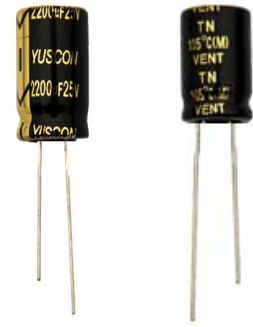


Aluminum Electrolytic Capacitors



TN Series

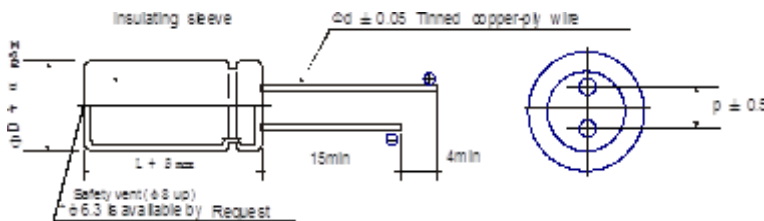
- 105°C High ripple current , Low Impedance.Long Life
- 2000 hours guaranteed for $\Phi D \leq \Phi 5 \sim 6.3$; 3000 hous guaranteed for $\Phi D = \Phi 8$
5000 hours guaranteed for $\Phi D \geq \Phi 10$
- Used in communication equipments,switching power supply,etc
- Rohs compliance.



◆ SPECIFICATIONS

Item	Characteristics																		
Operating Temperature Range	-40 ~ +105°C																		
Voltage Range	6.3 ~100 V.DC																		
Nominal Cap. Range	6.8~ 18000 μ F																		
Capacitance Tolerance	-20% ~ +20% (at 20°C, 120Hz)																		
Leakage Current	$I = 0.01CV$ or $3(\mu A)$ whichever is greater.(after 2 minutes) where,I: Max Leakage Current(μA), C: Nominal Capacitance(μF), V: Rated Voltage(V) (at 20°C)																		
Dissipation Factor (tan δ) (at 120Hz, +20°C)	<table border="1"> <thead> <tr> <th>WV</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> </tr> </thead> <tbody> <tr> <td>tanδ</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.1</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table> <p>Add 0.02 per 1,000 μF for more than 1,000μF items .</p>	WV	6.3	10	16	25	35	50	63	100	tan δ	0.22	0.19	0.16	0.14	0.12	0.1	0.09	0.08
WV	6.3	10	16	25	35	50	63	100											
tan δ	0.22	0.19	0.16	0.14	0.12	0.1	0.09	0.08											
Low Temp. Impedance Stability at 120Hz	<table border="1"> <thead> <tr> <th>W.V.</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25 ~ 100</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </tbody> </table>	W.V.	6.3	10	16	25 ~ 100	Z(-25°C)/Z(+20°C)	4	3	2	2	Z(-40°C)/Z(+20°C)	8	6	4	3			
W.V.	6.3	10	16	25 ~ 100															
Z(-25°C)/Z(+20°C)	4	3	2	2															
Z(-40°C)/Z(+20°C)	8	6	4	3															
Impedance(Ω)	See case size table																		
High Temp. Load Test	After $\Phi D \leq \Phi 5 \sim 6.3$;2000 hours; $\Phi D \leq 8$: 3000 hours; $\Phi D \geq \Phi 10$: 5000 hours; application of DC rated working voltage at +105°C, the capacitor shall meet the following limits . Capacitance change ... $\leq \pm 25\%$ of the initial measured value Tan δ ... $\leq 200\%$ of the initial specified value DC leakage current ... \leq the initial specified value																		
High Temp. Non-Load Test	After storage for 1000 hours at 105°C with no voltage applied ,oltage treatment of JIS-C-5102 article 4-4 is to be given and then measurement shall be made ,at which time requirements specified in the table "High temperature loading " can be met.																		

◆ DRAWING



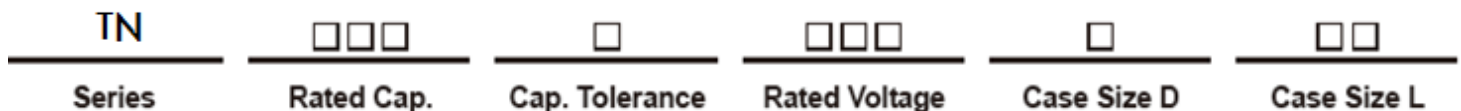
ΦD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.5	0.5	0.6	0.6	0.8	0.8
β	+1.5						
α	+0.5						

▼ MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

Cap (μ F)	120	1K	10K	100K
6.8~680	0.49	0.73	0.92	1.00
820~1800	0.60	0.80	0.96	1.00
2200~18000	0.70	0.85	0.98	1.00

