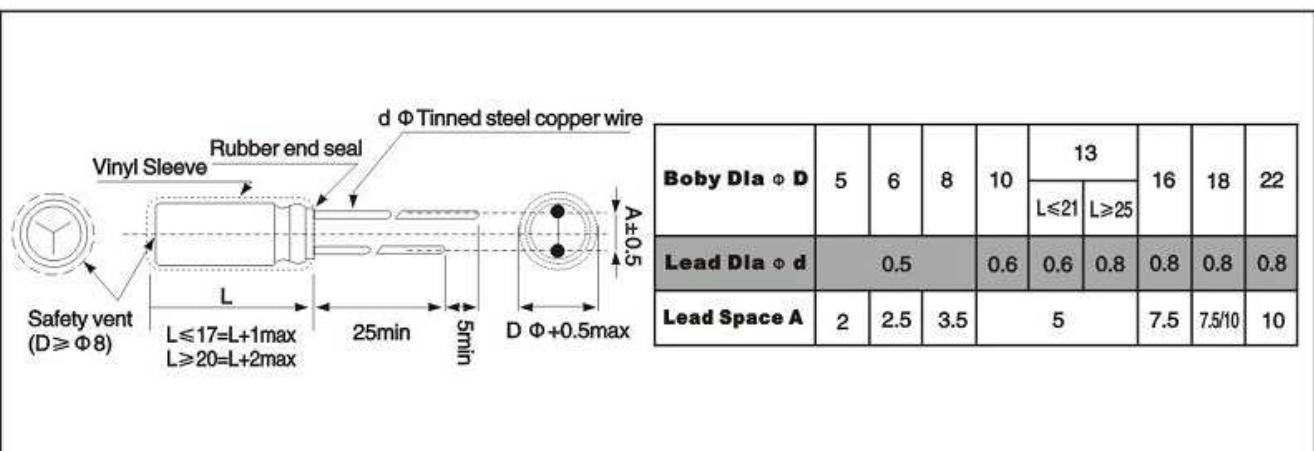
**TM Series** 高頻低阻抗電容器，105°C  
HIGH RIPPLE LOW IMPEDANCE LOWER E.S.R., 105°C CAPACITOR

- Low ESR and low impedance. Aluminum electrolytic capacitors are specially designed for high frequency application requiring low impedance and inductance characteristics.
- High temperature load life at 105°C for 2000 hours

## SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	-55 to +105°C								
Rated Voltage Range	6.3 to 100V dc								
Capacitance Tolerance	$\pm 20\%$ (M) (at 25°C, 120Hz)								
Leakage Current	$I=0.004CV$ or $3 \mu A$ , whichever is greater. (at 25°C after 2 minute) Where, I:Max. Leakage current( $\mu A$ ). C:Nominal capacitance( $\mu F$ ). V:Rated voltage(V)								
Dissipation Factor (tan $\delta$ )	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V
	Tan $\delta$ (Max.)	0.17	0.12	0.11	0.10	0.09	0.08	0.07	0.07
	When nominal capacitance exceeds 1000 $\mu F$ , add 0.02 to the value above for each 1000 $\mu F$ increase (at 25°C, 120Hz)								
Load.Life	The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to DC voltage with the rated ripple current is applied for 2000 hours at 105°C								
	Capacitance change	$\leq \pm 20\%$ of the initial value							
	DF(tan $\delta$ )	$\leq 200\%$ of the initial specified value							
	Leakage current	$\leq$ The initial specified value							
Shelf.Life	The following specifications shall be satisfied when the capacitors are restored to 25°C after exposing them for 500 hours at 105°C without voltage applied								
	Rated voltage	6.3 to 100 Vdc							
	Capacitance change	$\leq \pm 20\%$ of the initial value							
	DF(tan $\delta$ )	$\leq 200\%$ of the initial specified value							
	Leakage current	$\leq$ The initial specified value							

Diagram:(Unit:mm)



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## STANDARD RATINGS

$\mu\text{ F}$	Vdc	6.3	10	16	25	35	50	63	100
4.7							5*11	5*11	5*11
6.8							5*11	5*11	5*11
10							5*11	5*11	6.3*11
15						5*11	5*11	6.3*11	8*12
22					5*11	5*11	5*11	6.3*11	8*12
33				5*11	5*11	5*11	6.3*11	6.3*11	8*16
47				5*11	5*11	6.3*11	6.3*11 8*12	8*12	10*17
68				5*11	5*11	6.3*11	8*12	8*12	10*20
100		5*11	6.3*11	6.3*11	8*12	8*12	10*17	13*20	
220	6.3*11	6.3*11	8*12	8*12	8*16 10*17	10*17	13*20	13*25	
330	6.3*12 8*12	6.3*15 8*12	6.3*15 8*16	8*16	10*17	10*20	13*25	16*25	
470	8*12	8*14	8*14 8*16	10*17	10*20	13*20	13*25	16*32	
680	8*14	8*16	8*16 8*20	10*20	13*20	13*25	16*25	16*36	
820	8*16	8*16	8*20 10*17	10*20	13*20	16*25	16*36	18*40	
1,000	8*12 8*16	8*20 10*20	8*24 10*20	13*20	10*30 13*25	16*25	18*32 18*36		
1,200	8*20 10*17	10*20	10*25 13*20	10*30 13*20	13*25	16*36	18*40		
1,500	10*20	10*25 13*20	10*30 13*20	13*25	13*30 16*25	18*36			
2,200	8*24 10*20	10*25 13*20	10*30 13*25	13*25 13*30	16*32				
3,300	10*25	10*30 13*30	10*35 13*30	16*32	18*36				
4,700	13*25	10*30 13*36	13*36 16*36	18*36	18*40				
6,800	16*25	13*40 16*32	18*36	18*40					
8,200	16*25	16*36	18*36						
10,000	16*36	18*36	18*40						
15,000	18*36								



