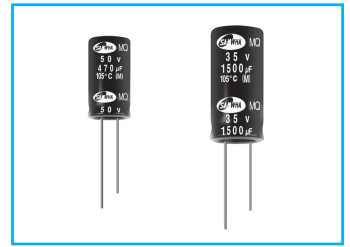


MQ High Ripple Current Series

IZI Low Impedance **S** Solvent Proof



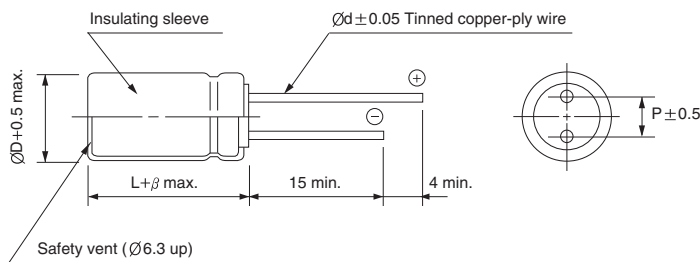
- High Ripple current with MK series
- Enabled high ripple current by a reduction of impedance at high frequency
- High reliability withstanding 5000 hours load life at 105°C (2000 ~ 4000 hours for smaller case sizes as specified below)
- Complied to the RoHS directive

MK → **MQ**
High Ripple

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" style="margin-left: 20px;"> <tr> <td>WV</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</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>0.1</td> </tr> </table>	WV	6.3	10	16	25	35	50	tanδ	0.22	0.19	0.16	0.14	0.12	0.1		
WV	6.3	10	16	25	35	50											
tanδ	0.22	0.19	0.16	0.14	0.12	0.1											
Low temperature characteristics (Impedance ratio at 120Hz)	<table border="1" style="margin-left: 20px;"> <tr> <td>Z-40°C / Z+20°C</td> <td>Z-25°C / Z+20°C</td> </tr> <tr> <td>3</td> <td>2</td> </tr> </table>	Z-40°C / Z+20°C	Z-25°C / Z+20°C	3	2												
Z-40°C / Z+20°C	Z-25°C / Z+20°C																
3	2																
Load life	<p>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.</p> <table border="1" style="margin-left: 20px;"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within ±25% of the initial value</td> </tr> <tr> <td>tanδ</td> <td>Less than 200% of the specified value</td> </tr> </table> <table border="1" style="margin-left: 20px;"> <tr> <td>∅D</td> <td>∅D = 5, 6.3</td> <td>∅D = 8</td> <td>∅D = 10</td> <td>∅D ≥ 12.5</td> </tr> <tr> <td>Life time</td> <td>2000 hours</td> <td>3000 hours</td> <td>4000 hours</td> <td>5000 hours</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within ±25% of the initial value	tanδ	Less than 200% of the specified value	∅D	∅D = 5, 6.3	∅D = 8	∅D = 10	∅D ≥ 12.5	Life time	2000 hours	3000 hours	4000 hours	5000 hours
Leakage current	Less than specified value																
Capacitance change	Within ±25% of the initial value																
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∅D	∅D = 5, 6.3	∅D = 8	∅D = 10	∅D ≥ 12.5													
Life time	2000 hours	3000 hours	4000 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
P	2.0	2.5	3.5	5.0	5.0	7.5
∅d	0.5	0.5	0.6	0.6	0.6	0.8
β	1.5			2.0		

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

µF \ Frequency	120Hz	1kHz	10kHz	50kHz	100kHz ≤
~ 33	0.30	0.65	0.82	0.94	1.00
47 ~ 270	0.40	0.70	0.84	0.96	1.00
330 ~ 680	0.45	0.75	0.86	0.96	1.00
820 ~ 1800	0.50	0.80	0.88	0.97	1.00
2200 ~	0.60	0.85	0.90	0.97	1.00

MINIATURE TYPES

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

MO series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	6.3			10			16		
	∅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	0.525	250
22	5 × 11	0.525	250	5 × 11	0.525	250	5 × 11	0.525	270
33	5 × 11	0.525	270	5 × 11	0.525	270	5 × 11	0.525	290
47	5 × 11	0.450	290	5 × 11	0.450	290	5 × 11	0.450	310
100	5 × 11	0.450	310	5 × 11	0.450	310	6.3 × 11	0.225	405
150	6.3 × 11	0.225	405	6.3 × 11	0.225	405	6.3 × 11	0.225	460
220	6.3 × 11	0.225	460	6.3 × 11	0.225	460	8 × 11.5	0.108	760
330	6.3 × 11	0.225	505	8 × 11.5	0.108	760	8 × 11.5	0.108	950
470	8 × 11.5	0.108	950	8 × 11.5	0.108	950	10 × 12.5	0.088	1280
680	10 × 12.5	0.088	1280	10 × 12.5	0.088	1280	10 × 16	0.065	1785
1000	10 × 16	0.065	1785	10 × 16	0.065	1785	10 × 20	0.050	2270
1200				10 × 16	0.065	2200			
1500	10 × 20	0.050	2270	10 × 20	0.050	2270	12.5 × 20	0.043	2950
2200	12.5 × 20	0.043	2950	12.5 × 20	0.043	2950	12.5 × 25	0.029	3460

WV Item μF	25			35			50		
	∅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
4.7	5 × 11	0.525	250	5 × 11	0.525	250	5 × 11	1.50	270
10	5 × 11	0.525	250	5 × 11	0.525	270	5 × 11	0.750	290
22	5 × 11	0.525	270	5 × 11	0.525	290	5 × 11	0.390	310
33	5 × 11	0.525	290	5 × 11	0.450	310	6.3 × 11	0.255	405
47	5 × 11	0.450	310	6.3 × 11	0.225	460	6.3 × 11	0.210	460
100	6.3 × 11	0.225	460	8 × 11.5	0.108	760	8 × 11.5	0.108	950
150	8 × 11.5	0.108	760	8 × 11.5	0.108	950	10 × 12.5	0.088	1280
220	8 × 11.5	0.108	950	10 × 12.5	0.088	1280	10 × 16	0.065	1785
330	10 × 12.5	0.088	1280	10 × 16	0.065	1785	10 × 20	0.050	2270
470	10 × 16	0.065	1785	10 × 20	0.050	2270	12.5 × 20	0.043	2950
680	10 × 20	0.060	2270	12.5 × 20	0.043	2950	12.5 × 25	0.029	3460
1000	12.5 × 20	0.060	2950	12.5 × 25	0.029	3460	16 × 25	0.027	3890
1200	12.5 × 20	0.043	3100						
1500	16 × 20	0.024	3600	16 × 25	0.024	3890			
2200	16 × 25	0.024	3890						