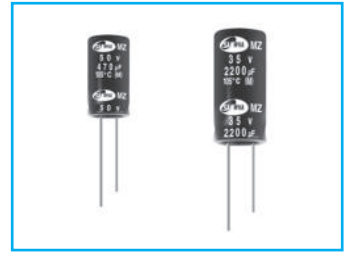


## MZ Ultra Low Impedance Series

Low Impedance   
 Miniaturized   
 Solvent Proof



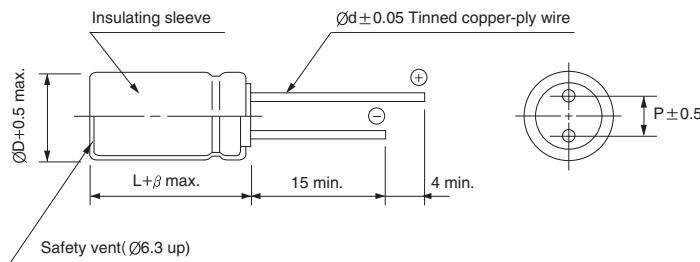
- Low impedance compared with MK series
- Enabled high ripple current by a reduction of impedance at high frequency
- High reliability withstanding 5000 hours load life at 105°C (2000 ~ 3000 hours for smaller case sizes as specified below)
- Complied to the RoHS directive



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 5000 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.																	
	<table border="1"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within ±25% of initial value</td> </tr> <tr> <td>tanδ</td> <td>Less than 200% of specified value</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within ±25% of initial value	tanδ	Less than 200% of specified value											
	Leakage current	Less than specified value																
	Capacitance change	Within ±25% of initial value																
tanδ	Less than 200% of specified value																	
<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>2000 hours</td> <td>3000 hours</td> <td>5000 hours</td> </tr> </table>	∅D	∅D = 5, 6.3	∅D = 8	∅D ≥ 10	Life time	2000 hours	3000 hours	5000 hours										
∅D	∅D = 5, 6.3	∅D = 8	∅D ≥ 10															
Life time	2000 hours	3000 hours	5000 hours															
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 IEC 60384 - 4																	

### 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
β	1.5			2.0			

### FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

µF	Frequency	120Hz	1kHz	10kHz	50kHz	100kHz ≤
~ 33		0.42	0.70	0.90	0.95	1.00
47 ~ 270		0.50	0.73	0.92	0.96	1.00
330 ~ 680		0.55	0.77	0.94	0.97	1.00
1000 ~ 1500		0.60	0.80	0.96	0.98	1.00
2200 ~		0.70	0.85	0.98	0.99	1.00

MINIATURE TYPES

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

**MZ** series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	6.3			10			16			25		
	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz
4.7										5×11	0.35	250
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	0.10	760
220	6.3×11	0.15	405	6.3×11	0.15	405	8×11.5	0.085	760	8×11.5	0.10	760
330	6.3×11	0.15	405	8×11.5	0.12	760	8×11.5	0.085	760	10×12.5	0.08	1030
470	8×11.5	0.072	760	8×11.5	0.10	760	10×12.5	0.053	1030	10×16	0.045	1430
680	10×12.5	0.053	1030	10×12.5	0.053	1030	10×16	0.038	1430	10×20	0.032	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	0.032	1820	12.5×20	0.025	2360	16×20	0.020	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	0.024	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	18×35.5	0.014	3800
6800	16×25	0.015	3460	16×31.5	0.015	3680	18×35.5	0.014	3800			
10000	16×31.5	0.015	3680	18×35.5	0.014	3800						
15000	18×35.5	0.014	3800									

WV Item μF	35			50			63			100		
	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD×L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz
1.0				5×11	2.0	250						
2.2				5×11	2.0	250				5×11	2.0	125
3.3				5×11	1.0	250	5×11	2.0	165	5×11	2.0	125
4.7	5×11	0.35	250	5×11	1.0	250	5×11	2.0	165	5×11	2.0	125
10	5×11	0.35	250	5×11	0.55	250	5×11	0.80	165	6.3×11	0.50	205
22	5×11	0.35	250	5×11	0.45	250	6.3×11	0.50	265	8×11.5	0.30	355
33	5×11	0.30	250	6.3×11	0.25	405	6.3×11	0.50	265	10×12.5	0.25	450
47	6.3×11	0.15	405	6.3×11	0.20	405	8×11.5	0.30	500	10×16	0.20	580
100	8×11.5	0.072	760	8×11.5	0.105	760	10×16	0.10	945	12.5×20	0.10	1045
150	8×11.5	0.072	760	10×12.5	0.061	1030	10×20	0.08	1100	12.5×25	0.070	1195
220	10×12.5	0.065	1030	10×20	0.038	1430	10×25	0.07	1300	16×25	0.060	1600
330	10×16	0.038	1430	10×20	0.032	1820	12.5×20	0.04	1495	16×31.5	0.040	1750
470	10×20	0.027	1820	12.5×20	0.027	2360	16×20	0.035	1990	18×40	0.030	2060
680	12.5×20	0.025	2360	12.5×25	0.022	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	18×35.5	0.014	3800						
3300	18×35.5	0.014	3800									