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## STANDARD RATINGS {IMPEDANCE AT 100KHz, 25°C(Ohm)}

$\mu F$	Vdc	6.3	10	16	25	35	50	63	100
<b>4.7</b>							2.40	2.40	2.40
<b>6.8</b>							2.10	2.20	1.85
<b>10</b>							1.80	1.90	1.80
<b>15</b>						2.15	1.40	1.20	1.40
<b>22</b>					1.80	1.50	1.00	0.85	1.00
<b>33</b>				1.26	1.20	1.30	0.80	0.63	0.80
<b>47</b>				0.52	0.48	0.50	0.50 0.53	0.55	0.45
<b>68</b>				0.58	0.58	0.22	0.35	0.52	0.24
<b>100</b>		0.46	0.31	0.28	0.18	0.25	0.35	0.18	
<b>220</b>	0320	0.220	0.140	0.12	0.088 0.086	0.10	0.15	0.071	
<b>330</b>	0.220 0.180	0.180 0.140	0.130 0.110	0.085	0.065	0.07	0.10	0.07	
<b>470</b>	0.140	0.12	0.092 0.090	0.064	0.055	0.050	0.050	0.045	
<b>680</b>	0.100	0.090	0.064 0.059	0.046	0.038	0.050	0.052	0.040	
<b>820</b>	0.090	0.080	0.060 0.046	0.042	0.034	0.040	0.048	0.036	
<b>1,000</b>	0.085 0.069	0.069 0.060	0.055 0.046	0.038	0.030 0.030	0.039	0.045 0.042		
<b>1,200</b>	0.067 0.064	0.046	0.042 0.040	0.035 0.030	0.028	0.025	0.036		
<b>1,500</b>	0.055	0.043 0.040	0.034 0.032	0.028	0.026 0.023	0.025			
<b>2,200</b>	0.043 0.041	0.039 0.035	0.030 0.028	0.030 0.026	0.021				
<b>3,300</b>	0.039 0.035	0.035 0.028	0.024 0.022	0.019	0.019				
<b>4,700</b>	0.028	0.038 0.030	0.024 0.022	0.019	0.019				
<b>6,800</b>	0.028	0.023 0.022	0.019	0.019					
<b>8,200</b>	0.022	0.019	0.019						
<b>10,000</b>	0.019	0.019	0.019						
<b>15,000</b>	0.019								



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*STANDARD RATINGS {PERMISSIBLE RIPPLE CURRENT AT 100KHz, 105°C} (mA, ms)*

$\mu\text{ F}$	Vdc	6.3	10	16	25	35	50	63	100
<b>4.7</b>							115	100	115
<b>6.8</b>							160	115	130
<b>10</b>							165	130	150
<b>15</b>						140	175	150	190
<b>22</b>					140	160	190	190	260
<b>33</b>				140	160	190	200	260	310
<b>47</b>		140		160	190	200	265 295	310	440
<b>68</b>		160		190	200	265	310	410	490
<b>100</b>		190		200	265	310	410	440 460	520
<b>220</b>	265	310		410	440	490 510	520	700	1,120
<b>330</b>	280 310	390 410		410 440	490	520	700	900	1,350
<b>470</b>	410	440		455 490	520	700	900	1,120	1,570
<b>680</b>	440	490		500 520	630 700	900	1,120	1,350	1,610
<b>820</b>	490	520		700	900	1,120	1,350	1,570	1,810
<b>1,000</b>	520 580	650 700		790 900	1,120	1,250 1,350	1,570	1,430 1,610	
<b>1,200</b>	560 700	900		1,010 1,120	1,220 1,350	1,570	1,610	1,810	
<b>1,500</b>	900	1,050 1,120		1,220 1,350	1,570	1,590 1,610	1,810	2,240	
<b>2,200</b>	980 1,120	1,220 1,350		1,450 1,570	1,580 1,610	1,710	2,240		
<b>3,300</b>	1,350	1,410 1,570		1,580 1,610	1,710	1,810			
<b>4,700</b>	1,570	1,580 1,670		1,710	1,810	2,240			
<b>6,800</b>	1,610	1,610 1,710		1,810	2,240				
<b>8,200</b>	1,710	1,810		2,240					
<b>10,000</b>	1,810	2,240		2,850					
<b>15,000</b>	2,240								