◆ PART NUMBERING SYSTEM



Aluminum Electrolytic Capacitors



TN Series

STANDARD RATINGS

WV(Vdc) Parameter Cap (μF)	6.3V				WV(Vdc) Parameter Cap (μF)	10V			
	ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
150	5X11	210	0.58	2.3	100	5X11	210	0.58	2.3
330	6.3X11	340	0.22	0.87	220	6.3X11	340	0.22	0.87
680	8X11.5	640	0.13	0.52	470	8X11.5	640	0.13	0.52
820	10X12.5	865	0.08	0.32	680	8X16	840	0.087	0.35
1000	8X16	840	0.087	0.35	1000	10X16	1210	0.06	0.24
1200	8X20	1050	0.069	0.27	1200	10X20	1400	0.046	0.18
1200	10X16	1210	0.066	0.24	1500	10X25	1650	0.042	0.17
1500	10X20	1400	0.05	0.18	2200	10X28	1910	0.031	0.12
1800	10X20	1450	0.049	0.16	2700	13X25	2210	0.030	0.115
2200	10X20	1650	0.042	0.17	3300	13X30	2230	0.027	0.089
2700	10X25	1940	0.042	0.12	4700	13X34	2880	0.020	0.065
3300	13X20	1900	0.035	0.12	5600	13X40	3350	0.017	0.056
4700	13X30	2650	0.024	0.065	6800	16X31.5	3450	0.017	0.056
5600	13X35	2880	0.02	0.078	6800	18X25	3140	0.019	0.049
6800	13X40	3350	0.017	0.056	8200	16X35.5	3610	0.015	0.044
8200	16X31.5	3450	0.017	0.05	8200	18X31.5	4170	0.015	0.04
10000	16X35.5	3610	0.015	0.044	10000	18X35.5	4080	0.013	0.038
15000	18X35.5	4220	0.014	0.038	10000	18X40	4220	0.014	0.038
18000	18X40	4280	0.012	0.032	12000	18X40	4280	0.012	0.032

WV(Vdc) Parameter Cap (μF)	16V				WV(Vdc) Parameter Cap (μF)	25V			
	ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
56	5X11	210	0.58	2.3	47	5X11	210	0.58	2.3
120	6.3X11	340	0.22	0.87	100	6.3X11	340	0.22	0.87
330	8X11.5	640	0.13	0.52	220	8X11.5	640	0.13	0.52
470	10X12.5	865	0.087	0.35	330	6.3X15	510	0.27	1.08
680	10X16	1430	0.06	0.24	330	8*16	840	0.08	0.32
1000	10X20	1455	0.046	0.18	470	10X16	1216	0.06	0.24
1500	13X30	1900	0.035	0.12	680	10X20	1400	0.046	0.18
2200	13X25	2230	0.027	0.089	820	10X25	1650	0.042	0.17
2700	16X20	2530	0.027	0.078	1000	10X28	1900	0.031	0.12
3300	16X31.5	2880	0.02	0.065	1200	13X25	2210	0.030	0.11
4700	16X31.5	3450	0.017	0.056	1500	13X25	2230	0.027	0.089
5600	18X31.5	4170	0.015	0.05	2200	13X34	2880	0.020	0.065
6800	18X35.5	4200	0.014	0.04	2700	13X40	3350	0.017	0.056
8200	18X35.5	4220	0.014	0.038	3300	16X31.5	3450	0.019	0.049
10000	18X40	4280	0.012	0.032	4700	18X35.5	4220	0.014	0.038

Aluminum Electrolytic Capacitors

TN Series

STANDARD RATINGS

Parameter Cap (μF)	35V				Parameter Cap (μF)	50V			
	ΦDxL (mm)	Ripple current (mA _{rms}) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mA _{rms}) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
33	5X11	210	0.58	2.3	22	5X11	180	0.7	2.8
56	6.3X11	340	0.22	0.87	56	6.3X11	295	0.3	1.2
150	8X11.5	640	0.13	0.52	100	8X11.5	555	0.17	0.68
220	8X16	840	0.087	0.35	120	8X16	730	0.12	0.48
330	10X16	1210	0.06	0.24	150	8X16	760	0.12	0.48
470	10X20	1400	0.046	0.18	180	8X20	910	0.091	0.36
560	10X25	1650	0.042	0.17	220	10X16	1050	0.084	0.34
680	10X28	1910	0.031	0.12	330	10X25	1440	0.055	0.22
1000	13X25	2230	0.027	0.089	470	10X28	1690	0.043	0.17
1200	13X30	2650	0.024	0.078	560	13X25	1950	0.034	0.11
1500	13X34	2880	0.02	0.065	680	13X30	2310	0.03	0.1
1800	16X25	2930	0.021	0.06	820	16X20	2210	0.034	0.1
2200	16X31.5	3450	0.017	0.05	1000	16X25	2555	0.036	0.097
2700	18X31.5	4170	0.015	0.044	1200	18X25	2740	0.026	0.07
3300	18X35.5	4220	0.014	0.038	1500	16X35.5	3150	0.019	0.057
3900	18X40	4280	0.012	0.032	1800	18X31.5	3635	0.016	0.048
					2200	18X35.5	3680	0.015	0.046
					2700	18X40	3800	0.014	0.038

Parameter Cap (μF)	63V				Parameter Cap (μF)	100V			
	ΦDxL (mm)	Ripple current (mA _{rms}) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mA _{rms}) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
15	5X11	55	2.3	9.3	6.8	5X11	55	2.3	9.3
33	6.3X11	115	1.2	5.0	15	6.3X11	115	1.2	5.0
56	8X11.5	232	0.63	2.8	47	8X16	288	0.43	1.8
82	10X12.5	288	0.45	2.1	68	10X16	357	0.31	1.5
120	10X16	357	0.33	1.6	82	10X20	466	0.21	0.94
180	10X20	466	0.21	0.94	100	10X25	531	0.20	0.84
220	10X25	531	0.20	0.84	120	13X20	663	0.16	0.64
330	13X25	784	0.12	0.45	150	13X25	795	0.14	0.62
470	13X30	905	0.10	0.42	180	13X25	784	0.12	0.45
560	13X34	1050	0.083	0.35	220	13X30	905	0.10	0.42
680	13X40	1180	0.071	0.30	330	13X40	1180	0.071	0.27
820	16X31.5	1570	0.054	0.20	470	18X31.5	1630	0.047	0.30
1000	18X31.5	1630	0.047	0.17	560	18X35.5	2020	0.040	0.17
1200	18X35.5	1790	0.040	0.15	680	18X35.5	1790	0.040	0.15
1500	18X40	2330	0.036	0.13	820	18X40	2330	0.036	0.123