

# ALUMINUM ELECTROLYTIC CAPACITOR

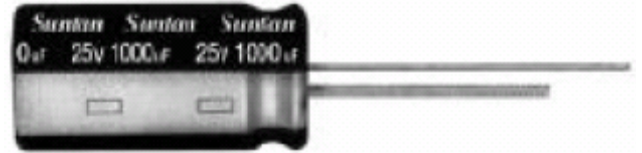
Suntan®

105°C, EXTRA LOW IMPEDANCE, LONG LIFE

## TS13D CD287

### FEATURES

- Load life of 5000 hours at 105°C, equal to 160000 hours (18 years)
- at 55°C (Φ5~Φ6: 2000hours Φ8~Φ10: 3000hours) Ultra lower impedance
- Switch power supply
- Excellent ripple current capability

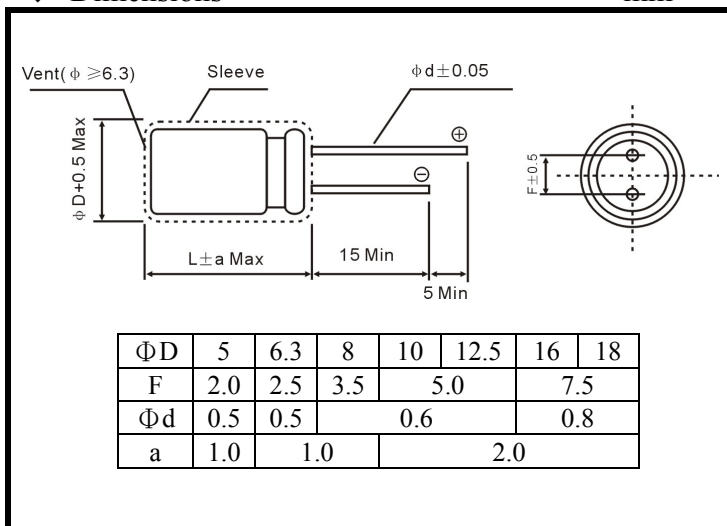


### ◆ Specifications

I T E M S P E R F O R M A N C E C H A R A C T E R I S T I C S																			
Operating Temperature Range(°C)	-55~+105																		
Rated Voltage Range (V)	6.3~100																		
Capacitance Range (μF)	0.47~15000																		
Capacitance Tolerance(25°C, 120Hz)	±20%																		
Leakage Current(μA)	1≤0.02CV or 3uA, whichever is greater (after 2 minutes at 25°C) Where, C: Nominal Capacitance (μF) V: Rated Voltage (V)																		
Dissipation Factor(25°C, 120Hz)	<table border="1"> <tr> <td>Wv (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Tan δ</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> </tr> </table> <p>0.02 is added to each 1000 μF increase over 1000 μF</p>	Wv (V)	6.3	10	16	25	35	50	63	100	Tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08
Wv (V)	6.3	10	16	25	35	50	63	100											
Tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08											
Temperature Stability (120Hz)	<table border="1"> <tr> <td>Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Z-55°C/Z+20°C</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated Voltage	6.3	10	16	25	35	50	63	100	Z-55°C/Z+20°C	3	3	3	3	3	3	3	3
Rated Voltage	6.3	10	16	25	35	50	63	100											
Z-55°C/Z+20°C	3	3	3	3	3	3	3	3											
Load Life (105°C)	<table border="1"> <tr> <td>Time</td> <td>5000hours (Φ5~6: 2000hours Φ8~10: 3000hours)</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> </tr> <tr> <td>Capacitance Change</td> <td>Within±20% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value.</td> </tr> </table>	Time	5000hours (Φ5~6: 2000hours Φ8~10: 3000hours)	Leakage Current	Not more than the specified value.	Capacitance Change	Within±20% of the initial value	Dissipation Factor	Not more than 200% of the specified value.										
Time	5000hours (Φ5~6: 2000hours Φ8~10: 3000hours)																		
Leakage Current	Not more than the specified value.																		
Capacitance Change	Within±20% of the initial value																		
Dissipation Factor	Not more than 200% of the specified value.																		
Shelf Life (105°C)	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life Characteristics listed above. *after test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.																		

