EN: This Datasheet/Document is presented by the manufacturer.

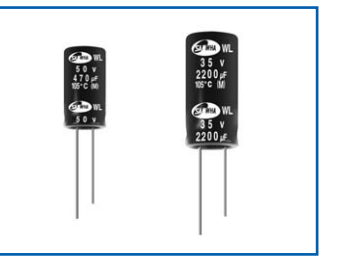
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WL Extremely Low Impedance Series

Low Impedance

Solvent Proof
WV≦100V

RZ (Wide Voltage) ⇒ WL ⇒ WF (Long life)



- Wide voltage compared with RZ series
- Operating temperature range of -40 ~ +105°C
- Extremely low impedance at high frequency
- High reliability withstanding 5000 hours load life at 105°C (2000/3000 hours for smaller case size as specified below)
- Complied to the RoHS directive

Item	Characteristics
Operating temperature range	WV: 6.3 ~ 100 / 160 ~ 350 / 400 ~ 450 Temperature range: -40 ~ +105°C / -40 ~ +105°C / -25 ~ +105°C
Leakage current max.	WV ≦ 100: I = 0.01CV or 3μA whichever is greater (after 2 min.); I = 0.03CV or 4μA whichever is greater (after 1 min.) WV > 100: I = 0.02CV + 15μA (after 5 min.)
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	160~315	350~450
tanδ	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	8
Z-40°C/Z+20°C	8	6	4	3	4	-

Load life (after application of the rated voltage for 5000 hours at 105°C)

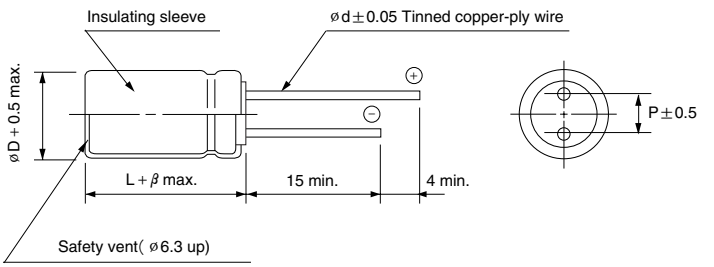
Leakage current	Less than specified value
Capacitance change	Within ±25% of initial value
tanδ	Less than 200% of specified value

Life time	øD = 5, 6.3	øD = 8	øD ≧ 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 tanδ are same as load life value.

Unit : mm

● DRAWING



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			

WL series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV / Item / μF	6.3			10			16			25		
	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz
4.7										5 × 11	0.70	180
10							5 × 11	0.70	180	5 × 11	0.70	180
22	5 × 11	0.70	180	5 × 11	0.70	180	5 × 11	0.70	180	5 × 11	0.70	180
33	5 × 11	0.70	180	5 × 11	0.70	180	5 × 11	0.70	180	5 × 11	0.70	180
47	5 × 11	0.65	180	5 × 11	0.65	180	5 × 11	0.65	180	5 × 11	0.65	180
100	5 × 11	0.65	180	5 × 11	0.65	180	6.3 × 11	0.30	280	6.3 × 11	0.30	280
150	6.3 × 11	0.30	280	6.3 × 11	0.30	280	6.3 × 11	0.30	280	8 × 11.5	0.14	450
220	6.3 × 11	0.30	280	6.3 × 11	0.30	280	8 × 11.5	0.14	450	8 × 11.5	0.14	450
330	6.3 × 11	0.30	280	8 × 11.5	0.14	450	8 × 11.5	0.14	450	10 × 12.5	0.10	660
470	8 × 11.5	0.14	450	8 × 11.5	0.14	450	10 × 12.5	0.10	660	10 × 16	0.080	850
680	10 × 12.5	0.10	660	10 × 12.5	0.10	660	10 × 16	0.080	850	10 × 20	0.054	1100
1000	10 × 12.5	0.10	660	10 × 16	0.080	850	10 × 20	0.054	1100	12.5 × 20	0.050	1400
1500	10 × 20	0.054	1100	10 × 20	0.054	1100	12.5 × 20	0.050	1400	16 × 20	0.030	2100
2200	12.5 × 20	0.050	1400	12.5 × 20	0.050	1400	12.5 × 25	0.038	1700	16 × 25	0.030	2100
3300	12.5 × 20	0.050	1400	12.5 × 25	0.038	1700	16 × 25	0.030	2100	16 × 31.5	0.025	2600
4700	16 × 25	0.030	2100	16 × 25	0.030	2100	16 × 31.5	0.025	2600	18 × 35.5	0.022	3000
6800	16 × 25	0.030	2100	16 × 31.5	0.025	2600	18 × 35.5	0.022	3000			
10000	16 × 31.5	0.025	2600	18 × 35.5	0.022	3000						
15000	18 × 35.5	0.022	3000									

WV / Item / μF	35			50			63			100		
	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz
0.22				5 × 11	8.0	18						
0.47				5 × 11	5.0	25						
1.0				5 × 11	3.5	40						
2.2				5 × 11	3.0	55				5 × 11	2.5	52
3.3				5 × 11	2.6	65	5 × 11	2.0	64	5 × 11	2.5	64
4.7	5 × 11	0.70	180	5 × 11	2.3	90	5 × 11	2.0	76	5 × 11	2.5	76
10	5 × 11	0.70	180	5 × 11	1.4	120	5 × 11	2.0	111	6.3 × 11	1.0	128
22	5 × 11	0.70	180	5 × 11	1.2	150	6.3 × 11	0.60	190	8 × 11.5	0.60	224
33	5 × 11	0.65	180	6.3 × 11	0.60	200	6.3 × 11	0.60	233	10 × 12.5	0.40	319
47	6.3 × 11	0.30	280	6.3 × 11	0.43	250	8 × 11.5	0.50	328	10 × 16	0.30	417
100	8 × 11.5	0.14	450	8 × 11.5	0.24	340	10 × 16	0.12	456	12.5 × 20	0.15	570
150	8 × 11.5	0.14	450	10 × 12.5	0.17	490	10 × 20	0.10	610	12.5 × 25	0.12	762
220	10 × 12.5	0.10	660	10 × 16	0.12	650	10 × 25	0.090	809	16 × 25	0.070	1250
330	10 × 16	0.080	850	10 × 20	0.10	810	12.5 × 20	0.085	1036	16 × 31.5	0.050	1404
470	10 × 20	0.054	1100	12.5 × 20	0.085	1100	16 × 20	0.050	1411	18 × 40	0.030	1980
680	12.5 × 20	0.050	1400	12.5 × 25	0.065	1200	16 × 25	0.043	1843			
1000	12.5 × 25	0.038	1700	16 × 25	0.043	1600	16 × 35.5	0.025	1967			
1500	16 × 25	0.030	2100	16 × 31.5	0.038	2000						
2200	16 × 31.5	0.025	2600	18 × 35.5	0.034	2300						
3300	18 × 35.5	0.022	3000									

WL series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV / Item / μF	160			200			250		
	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø 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		
	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø D × L (mm)	Impedance (Ω)max. 20°C 100kHz	Ripple current (mA rms) 105°C 100kHz	ø 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			