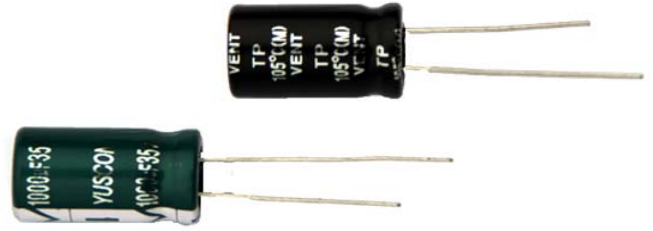


Aluminum Electrolytic Capacitors



TP Series

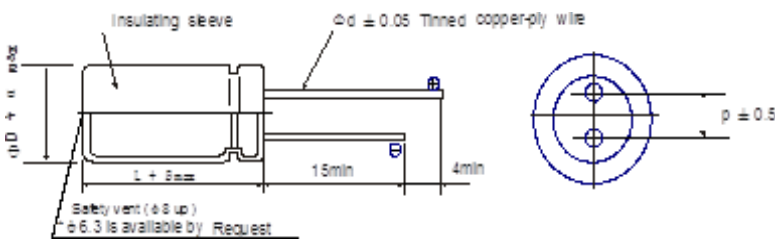
- Low Impedance for high frequency, Low ESR.
- Load Life 1000hrs at 105 depending on case size.
- Radial type for switching power supply.
- ROHS compliance



◆ SPECIFICATIONS

Item	Characteristics															
Operating Temperature Range	-40 ~ +105°C															
Voltage Range	6.3 ~50 V.DC															
Nominal Cap. Range	100~ 10000 μF															
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 (tanδ) (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> </tr> </thead> <tbody> <tr> <td>tanδ</td> <td>0.15</td> <td>0.15</td> <td>0.12</td> <td>0.1</td> <td>0.1</td> <td>0.1</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	tanδ	0.15	0.15	0.12	0.1	0.1	0.1	
WV	6.3	10	16	25	35	50										
tanδ	0.15	0.15	0.12	0.1	0.1	0.1										
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 ~ 50</th> </tr> </thead> <tbody> <tr> <td>$Z(-25^{\circ}C)/Z(+20^{\circ}C)$</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> </tr> <tr> <td>$Z(-40^{\circ}C)/Z(+20^{\circ}C)$</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </tbody> </table>	W.V.	6.3	10	16	25 ~ 50	$Z(-25^{\circ}C)/Z(+20^{\circ}C)$	4	3	2	2	$Z(-40^{\circ}C)/Z(+20^{\circ}C)$	8	6	4	3
W.V.	6.3	10	16	25 ~ 50												
$Z(-25^{\circ}C)/Z(+20^{\circ}C)$	4	3	2	2												
$Z(-40^{\circ}C)/Z(+20^{\circ}C)$	8	6	4	3												
Impedance(Ω)	See case size table															
High Temp. Load Test	After 1000 hours,application of DC rated working voltage at 105°C, the capacitor shall meet the following limits . Capacitance change ... $\cong \pm 20\%$ of the initial measured value Tan δ ... $\cong 200\%$ of the initial specified value DC leakage current ... \cong the initial specified value															
High Temp. Non-Load Test	After storage for 500 hours at 105°C with no voltage applied ,voltage 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



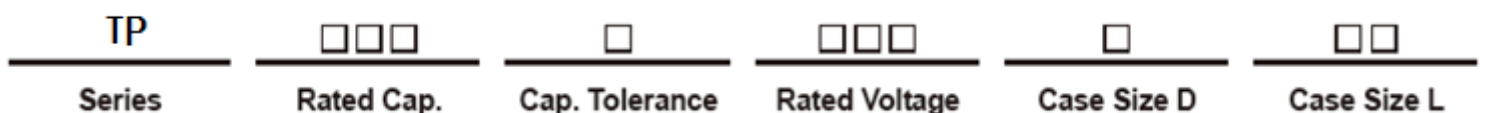
ΦD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.5	0.5	0.6	0.6	0.8	0.8
β	+1.5						
α	+0.5						

▼ MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

Cap (μ F) \ Freq. (HZ)	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



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STANDARD RATINGS

Cap (μF)	Parameter	6.3V				Cap (μF)	Parameter	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
470		8X11.5	542	0.18	0.72	470	8X11.5	570	0.24	0.52	
680		8X11.5	570	0.13	0.52	680	8X11.5	618	0.22	0.48	
820		8X11.5	608	0.13	0.52	680	8X16	703	0.089	0.35	
1000		8X11.5	620	0.13	0.52	1000	8X14	755	0.081	0.31	
1000		8X14	665	0.078	0.31	1000	8X20	903	0.069	0.27	
1500		8X16	836	0.074	0.3	680	10X12.5	770	0.089	0.32	
1200		8X20	903	0.069	0.27	1000	10X16	998	0.069	0.24	
1500		8X20	1045	0.058	0.24	1200	10X16	1045	0.062	0.20	
820		10X12.5	770	0.085	0.32	1000	10X20	1245	0.051	0.19	
1000		10X16	950	0.06	0.2	1500	10X20	1444	0.051	0.19	
1200		10X16	998	0.064	0.24	2200	10X20	1444	0.036	0.14	
1500		10X16	1045	0.058	0.21	2200	10X30	1720	0.031	0.12	
1500		10X20	1245	0.034	0.18	1500	13X16	1283	0.050	0.18	
2200		10X20	1340	0.033	0.17	2200	13X20	1615	0.040	0.12	
2700		10X25	1720	0.033	0.12	3300	10X25	1910	0.030	0.089	
1800		13X16	1378	0.042	0.16	3900	13X30	2138	0.028	0.078	
3300		13X20	1805	0.038	0.12	4700	13X35	2356	0.024	0.073	
3900		13X25	1929	0.03	0.099	5600	13X40	2898	0.017	0.056	
4700		13X30	2261	0.028	0.098	3900	16X20	2214	0.027	0.078	
5600		13X35	2356	0.024	0.085	5600	16X25	2480	0.021	0.060	
5600		16X20	2214	0.046	0.088	6800	16X31.5	2993	0.017	0.050	
6800		16X25	2499	0.044	0.09	8200	16X35.5	3050	0.015	0.044	
8200		16X31.5	2993	0.04	0.08	10000	16X40	3686	0.013	0.038	
10000		16X35.5	3050	0.038	0.084	5600	18X20	2717	0.026	0.067	
12000		16X40	3686	0.036	0.07	6800	18X25	2983	0.019	0.049	
6800		18X20	2717	0.026	0.067	8200	18X31.5	3677	0.015	0.040	
10000		18X25	2983	0.019	0.067						