### ◆ Dimensions

mm



### ◆ Multiplier for ripple current

#### Frequency coefficient

Freq(Hz)	120	1K	10K	100K
Cap(μF)				
0.47~4.7	0.40	0.68	0.78	1.0
5.6~47	0.50	0.76	0.87	1.0
56~270	0.70	0.85	0.90	1.0
330~1000	0.80	0.93	0.98	1.0
1200~15000	0.90	0.95	1.0	1.0

#### Temperature coefficient

Temperature	+70	+85	+105
Factor	1.96	1.68	1.0

Dia	Life Time
5~6.3	2000h
8~10	3000h
≥13	5000h

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# TS13D CD287

## ◆ STANDARD RATINGS

WV (V) / □DxL (mm)	6.3V				10V			
	Cap	Impedance(Ω) / 100KHz		Ripple	Cap	Impedance(Ω) / 100KHz		Ripple
	μF	20°C	-10°C	mArms	μF	20°C	-10°C	mArms
5x11.5	100	0.65	1.3	175	82	0.65	1.3	175
5x15	150	0.46	0.92	235	100	0.46	0.92	235
6.3x11.5	220	0.30	0.60	290	180	0.30	0.60	290
6.3x15	330	0.20	0.40	400	220	0.20	0.40	400
8x12	470	0.17	0.64	488	330	0.17	0.34	488
8x15	680	0.13	0.26	617	470	0.13	0.26	617
8x20	1000	0.095	0.19	800	680	0.095	0.19	800
10x12.5	680	0.12	0.24	613	470	0.12	0.24	613
10x16	820	0.095	0.19	734	560	0.095	0.19	734
10x20	1200	0.065	0.13	1010	1000	0.065	0.12	1010
10x25	1500	0.055	0.11	1190	1200	0.055	0.11	1190
10x30	2200	0.045	0.090	1440	1500	0.045	0.090	1440
12.5x15	1200	0.065	0.13	1010	1000	0.065	0.13	1010
12.5x20	2200	0.042	0.084	1400	1800	0.042	0.084	1400
12.5x25	2700	0.038	0.076	1690	2200	0.038	0.076	1690
12.5x30	3900	0.032	0.064	1950	2700	0.032	0.064	1950
12.5x35	4700	0.028	0.056	2220	3300	0.028	0.056	2220
12.5x40	5600	0.026	0.052	2390	3900	0.026	0.052	2390
16x15	2700	0.046	0.092	1310	1800	0.046	0.092	1310
16x20	4700	0.034	0.068	1660	3300	0.034	0.068	1660
16x25	5600	0.028	0.056	2070	3900	0.028	0.056	2070
16x31.5	6800	0.025	0.050	2350	5600	0.025	0.050	2350
16x35.5	8200	0.022	0.044	2550	6800	0.022	0.044	2550
16x40	12000	0.020	0.040	2970	8200	0.020	0.040	2970
18x15	3300	0.043	0.086	1460	2200	0.043	0.086	1460
18x20	5600	0.030	0.060	1850	3900	0.030	0.060	1850
18x25	6800	0.027	0.054	2120	4700	0.027	0.054	2120
18x31.5	10000	0.023	0.046	2410	6800	0.023	0.046	2410
18x35.5	12000	0.019	0.038	2680	8200	0.019	0.038	2680
18x40	15000	0.018	0.036	3010	10000	0.018	0.036	3010

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WV (V) / □DxL (mm)	16V				25V			
	Cap	Impedance(Ω) / 100KHz		Ripple	Cap	Impedance(Ω) / 100KHz		Ripple
	μF	20°C	-10°C	mArms	μF	20°C	-10°C	mArms
5x11.5	56	0.65	1.3	175	39	0.65	1.3	175
5x15	82	0.46	0.92	235	56	0.46	0.92	235
6.3x11.5	120	0.30	0.60	290	82	0.30	0.60	290
6.3x15	180	0.20	0.40	400	120	0.20	0.40	400
8x12	270	0.17	0.34	501	180	0.17	0.34	503
8x15	330	0.13	0.26	575	220	0.13	0.26	575
8x20	470	0.095	0.19	760	330	0.095	0.19	751
10x12.5	330	0.12	0.24	625	220	0.12	0.24	629
10x16	390	0.095	0.19	795	270	0.095	0.19	795
10x20	680	0.065	0.13	1010	470	0.065	0.13	1010
10x25	820	0.055	0.11	1190	560	0.055	0.11	1190
10x30	1200	0.045	0.090	1430	820	0.045	0.090	1440
12.5x15	6800	0.065	0.13	1010	470	0.065	0.13	1010
12.5x20	1200	0.042	0.084	1400	820	0.042	0.084	1400
12.5x25	1500	0.038	0.076	1690	1000	0.065	0.076	1690
12.5x30	2200	0.032	0.064	1950	1500	0.032	0.064	1950
12.5x35	2700	0.028	0.056	2220	1800	0.028	0.056	2200
12.5x40	3300	0.026	0.052	2390	2200	0.026	0.052	2390
16x15	1500	0.046	0.092	1340	820	0.046	0.092	1360
16x20	2200	0.034	0.068	1730	1500	0.034	0.068	1730
16x25	2700	0.028	0.056	2070	1800	0.028	0.056	2070
16x31.5	3900	0.025	0.050	2350	2700	0.025	0.050	2350
16x35.5	4700	0.022	0.044	2550	3300	0.022	0.044	2550
16x40	5600	0.020	0.040	2900	3900	0.020	0.040	2900
18x15	1500	0.043	0.086	1490	1200	0.043	0.086	1500
18x20	2700	0.030	0.060	1870	1800	0.030	0.060	1890
18x25	3900	0.027	0.054	2160	2700	0.027	0.054	2180
18x31.5	4700	0.023	0.046	2450	3300	0.023	0.046	2470
18x35.5	6800	0.019	0.038	2730	3900	0.019	0.038	2740
18x40	8200	0.018	0.036	3060	4700	0.018	0.036	3070

