

LARGE ALUMINUM ELECTROLYTIC CAPACITORS

Upgrade

HL

Long Life
Series

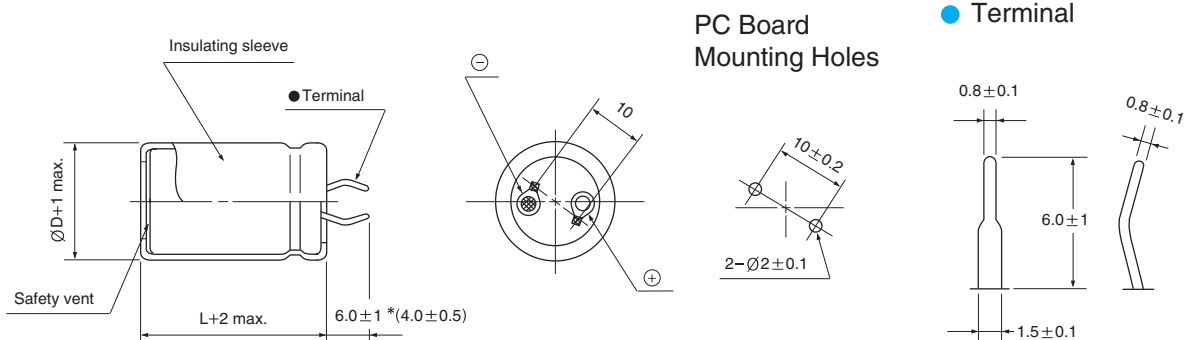
- Long life than HK series
- Load life of 5000 hours at 105°C
- Complied to the RoHS directive



Item	Characteristics							
Operating temperature range	WV< 350 : -40 ~ +105°C, WV ≥350 : -25 ~ +105°C							
Capacitance tolerance	±20% at 120Hz, 20°C							
Leakage current max.	I=3√CV (μA) (after 5 minutes)							
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000μF : tanδ increases by 0.01 for each 1000μF from below value.							
	WV	10	16	25, 35	50, 63	80, 100	160 ~ 400	450, 500
	tanδ	0.50	0.40	0.35	0.25	0.20	0.15	0.20
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 250% of specified value				
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



- * Shorter terminal(4.0 ± 0.5) is also available upon request.
Terminal length of height 20mm products is applied shorter terminal to standard terminal type.

FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

WV	Frequency(Hz)	50Hz	120Hz	300Hz	1kHz	10kHz ≤
~ 100		0.85	1.00	1.06	1.15	1.20
160 ~ 250		0.85	1.00	1.20	1.25	1.45
350 ~		0.85	1.00	1.15	1.20	1.40



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HL series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF ØD	10				16				25			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
5600									22 × 25 1.50			
6800									22 × 30 1.90	25.4 × 25 1.90		
8200					22 × 25 1.80				22 × 35 2.10	25.4 × 30 2.10	30 × 25 2.10	
10000					22 × 30 2.20	25.4 × 25 2.20			22 × 40 2.30	25.4 × 35 2.30	30 × 25 2.20	
12000	22 × 30 2.10				22 × 35 2.40	25.4 × 30 2.40			22 × 40 2.50	25.4 × 35 2.50	30 × 30 2.60	
15000	22 × 30 2.30	25.4 × 25 2.30			22 × 40 2.70	25.4 × 35 2.70	30 × 30 2.70			25.4 × 40 2.80	30 × 35 2.90	35 × 30 2.90
18000	22 × 35 2.70	25.4 × 30 2.70			22 × 45 2.80	25.4 × 40 3.00	30 × 30 3.00	35 × 25 3.00		25.4 × 50 3.10	30 × 40 3.10	35 × 30 3.10
22000	22 × 40 2.90	25.4 × 35 2.90	30 × 30 2.90			25.4 × 40 3.10	30 × 35 3.30	35 × 30 3.30			30 × 45 3.50	35 × 35 3.50
27000	22 × 45 3.30	25.4 × 40 3.30	30 × 30 3.30	35 × 25 3.30			30 × 40 3.60	35 × 30 3.60			30 × 50 3.80	35 × 40 3.70
33000		25.4 × 45 3.50	30 × 35 3.50	35 × 30 3.50			30 × 45 4.00	35 × 35 4.00				35 × 45 4.10
39000			30 × 40 3.80	35 × 30 3.70			30 × 50 4.30	35 × 40 4.30				35 × 50 4.40
47000			30 × 45 4.00	35 × 35 3.90				35 × 45 4.60				
56000				35 × 40 4.50								