Cap (μF)	Parameter	16V				Cap (μF)	Parameter	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
330		8X11.5	475	0.26	0.52	220	8X11.5	475	0.13	0.52	
470		8X11.5	570	0.12	0.39	330	8X16	703	0.097	0.35	
470		8X16	703	0.093	0.35	470	8X20	584	0.089	0.33	
680		8X20	903	0.069	0.27	330	8X20	903	0.078	0.31	
220		10X12.5	770	0.092	0.32	470	10X12.5	903	0.060	0.24	
330		10X12.5	770	0.080	0.32	330	10X12.5	903	0.078	0.31	
470		10X12.5	808	0.080	0.32	330	10X16	998	0.060	0.24	
470		8X20	865	0.072	0.28	470	10X16	998	0.060	0.24	
1000		8X20	865	0.072	0.28	680	10X20	1245	0.046	0.18	
680		10X16	1045	0.069	0.24	820	10X20	1245	0.058	0.21	
1000		10X16	1045	0.060	0.22	1000	10X30	1720	0.045	0.12	
1500		10X20	1283	0.048	0.173	1000	13X20	1615	0.035	0.12	
2200		10X25	1484	0.039	0.150	1500	13X25	1938	0.027	0.089	
2200		13X25	1929	0.030	0.089	1800	13X30	2233	0.024	0.078	
2700		13X30	2233	0.026	0.078	2200	13X35	2356	0.020	0.065	
3300		13X35	2356	0.024	0.065	2700	13X40	2898	0.017	0.056	
3900		13X40	2898	0.020	0.059	1800	18X20	2214	0.027	0.078	
2700		16X20	2214	0.030	0.078	2700	16X25	2499	0.021	0.060	
3900		16X25	2499	0.024	0.060	3300	16X31.5	2993	0.017	0.050	
4700		16X31.5	2993	0.019	0.050	3900	16X35.5	3050	0.015	0.044	
5600		16X35.5	3050	0.018	0.044	4700	16X40	3686	0.013	0.038	
6800		16X40	3686	0.016	0.038	2200	18X20	2717	0.026	0.067	
3900		18X20	2717	0.029	0.067	3300	18X25	2983	0.019	0.049	
4700		18X25	2983	0.021	0.049	3900	18X31.5	3677	0.015	0.040	
5600		18X31.5	3677	0.018	0.040	4700	18X35.5	3743	0.014	0.038	
8200		18X35.5	3743	0.016	0.038	5600	18X40	3895	0.012	0.032	

Aluminum Electrolytic Capacitors



TP Series

STANDARD RATINGS

Parameter Cap (μF)	35V				Parameter Cap (μF)	50V			
	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
100	8X11.5	513	0.24	0.52	100	8X11.5	527	0.24	0.68
220	8X16	798	0.089	0.35	120	8X16	694	0.18	0.48
270	8X20	808	0.091	0.34	180	8X20	770	0.14	0.36
220	10X16	822	0.075	0.32	150	10X12.5	713	0.15	0.48
330	10X16	1055	0.064	0.28	220	10X16	903	0.13	0.34
470	10X20	1245	0.051	0.19	330	10X20	1178	0.089	0.22
560	10X25	1340	0.048	0.17	470	10X25	1416	0.076	0.19
680	10X30	1625	0.037	0.13	470	13X20	1387	0.056	0.19
680	13X20	1834	0.038	0.12	560	13X25	2005	0.044	0.14
1000	13X25	1834	0.029	0.089	680	13X30	2005	0.042	0.13
1200	13X30	2233	0.027	0.078	820	13X35	2100	0.037	0.085
1500	13X35	2451	0.024	0.065	1000	13X40	2489	0.028	0.073
1800	13X40	2898	0.019	0.060	820	16X20	1910	0.038	0.12
1200	16X20	2024	0.030	0.078	1000	16X25	2237	0.034	0.078
1800	16X25	2499	0.024	0.060	1200	16X31.5	2670	0.027	0.069
2200	16X31.5	2993	0.019	0.050	1500	16X35.5	2803	0.026	0.058
2700	16X35.5	3183	0.017	0.044	1800	16X40	3145	0.019	0.054
3300	16X40	3591	0.016	0.038	1000	18X20	2176	0.039	0.011
1800	18X20	2432	0.026	0.067	1200	18X25	2413	0.031	0.072
2200	18X25	2698	0.019	0.049	1800	18X31.5	3259	0.026	0.059
2700	18X31.5	3677	0.015	0.040	2700	18X40	3610	0.014	0.038
3900	18X40	4066	0.012	0.032					