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## ◆ STANDARD RATINGS

WV (V) / □DxL (mm)	35V				50V			
	Cap	Impedance( $\Omega$ ) / 100KHz		Ripple	Cap	Impedance( $\Omega$ ) / 100KHz		Ripple
	$\mu$ F	20°C	-10°C	mArms	$\mu$ F	20°C	-10°C	mArms
5x11.5	--	--	--	--	0.47	3.9	7.8	22
5x11.5	--	--	--	--	1	3.5	7.0	36
5x11.5	--	--	--	--	2.2	3.0	6.0	54
5x11.5	--	--	--	--	3.3	2.6	5.2	63
5x11.5	--	--	--	--	4.7	2.2	4.4	75
5x11.5	--	--	--	--	10	1.4	2.8	110
5x11.5	27	0.65	1.3	175	18	0.95	1.9	120
5x15	39	0.46	0.92	235	27	0.55	1.1	135
6.3x11.5	56	0.30	0.06	290	39	0.36	0.72	148
6.3x15	82	0.20	0.04	400	56	0.28	0.56	153
8x12	120	0.17	0.34	501	68	0.20	0.40	360
8x15	180	0.13	0.26	575	82	0.18	0.36	460
8x20	220	0.095	0.19	760	120	0.13	0.26	670
10x12.5	150	0.12	0.24	625	82	0.18	0.36	443
10x16	180	0.095	0.19	795	100	0.15	0.30	553
10x20	330	0.065	0.13	1010	180	0.085	0.17	676
10x25	390	0.055	0.11	1190	220	0.075	0.15	876
10x30	560	0.045	0.090	1450	330	0.055	0.11	1010
25.5x15	330	0.065	0.13	1010	180	0.095	0.19	754
12.5x20	560	0.042	0.084	1400	330	0.060	0.12	979
12.5x25	680	0.038	0.076	1690	470	0.044	0.088	1180
12.5x30	1000	0.032	0.064	1950	560	0.040	0.080	1310
12.5x35	1200	0.028	0.056	2200	680	0.036	0.072	1470
12.5x40	1500	0.026	0.052	2390	820	0.034	0.068	1590
16x15	560	0.046	0.092	1360	330	0.065	0.013	982
16x20	1000	0.034	0.068	1730	680	0.045	0.090	1210
16x25	1200	0.028	0.056	2070	820	0.038	0.076	1490
16x31.5	1800	0.025	0.050	2350	1000	0.032	0.064	1890
16x35.5	2200	0.022	0.044	2550	1200	0.028	0.056	2140
16x40	2700	0.020	0.040	2900	1500	0.026	0.052	2410
18x15	680	0.043	0.086	1520	470	0.048	0.086	1080
18x20	1200	0.030	0.060	1900	820	0.036	0.072	1450
18x25	1800	0.027	0.054	2200	1000	0.032	0.064	1720
18x31.5	2200	0.023	0.046	2490	1500	0.026	0.052	1970
18x35.5	2700	0.019	0.038	2770	1800	0.025	0.050	2310
18x40	3300	0.018	0.036	3110	2200	0.024	0.048	2530

