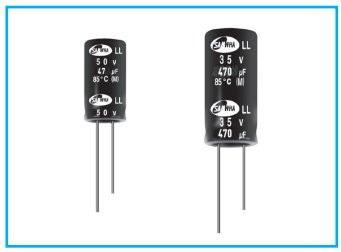
MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

LL Low Leakage Current Series

Low Leakage Current

Solvent Proof

SD ⇨ LL
Low leakage current



- Standard low leakage current series
- Suited for high gain audio coupling applications
- Stable leakage current characteristics for a long period of use
- Voltage range of 10 ~ 100V
- Complied to the RoHS directive

Item	Characteristics
Operating temperature range	-40 ~ +85˚C
Leakage current max.	I = 0.002CV or 0.4μA whichever is greater (after 2 minutes)
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	10	16	25	35	40	50	63	100
tanδ	0.17	0.15	0.12	0.12	0.12	0.10	0.09	0.09

Low temperature characteristics (Impedance ratio at 120Hz)

WV	10~25	35	40	50	63	100
Z-25˚C/Z+20˚C	2	1.75	1.75	1.5	1.5	1.5
Z-40˚C/Z+20˚C	4	4	4	2	2	2

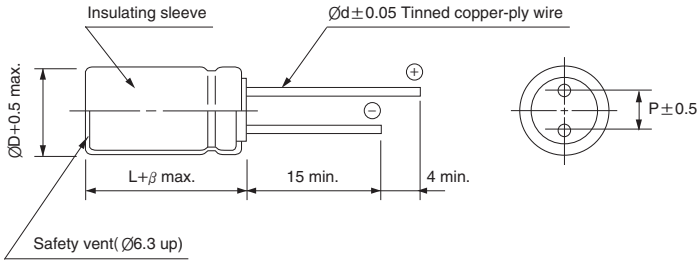
Load life (after application of the rated voltage for 2000 hours at 85˚C)

Leakage current	Less than specified value
Capacitance change	ØD≦6.3: WV≦16 ±20%, WV>16 ±20% ØD>6.3: WV≦16 ±20%, WV>16 ±15%
tanδ	Less than 150% of specified value

Shelf life (at 85˚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	50Hz	120Hz	1kHz	10kHz≦
~ 47	0.75	1.00	1.55	2.00
68 ~ 680	0.80	1.00	1.35	1.50
1000 ~	0.85	1.00	1.15	1.15

LL series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

μF \ WV	10		16		25		35	
1.0								
1.5								
2.2								
3.3								
4.7								
6.8							5 × 11	46
10					5 × 11	55	5 × 11	55
15			5 × 11	61	5 × 11	68	5 × 11	68
22		69	5 × 11	73	5 × 11	82	6.3 × 11	94
33	5 × 11	84	5 × 11	90	6.3 × 11	116	6.3 × 11	116
47	5 × 11	101	6.3 × 11	123	8 × 11.5	163	8 × 11.5	163
68	6.3 × 11	139	6.3 × 11	148	8 × 11.5	196	10 × 12.5	227
100	6.3 × 11	169	8 × 11.5	212	10 × 12.5	276	10 × 16	302
150	8 × 11.5	244	10 × 12.5	302	10 × 16	370	10 × 20	404
220	10 × 12.5	344	10 × 16	401	10 × 20	489	12.5 × 20	574
330	10 × 16	461	10 × 20	535	12.5 × 20	703	12.5 × 25	766
470	10 × 20	600	12.5 × 20	750	12.5 × 25	914	12.5 × 25	914
680	12.5 × 20	847	12.5 × 20	902	12.5 × 25	1100	16 × 25	1220
1000	12.5 × 20	1028	12.5 × 25	1193	16 × 25	1480	16 × 31.5	1619
1500	12.5 × 25	1298	16 × 25	1522	16 × 31.5	1835	18 × 35.5	2066
2200	16 × 25	1659	16 × 31.5	1908	18 × 35.5	2341		
3300	16 × 31.5	2124	18 × 35.5	2502				
4700	18 × 35.5	2737						

Case size ØD×L (mm)
Ripple current (mA rms) at 85°C, 120Hz

μF \ WV	40		50		63		100	
1.0					5 × 11	20	5 × 11	18
1.5					5 × 11	25	5 × 11	22
2.2					5 × 11	30	5 × 11	26
3.3			5 × 11	35	5 × 11	37	5 × 11	32
4.7	5 × 11	38	5 × 11	42	5 × 11	44	5 × 11	38
6.8	5 × 11	46	5 × 11	50	5 × 11	53	6.3 × 11	53
10	5 × 11	55	6.3 × 11	70	6.3 × 11	73	8 × 11.5	76
15	6.3 × 11	78	6.3 × 11	85	8 × 11.5	106	8 × 11.5	93
22	6.3 × 11	94	8 × 11.5	122	8 × 11.5	129	10 × 12.5	130
33	8 × 11.5	136	8 × 11.5	149	10 × 12.5	183	10 × 16	175
47	8 × 11.5	163	10 × 12.5	207	10 × 16	239	10 × 20	227
68	10 × 12.5	227	10 × 16	273	10 × 20	314	12.5 × 20	313
100	10 × 16	302	10 × 20	361	12.5 × 20	447	12.5 × 25	380
150	10 × 20	404	12.5 × 20	519	12.5 × 25	596	16 × 25	508
220	12.5 × 20	475	12.5 × 25	685	16 × 25	801	16 × 31.5	699
330	12.5 × 25	766	16 × 25	931	16 × 31.5	1074	16 × 35.5	983
470	16 × 25	1014	16 × 31.5	1216	16 × 35.5	1345	18 × 40	1320
680	16 × 25	1220	18 × 35.5	1534	18 × 40	1821		
1000	16 × 31.5	1699	18 × 40	2095				
1500	18 × 40	2168						

Case size ØD×L (mm)
Ripple current (mA rms) at 85°C, 120Hz