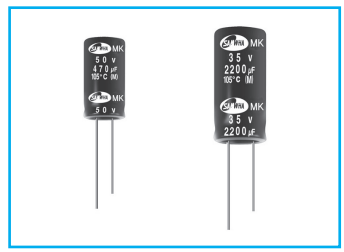
MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

MK High Ripple Current Series

Low Impedance Solvent Proof



- Ripple current compared with RZ 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

RZ ⇨ MK
Miniature 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.

WV	6.3	10	16	25	35	50	63	100
tanδ	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.08

Low temperature characteristics (Impedance ratio at 120Hz)

Z-40˚C / Z+20˚C	Z-25˚C / Z+20˚C
3	2

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.

Leakage current	Less than specified value
Capacitance change	Within ±25% of the initial value
tanδ	Less than 200% of the specified value

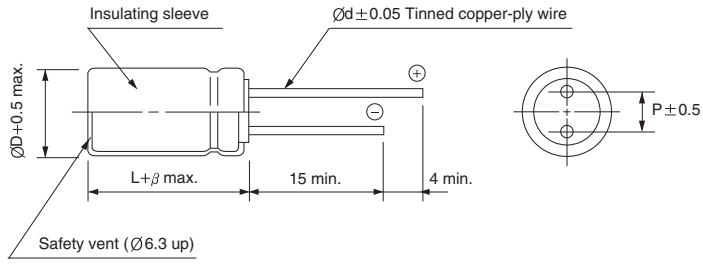
ØD	ØD = 5, 6.3	ØD = 8	ØD ≧ 10
Life time	2000 hours	3000 hours	5000 hours

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



ØD	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Ød	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	0.40	0.65	0.82	0.94	1.00
39 ~ 270	0.50	0.70	0.84	0.96	1.00
330 ~ 680	0.55	0.75	0.86	0.96	1.00
820 ~ 1800	0.60	0.80	0.88	0.97	1.00
2200 ~	0.70	0.85	0.90	0.97	1.00

MK 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
10							5×11	1.000	250	5×11	1.000	250
22	5×11	0.525	250	5×11	0.525	250	5×11	1.000	250	5×11	0.525	250
33	5×11	0.525	250	5×11	0.525	250	5×11	0.525	250	5×11	0.525	250
47	5×11	0.450	250	5×11	0.450	250	5×11	0.450	250	5×11	0.450	250
100	5×11	0.450	250	5×11	0.450	250	5×11	0.450	250	6.3×11	0.300	405
							6.3×11	0.300	405			
150	6.3×11	0.300	405	6.3×11	0.300	405	6.3×11	0.225	405	8×11.5	0.160	760
220	6.3×11	0.225	405	6.3×11	0.225	405	8×11.5	0.108	760	8×11.5	0.160	760
330	6.3×11	0.225	405	8×11.5	0.175	760	8×11.5	0.108	760	10×12.5	0.098	1030
390	8×11.5	0.108	550	8×11.5	0.150	760	8×15	0.098	880	8×15	0.098	1030
							10×12.5	0.098	880	10×12.5	0.098	1030
470	8×11.5	0.108	760	8×11.5	0.150	760	8×11.5	0.108	760	10×12.5	0.098	1030
							8×15	0.098	1030	10×16	0.065	1430
							10×12.5	0.088	1030	10×20	0.060	1500
560	8×15	0.098	880	8×15	0.098	880	8×20	0.088	1030	8×20	0.088	1430
	10×12.5	0.098	880	10×12.5	0.098	880	10×16	0.088	1030	10×16	0.088	1430
680	10×12.5	0.088	1030	8×15	0.098	1030	10×16	0.065	1430	10×16	0.065	1430
				10×12.5	0.088					10×20	0.050	1820
820	10×16	0.075	1030	10×12.5	0.088	1030	10×16	0.065	1450	10×20	0.050	2000
1000	10×16	0.065	1430	8×20	0.088	1030	8×20	0.088	1500	10×20	0.050	2100
				10×12.5			10×16	0.065		10×25	0.045	2360
				10×16	0.065	1430	10×20	0.050	1820	12.5×20	0.043	2600
1200				10×16	0.065	1820				12.5×20	0.043	2650
1500	10×20	0.050	1820	10×20	0.050	1820	10×25	0.043	2360	12.5×25	0.029	2770
							12.5×20			16×20	0.029	2880
1800	10×20	0.050	1820	12.5×20	0.043	2000	12.5×25	0.029	2450	12.5×25	0.029	2900
2200	12.5×20	0.043	2360	10×20	0.05	2000						
				10×25	0.048	2360	10×30	0.029	2770	12.5×25	0.029	3000
				12.5×20	0.043		12.5×25			16×25	0.024	3114
3300	12.5×20	0.040	2360	12.5×25	0.029	3140	16×25	0.024	3200	16×31.5	0.024	3312
				16×20								
4700	16×25	0.024	3114	16×25	0.024	3200	16×31.5	0.024	3312	18×35.5	0.022	3420
6800	16×25	0.024	3114	16×31.5	0.024	3312	18×35.5	0.022	3420			
10000	16×31.5	0.024	3312	18×35.5	0.022	3420						
15000	18×35.5	0.022	3420									

MK series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

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	3.00	250						
2.2				5×11	3.00	250				5×11	3.000	125
3.3				5×11	1.50	250	5×11	2.000	165	5×11	2.000	125
4.7	5×11	0.525	250	5×11	1.50	250	5×11	2.000	165	5×11	2.000	125
10	5×11	0.525	250	5×11	1.000	250	5×11	0.800	165	6.3×11	1.200	205
22	5×11	0.525	250	5×11	0.500	250	6.3×11	0.500	265	8×11.5	0.600	355
33	5×11	0.450	250	6.3×11	0.300	405	6.3×11	0.500	265	10×12.5	0.250	450
47	6.3×11	0.330	405	6.3×11	0.300	405	8×11.5	0.300	500	8×15	0.300	500
										10×16	0.200	580
56	6.3×11	0.330	405	8×11.5	0.160	580	10×12.5	0.160	680	10×16	0.160	750
100	8×11.5	0.160	760	8×11.5	0.160	760	10×16	0.100	945	10×20	0.150	800
				8×15	0.108	770				12.5×20	0.100	1045
150	8×11.5	0.160	760	10×12.5	0.088	1030	10×20	0.080	1100	12.5×25	0.080	1195
220	8×15	0.098	1030	10×16	0.065	1430	10×25	0.070	1300	16×25	0.060	1600
	10×12.5	0.088	1030									
330	10×16	0.065	1430	10×20	0.050	1820	12.5×20	0.050	1495	16×31.5	0.040	1750
390	8×20	0.088	1430	10×20	0.050	1820	12.5×25	0.039	1600	16×31.5	0.040	1750
470	8×20	0.088	1530	12.5×20	0.043	2360	16×20	0.035	1990	18×40	0.030	2060
	10×16	0.065										
	10×20	0.050	1820									
680	10×20	0.050	1820	12.5×25	0.029	2770	16×25	0.030	2780			
	12.5×20	0.043	2360									
1000	12.5×20	0.043	2500	16×25	0.027	3114	16×35.5	0.020	2835			
	12.5×25	0.032	2770									
1500	12.5×25	0.029	2770	16×31.5	0.024	3312						
	16×20	0.027	2880									
	16×25	0.024	3114									
2200	16×31.5	0.024	3312	18×35.5	0.022	3420						
3300	18×35.5	0.022	3420									