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## ◆ STANDARD RATINGS

WV (V) / □DxL (mm)	63V				100V			
	Cap	Impedance( $\Omega$ ) / 100KHz		Ripple	Cap	Impedance( $\Omega$ ) / 100KHz		Ripple
	$\mu$ F	20°C	-10°C	mArms	$\mu$ F	20°C	-10°C	mArms
5x11.5	12	1.2	3.6	120	5.6	1.9	7.6	57
5x15	18	0.85	2.6	135	8.2	1.3	5.2	74
6.3x11.5	27	0.55	1.7	148	12	1.1	4.4	78
6.3x15	39	0.38	1.1	153	18	0.62	2.5	85
8x12	47	0.32	0.96	360	22	0.53	2.1	275
8x15	68	0.24	0.72	469	33	0.35	1.4	360
8x20	82	0.17	0.51	682	39	0.27	1.1	490
10x12.5	56	0.23	0.69	448	27	0.47	1.9	319
10x16	68	0.17	0.51	553	33	0.32	1.3	424
10x20	120	0.12	0.36	676	56	0.25	1.0	499
10x25	150	0.10	0.30	876	68	0.18	0.72	634
10x30	180	0.085	0.26	1020	100	0.15	0.60	739
12.5x15	150	0.11	0.33	754	68	0.20	0.80	613
12.5x20	220	0.075	0.23	979	100	0.13	0.52	805
12.5x25	270	0.065	0.20	1180	120	0.11	0.44	857
12.5x30	390	0.055	0.17	1310	180	0.090	0.36	1120
12.5x35	470	0.048	0.14	1470	220	0.075	0.30	1240
12.5x40	560	0.042	0.13	1590	270	0.060	0.24	1330
16x15	220	0.080	0.24	982	120	0.13	0.52	706
16x20	390	0.057	0.17	1210	180	0.11	0.44	916
16x25	470	0.052	0.16	1490	220	0.081	0.32	1290
16x31.5	680	0.042	0.13	1890	330	0.059	0.23	1630
16x35.5	820	0.036	0.11	2140	390	0.052	0.21	1750
16x40	1000	0.032	0.096	2410	470	0.045	0.18	1920
18x15	330	0.065	0.20	1200	150	0.12	0.48	871
18x20	470	0.058	0.17	1460	270	0.085	0.34	1170
18x25	680	0.050	0.15	1740	330	0.071	0.28	1500
18x31.5	820	0.042	0.13	1990	390	0.058	0.23	1630
18x35.5	1000	0.035	0.11	2340	560	0.054	0.22	1920
18x40	1200	0.032	0.096	2560	680	0.041	0.16	2100

105°C, EXTRA LOW IMPEDANCE, LONG LIFE

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## ◆ Typical Curves

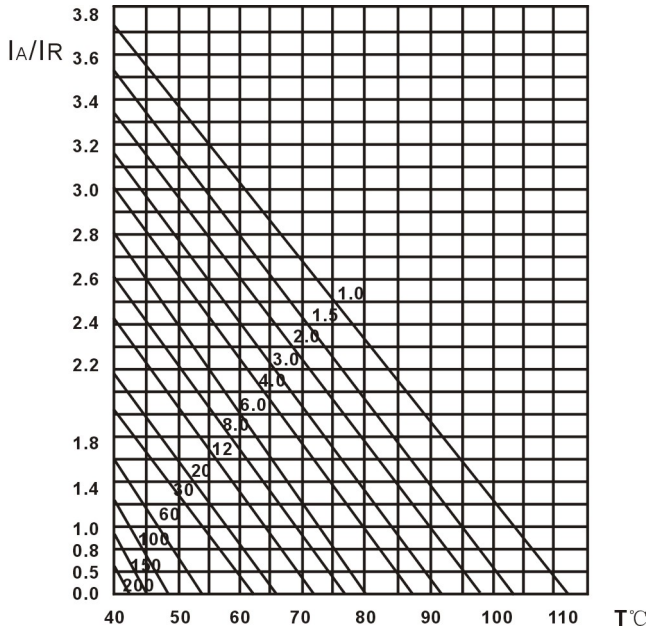


Fig.4 Multiplier of useful life as a function of ambient temperature and ripple current load  
 $I_A$  = actual ripple current 120KHz  
 $I_R$  = rated ripple current at 100KHz, 105°C

