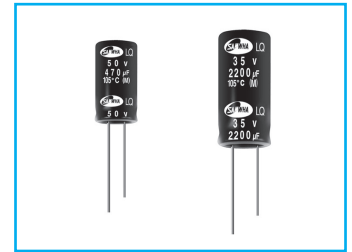


# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



## LQ Low Imp., High Ripple Current Series

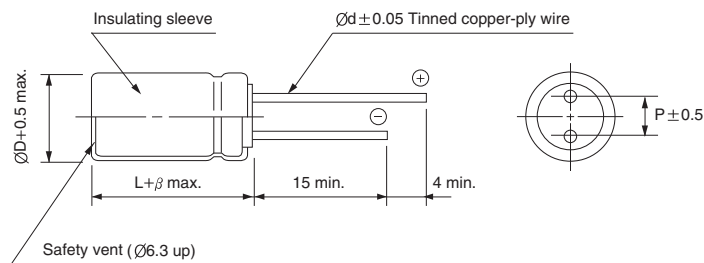


- For LED Lighting
- High reliability withstanding 10000 hours load life at 105°C (6000 ~ 9000 hours for smaller case sizes as specified below)
- Complied to the RoHS directive

Item	Characteristics																					
Operating temperature range	-40 ~ +105°C																					
Leakage current max.	$I = 0.01CV$ or $3\mu A$ whichever is greater (after 2 minutes)																					
Capacitance tolerance	$\pm 20\%$ at 120Hz, 20°C																					
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000 $\mu F$ : $\tan\delta$ increases by 0.02 for each 1000 $\mu F$ 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>80</td> <td>100</td> <td>120</td> </tr> <tr> <td><math>\tan\delta</math></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> <td>0.08</td> <td>0.08</td> </tr> </table>	WV	6.3	10	16	25	35	50	63	80	100	120	$\tan\delta$	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08
WV	6.3	10	16	25	35	50	63	80	100	120												
$\tan\delta$	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08	0.08												
Low temperature characteristics (Impedance ratio at 120Hz)	Z-25°C / Z+20°C	2																				
	Z-40°C / Z+20°C	3																				
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.																					
	Rated voltage (Vdc)	6.3 ~ 10	16 ~ 120																			
	Capacitance change	Within $\pm 30\%$ of initial value	Within $\pm 25\%$ of initial value																			
	$\tan\delta$	Less than 200% of specified value																				
	Leakage current	Less than specified value																				
	$\varnothing D$	Life time (hrs)																				
		6.3Vdc	10 ~ 50Vdc	63 ~ 120Vdc																		
$\varnothing 5 \sim \varnothing 6.3$		6000	7000	6000																		
$\varnothing 8 \times 11.5L$		8000	9000	8000																		
$\varnothing 8 \times 15L \sim 20L$		9000	10000	9000																		
$\varnothing 10 \times 12.5L$	9000																					
$\varnothing 10 \times 16L \sim 25L$	10000																					
$\varnothing 12.5 \sim$	10000																					
Shelf life (at 105°C)	After 1000 hours no load test, leakage current, capacitance and $\tan\delta$ are same as load life value. The measurement shall be performed at 20°C by the KS C IEC 60384 - 4																					

## DRAWING

Unit : mm



$\varnothing D$	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
$\varnothing d$	0.5	0.5	0.6	0.6	0.6	0.8	0.8
$\beta$	1.5			2.0			

## FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Frequency	120Hz	1kHz	10kHz	50kHz	100kHz $\leq$
$\mu F$					
~ 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
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

