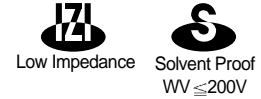
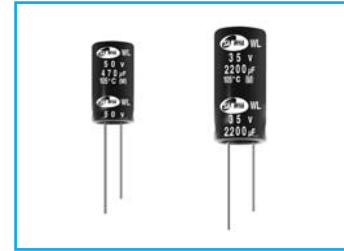


# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

## WL Extremely Low Impedance Series

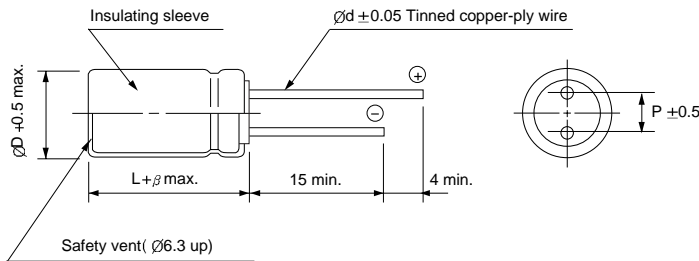
- Wide voltage compared with WD series
- Operating temperature range of  $-40 \sim +105^{\circ}\text{C}$
- Extremely low impedance at high frequency
- High reliability withstanding 5000 hours load life at  $105^{\circ}\text{C}$  (2000/3000 hours for smaller case size as specified below)



Item	Characteristics											
Operating temperature range	WV	6.3 ~ 100			160 ~ 350			400 ~ 450				
	Temperature range	$-40 \sim +105^{\circ}\text{C}$			$-40 \sim +105^{\circ}\text{C}$			$-25 \sim +105^{\circ}\text{C}$				
Leakage current max.	WV ≤ 100						WV > 100					
	I = 0.01CV or $3\mu\text{A}$ whichever is greater (after 2 min.) I = 0.03CV or $4\mu\text{A}$ whichever is greater (after 1 min.)						I = 0.02CV + $15\mu\text{A}$ (after 5 min.)					
Capacitance tolerance	±20% at 120Hz, 20°C											
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > $1000\mu\text{F}$ : $\tan\delta$ increases by 0.02 for each $1000\mu\text{F}$ from below value.											
	WV	6.3	10	16	25	35	50	63	100	160~315	350~450	
$\tan\delta$	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.20		
Low temperature characteristics (Impedance ratio at 120Hz)	WV	6.3	10	16	25~100		160~250		315~450			
	Z-25°C/Z+20°C	4	3	2	2	3	3	4	8	-		
	Z-40°C/Z+20°C	8	6	4	3	4	4	-	-	-		
Load life (after application of the rated voltage for 5000 hours at 105°C)	Leakage current	Less than specified value										
	Capacitance change	Within ±25% of initial value										
	$\tan\delta$	Less than 200% of specified value										
	Life time	∅D = 5, 6.3			∅D = 8			∅D ≥ 10				
	WV ≤ 100	2000 hours			3000 hours			5000 hours				
WV > 100	2000 hours											
Shelf life (at 105°C)	After 1000 hours no load test, leakage current, capacitance and $\tan\delta$ are same as load life value.											

### ● 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	1.0			2.0			



# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

**WL** series

## ● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	160			200			250		
	∅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							10 × 20	3.5	300
22	10 × 20	1.3	440	10 × 20	1.5	440	12.5 × 20	2.3	480
33	10 × 20	1.3	565	12.5 × 20	0.91	590	12.5 × 25	1.7	630
47	12.5 × 20	0.91	725	12.5 × 20	0.91	780	12.5 × 25	1.7	630
68	12.5 × 25	0.63	950	12.5 × 25	0.63	950	16 × 25	0.78	1000
100	16 × 25	0.27	1280	16 × 25	0.27	1280	16 × 31.5	0.63	1400
150	16 × 31.5	0.22	1300	18 × 25	0.27	1500	18 × 31.5	0.42	1450
220	16 × 31.5	0.22	1300	18 × 31.5	0.22	1700	18 × 40	0.35	1485
330	18 × 31.5	0.22	1700						

WV Item μF	350			400			450		
	∅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
3.3							10 × 20	6.5	150
4.7							12.5 × 20	3.6	200
10	10 × 20	2.9	180	10 × 20	2.9	180	12.5 × 25	2.5	315
22	12.5 × 20	2.1	270	12.5 × 25	1.3	300	16 × 25	1.7	570
33	16 × 20	0.91	600	16 × 20	0.91	600	16 × 31.5	1.1	620
47	16 × 25	0.73	700	16 × 25	0.73	700	18 × 31.5	0.93	900
68	16 × 31.5	0.49	1100	16 × 31.5	0.49	1100	18 × 35.5	0.71	980
100	18 × 31.5	0.40	1170	18 × 40	0.34	1250			