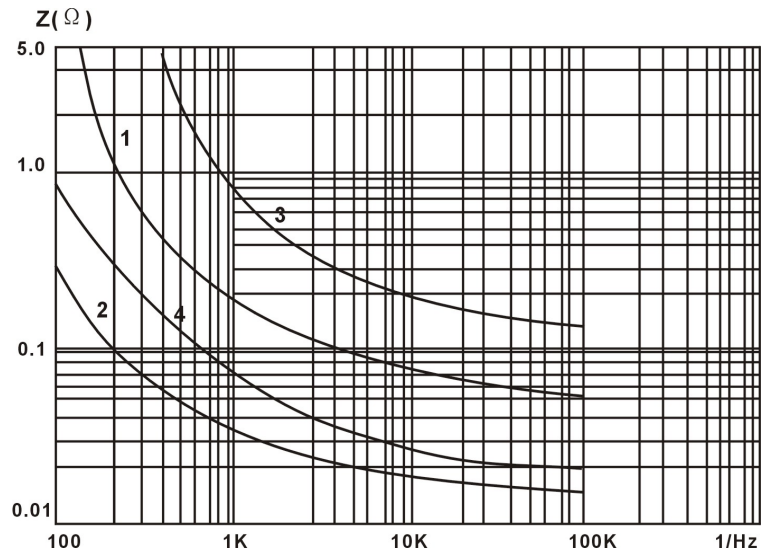


Fig.3 Typical impedance as a function of frequency

1.	10V1000 $\mu$ F	10x20
2.	10V10000 $\mu$ F	18x35.5
3.	63V100 $\mu$ F	10x20
4.	63V1000 $\mu$ F	18x35.5

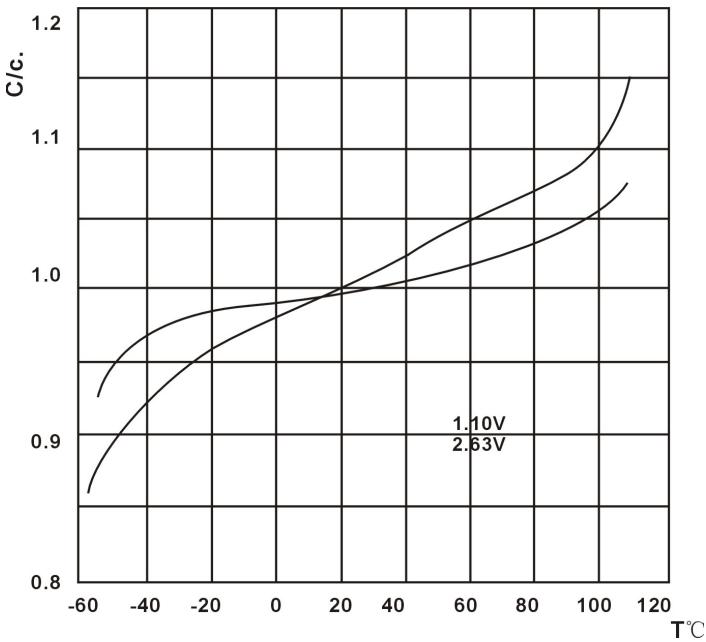


Fig.1 Typical multiplier of capacitance as a function of ambient temperature  
 $C_0$  = capacitance at 25°C, 120Hz

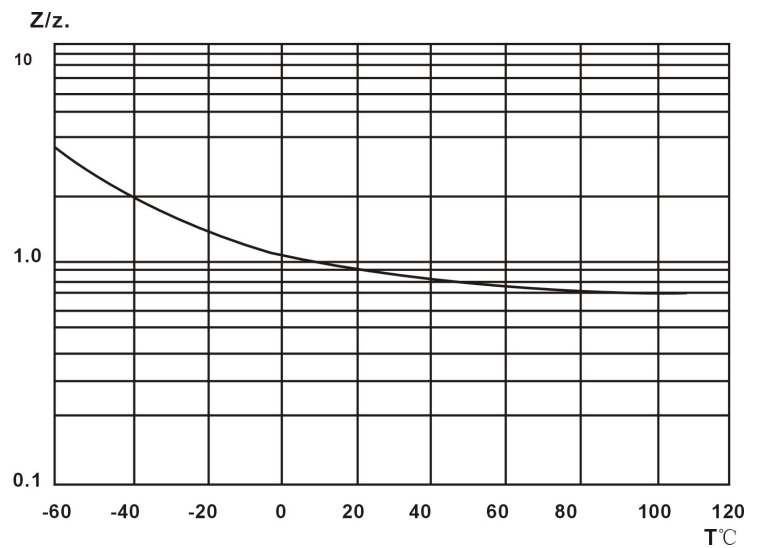


Fig.2 Typical multiplier of impedance as a function of ambient temperature  
 $Z_0$  - typical impedance to 25°C, 100KHz

Note: Specification are subject to change without notice. For more detail and update, please visit our website.