**LQ** series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	6.3			10			16			25			35		
	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz
100															
120							5 × 11	0.400	450						
150				5 × 11	0.400	450				6.3 × 11	0.170	700			
180													8 × 11.5	0.075 1200	
220	5 × 11	0.400	345										8 × 15	0.065 1600	
270													10 × 12.5	0.053 1700	
330				6.3 × 11	0.170	700				8 × 11.5	0.090	1200	8 × 20	0.041 1960	
390										8 × 15	0.065	1600	10 × 16	0.038 2000	
470	6.3 × 11	0.170	540							10 × 12.5	0.053	1700	10 × 16	0.038 2100	
560				8 × 11.5	0.110	1200	8 × 15	0.059	1600	8 × 20	0.041	1960	10 × 20	0.030 2500	
680				8 × 15	0.059	1600	10 × 12.5	0.053	1700	10 × 16	0.039	2000	10 × 25	0.027 2600	
820	8 × 11.5	0.075	945	10 × 12.5	0.053	1700	8 × 20	0.041	1960				12.5 × 20	0.025 2900	
1000	8 × 15	0.059	1250	10 × 16	0.041	1960	10 × 16	0.036	2000	10 × 20	0.030	2500	12.5 × 20	0.025 2900	
1200	10 × 12.5	0.053	1500	10 × 16	0.036	2000				10 × 25	0.028	2900	12.5 × 25	0.022 3200	
1500	8 × 20	0.041	1500				10 × 20	0.027	2500	12.5 × 20	0.026	2900	12.5 × 30	0.018 3660	
1800	10 × 16	0.036	1760	10 × 20	0.027	2500	10 × 25	0.024	2600	12.5 × 20	0.026	2900	16 × 20	0.021 3330	
2200				10 × 25	0.027	2900	12.5 × 20	0.023	2900	12.5 × 25	0.024	3200	12.5 × 34.5	0.016 4120	
2700	10 × 20	0.027	1960	10 × 20	0.024	2600	12.5 × 25	0.018	3200	12.5 × 30	0.017	3660	16 × 20	0.020 3330	
3300	10 × 25	0.023	2250	12.5 × 25	0.018	3200	12.5 × 30	0.017	3660	16 × 25	0.016	3810			
3900	12.5 × 20	0.024	2480				16 × 20	0.020	3300						
4700	12.5 × 25	0.018	2900	12.5 × 30	0.018	3660	12.5 × 34.5	0.015	4120						
5600	12.5 × 30	0.017	3450	16 × 25	0.016	3810	16 × 25	0.016	3810						
6800	12.5 × 34.5	0.015	3570												
8200	16 × 20	0.020	3250												
	16 × 25	0.016	3630												

WV Item μF	50			63			80			100			120		
	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ØD × L (mm)	IMP. (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz
27	5 × 11	0.480	310				6.3 × 11	0.460	370						
33										8 × 11.5	0.450	620	8 × 15	0.200 780	
47	6.3 × 11	0.380	400	6.3 × 11	0.350	420	8 × 11.5	0.290	620	8 × 15	0.350	780	8 × 20	0.160 1040	
56	6.3 × 11	0.220	500				8 × 15	0.200	780	10 × 12.5	0.250	780	10 × 16	0.110 1040	
68							10 × 12.5	0.170	780	8 × 20	0.250	1040	10 × 20	0.084 1430	
82				8 × 11.5	0.240	720	8 × 20	0.160	1040	10 × 16	0.130	1040	12.5 × 16	0.110 1430	
100	8 × 11.5	0.120	950	8 × 15	0.180	990	10 × 16	0.140	1040	10 × 16	0.130	1140			
120	8 × 15	0.082	1230	10 × 12.5	0.110	990				10 × 20	0.105	1430	10 × 25	0.069 1620	
150	10 × 12.5	0.073	1280	8 × 20	0.096	1200	10 × 16	0.140	1040	12.5 × 16	0.105	1430	12.5 × 20	0.062 1750	
180	8 × 20	0.065	1580	10 × 16	0.076	1200	10 × 20	0.084	1430	12.5 × 20	0.070	1750	12.5 × 25	0.047 2210	
220	10 × 16	0.050	1650				12.5 × 16	0.110	1430	12.5 × 20	0.070	1750	12.5 × 30	0.042 2400	
270				10 × 20	0.070	1570	12.5 × 20	0.062	1750	16 × 20	0.048	1950	16 × 20	0.048 1950	
330	10 × 20	0.036	2060	10 × 25	0.060	1990	12.5 × 25	0.047	2210	12.5 × 25	0.060	2210	12.5 × 30	0.042 2400	
390	10 × 25	0.030	2240	12.5 × 20	0.050	1990	12.5 × 30	0.042	2400	12.5 × 30	0.040	2400	16 × 25	0.038 2430	
470	12.5 × 20	0.030	2300	12.5 × 25	0.039	2460	16 × 20	0.048	1950	16 × 20	0.046	1950	16 × 31.5	0.032 2640	
560				12.5 × 30	0.035	2760	12.5 × 34.5	0.038	2600	12.5 × 34.5	0.038	2600	18 × 25	0.036 2500	
680	12.5 × 25	0.024	2800	12.5 × 34.5	0.024	3040	16 × 25	0.032	2640	16 × 25	0.032	2640	18 × 25	0.036 2500	
820	12.5 × 30	0.022	3370				16 × 31.5	0.032	2640	16 × 31.5	0.030	2640	18 × 35.5	0.027 3510	
1000	16 × 20	0.025	3070	16 × 25	0.025	2890	18 × 25	0.034	2500	16 × 31.5	0.030	2640	18 × 35.5	0.030 2860	
1200	12.5 × 34.5	0.020	3810	16 × 31.5	0.023	2950	18 × 25	0.036	2500	18 × 25	0.036	2500	18 × 35.5	0.026 3510	
2200	16 × 25	0.021	3510				18 × 35.5	0.027	3510	18 × 35.5	0.026	3510			
				18 × 40	0.020	3200									