

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



Ultra Low Impedance, Long Life Series



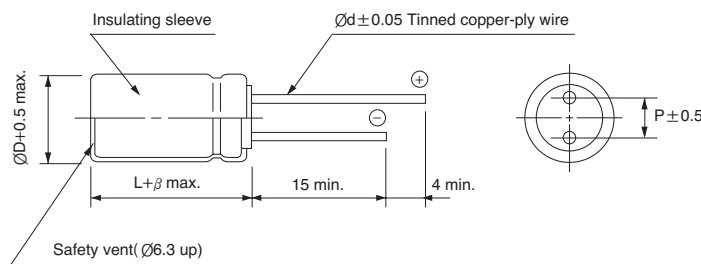
- Long Life compared with MZ series
- Enabled high ripple current by a reduction of impedance at high frequency
- High reliability withstanding 10000 hours load life at 105°C (6000/8000 hours for as specified below)
- Complied to the RoHS directive



Item	Characteristics																	
Operating temperature range	-40 ~ +105°C																	
Leakage current max.	I = 0.01CV or 3μA whichever is greater (after 2 minutes) I = 0.03CV or 4μA whichever is greater (after 1 minute)																	
Capacitance tolerance	±20% at 120Hz, 20°C																	
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000μF : tanδ increases by 0.02 for each 1000μF from below value.																	
	<table border="1"> <tr> <td>WV</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>tanδ</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>	WV	6.3	10	16	25	35	50	63	100	tanδ	0.22	0.19	0.16	0.14	0.12	0.10	0.09
WV	6.3	10	16	25	35	50	63	100										
tanδ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08										
Low temperature characteristics (Impedance ratio at 120Hz)	Z-40°C / Z+20°C																	
	Z-25°C / Z+20°C																	
Load life	After an application of DC bias voltage plus the rated AC ripple current for 10000 hours at 105°C. The measurement shall meet the following limits. The DC voltage plus the peak AC voltage combined must not exceed the rated voltage.																	
	Leakage current	Less than specified value																
	Capacitance change	Within ±25% of initial value																
	tanδ	Less than 200% of specified value																
Shelf life (at 105°C)	After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C 6035 clause 5.4.																	
	<table border="1"> <tr> <td>∅D</td> <td>∅D = 5, 6.3</td> <td>∅D = 8</td> <td>∅D ≥ 10</td> </tr> <tr> <td>Life time</td> <td>6000 hours</td> <td>8000 hours</td> <td>10000 hours</td> </tr> </table>	∅D	∅D = 5, 6.3	∅D = 8	∅D ≥ 10	Life time	6000 hours	8000 hours	10000 hours									
∅D	∅D = 5, 6.3	∅D = 8	∅D ≥ 10															
Life time	6000 hours	8000 hours	10000 hours															

● DRAWING

Unit : mm



∅D	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
∅d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
	1.5			2.0			

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

fF	Frequency	120Hz	1kHz	10kHz	50kHz	100kHz
~ 33		0.42	0.70	0.90	0.95	1.00
39 ~ 270		0.50	0.73	0.92	0.96	1.00
330 ~ 680		0.55	0.77	0.94	0.97	1.00
820 ~ 1800		0.60	0.80	0.96	0.98	1.00
2200 ~		0.70	0.85	0.98	0.99	1.00

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



ML series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	6.3			10			16			25		
	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz
10							5×11	0.35	250	5×11	0.35	250
22	5×11	0.35	250	5×11	0.35	250	5×11	0.35	250	5×11	0.35	250
33	5×11	0.35	250	5×11	0.35	250	5×11	0.35	250	5×11	0.35	250
47	5×11	0.30	250	5×11	0.30	250	5×11	0.30	250	5×11	0.30	250
100	5×11	0.30	250	5×11	0.30	250	6.3×11	0.15	405	6.3×11	0.15	405
150	6.3×11	0.15	405	6.3×11	0.15	405	6.3×11	0.15	405	8×11.5	0.072	760
220	6.3×11	0.15	405	6.3×11	0.15	405	8×11.5	0.072	760	8×11.5	0.072	760
330	6.3×11	0.15	405	8×11.5	0.08	760	8×11.5	0.072	760	10×12.5	0.053	1030
390	6.3×11	0.15	405	8×11.5	0.072	760	8×11.5	0.072	760	8×15	0.072	1250
470	8×11.5	0.072	760	8×11.5	0.072	760	10×12.5	0.053	1030	10×16	0.038	1430
560	8×11.5	0.072	630	10×12.5	0.053	650	10×12.5	0.053	1100	8×20	0.072	1800
680	10×12.5	0.053	1030	10×12.5	0.053	1030	10×16	0.038	1430	10×20	0.027	1820
1000	10×12.5	0.053	1030	10×16	0.038	1430	10×20	0.027	1820	12.5×20	0.025	2360
1500	10×20	0.027	1820	10×20	0.027	1820	12.5×20	0.025	2360	16×20	0.015	3460
2200	12.5×20	0.025	2360	12.5×20	0.025	2360	12.5×25	0.018	2770	16×25	0.015	3460
3300	12.5×20	0.025	2360	12.5×25	0.022	2770	16×25	0.015	3460	16×31.5	0.015	3680
4700	16×25	0.015	3460	16×25	0.015	3460	16×31.5	0.015	3680			
6800	16×25	0.015	3460	16×31.5	0.015	3680						
10000	16×31.5	0.015	3680	18×35.5	0.014	3800						

WV Item μF	35			50			63			100		
	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz	∅D×L (mm)	Impedance (Ω)max. 20 C 100kHz	Ripple current (mA rms) 105 C 100kHz
10	5×11	0.35	250	5×11	0.50	250	5×11	0.45	165	6.3×11	0.50	205
22	5×11	0.35	250	5×11	0.34	250	6.3×11	0.30	265	8×11.5	0.30	355
33	5×11	0.30	250	6.3×11	0.17	405	6.3×11	0.30	265	10×12.5	0.25	450
47	6.3×11	0.30	405	6.3×11	0.14	405	8×11.5	0.20	500	10×16	0.20	580
56	6.3×11	0.15	405	6.3×11	0.14	405	8×11.5	0.17	540	10×16	0.20	630
68	8×11.5	0.10	540	8×11.5	0.10	540	10×12.5	0.15	760	8×20	0.25	700
100	8×11.5	0.072	760	8×11.5	0.072	760	10×16	0.10	945	10×20	0.18	800
										12.5×20	0.10	1045
150	8×11.5	0.072	760	10×12.5	0.061	1030	8×20	0.120	1200	12.5×25	0.080	1195
							10×20	0.080				
220	10×12.5	0.053	1030	10×16	0.038	1430	10×25	0.070	1300	16×25	0.060	1600
330	10×16	0.038	1430	10×20	0.032	1820	12.5×20	0.040	1495	16×31.5	0.040	1750
470	8×20	0.038	1600	12.5×20	0.025	2360	16×20	0.037	1990	18×40	0.030	2060
	10×20	0.027	1820									
680	12.5×20	0.025	2360	12.5×25	0.020	2770	16×25	0.030	2780			
1000	12.5×25	0.022	2770	16×25	0.018	3460	16×35.5	0.020	2835			
1500	16×25	0.018	3460	16×31.5	0.015	3680						
2200	16×31.5	0.015	3680				18×40	0.02	3500			

MINIATURE TYPES