WV μF ØD	35				50				63			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
1200									22 × 25 1.30			
1500									22 × 30 1.50	25.4 × 25 1.50		
1800					22 × 25 1.30				22 × 35 1.60	25.4 × 30 1.60	30 × 25 1.60	
2200					22 × 30 1.40				22 × 40 1.80	25.4 × 30 1.80	30 × 30 1.80	
2700					22 × 30 1.60	25.4 × 25 1.60			22 × 45 2.00	25.4 × 35 2.00	30 × 30 2.00	
3300	22 × 25 1.50				22 × 35 1.80	25.4 × 30 1.80			22 × 50 2.20	25.4 × 40 2.20	30 × 35 2.20	35 × 25 2.20
3900	22 × 30 1.60				22 × 40 1.90	25.4 × 30 1.90	30 × 25 1.90			25.4 × 45 2.40	30 × 35 2.40	35 × 30 2.40
4700	22 × 35 1.80	25.4 × 25 1.80			22 × 40 2.00	25.4 × 35 2.10	30 × 30 2.10	35 × 25 2.10		25.4 × 50 2.60	30 × 40 2.60	35 × 35 2.60
5600	22 × 35 2.00	25.4 × 30 2.00			22 × 45 2.20	25.4 × 40 2.30	30 × 35 2.30	35 × 25 2.30			30 × 45 2.80	35 × 35 2.80
6800	22 × 40 2.20	25.4 × 35 2.20	30 × 25 2.20		22 × 50 2.40	25.4 × 45 2.50	30 × 35 2.50	35 × 30 2.50				35 × 40 3.10
8200	22 × 45 2.30	25.4 × 35 2.30	30 × 30 2.40	35 × 25 2.40			30 × 40 2.80	35 × 30 2.70				35 × 45 3.40
10000		25.4 × 40 2.50	30 × 35 2.60	35 × 25 2.50			30 × 45 3.00	35 × 35 3.00				35 × 50 3.80
12000		25.4 × 45 2.80	30 × 35 2.90	35 × 30 2.90				35 × 40 3.30				
15000			30 × 40 3.10	35 × 35 3.20				35 × 45 3.70				
18000			30 × 45 3.30	35 × 40 3.50								
22000				35 × 45 3.70								

WV μF ØD	80				100			
	22	25.4	30	35	22	25.4	30	35
680					22 × 25 1.10			
820	22 × 25 1.20				22 × 30 1.30	25.4 × 25 1.30		
1000	22 × 30 1.30	25.4 × 25 1.30			22 × 35 1.50	25.4 × 30 1.50		
1200	22 × 35 1.50	25.4 × 25 1.50			22 × 40 1.60	25.4 × 35 1.60	30 × 25 1.60	
1500	22 × 40 1.60	25.4 × 30 1.60	30 × 25 1.60		22 × 45 1.80	25.4 × 40 1.80	30 × 30 1.80	
1800	22 × 45 1.80	25.4 × 35 1.80	30 × 30 1.80			25.4 × 45 2.00	30 × 35 2.00	35 × 25 2.00
2200	22 × 50 2.00	25.4 × 40 2.00	30 × 30 2.00	35 × 25 2.00		25.4 × 50 2.20	30 × 40 2.20	35 × 30 2.20
2700		25.4 × 45 2.20	30 × 35 2.20	35 × 30 2.20			30 × 45 2.40	35 × 35 2.40
3300			30 × 40 2.40	35 × 35 2.40				35 × 40 2.70
3900			30 × 45 2.60	35 × 40 2.60				35 × 45 2.90
4700				35 × 45 3.00				
5600				35 × 50	← Case size ØD × L (mm)			



LARGE ALUMINUM ELECTROLYTIC CAPACITORS

HL series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF ØD	160				200				250			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
150					22 × 20 0.63				22 × 25 0.68	25.4 × 20 0.69		
180					22 × 20 0.69	25.4 × 20 0.76			22 × 25 0.74	25.4 × 20 0.76		
220	22 × 20 0.76				22 × 25 0.82	25.4 × 20 0.84			22 × 25 0.82	25.4 × 25 0.90	30 × 20 0.92	
270	22 × 25 0.91	25.4 × 20 0.93			22 × 25 0.91	25.4 × 25 1.00	30 × 20 1.02		22 × 30 0.97	25.4 × 25 1.00	30 × 20 1.02	
330	22 × 25 1.01	25.4 × 20 1.03			22 × 30 1.07	25.4 × 25 1.11	30 × 20 1.13		22 × 35 1.14	25.4 × 30 1.18	30 × 25 1.21	
390	22 × 25 1.09	25.4 × 25 1.20	30 × 20 1.23		22 × 30 1.17	25.4 × 25 1.20	30 × 25 1.31		22 × 40 1.30	25.4 × 35 1.35	30 × 25 1.31	35 × 25 1.42
470	22 × 30 1.28	25.4 × 25 1.32	30 × 20 1.35		22 × 35 1.36	25.4 × 30 1.40	30 × 25 1.44		22 × 45 1.50	25.4 × 35 1.48	30 × 30 1.53	35 × 25 1.56
560	22 × 35 1.48	25.4 × 30 1.53	30 × 25 1.57		22 × 40 1.56	25.4 × 30 1.53	30 × 25 1.57	35 × 25 1.70	22 × 50 1.71	25.4 × 40 1.70	30 × 30 1.67	35 × 25 1.70
680	22 × 40 1.72	25.4 × 30 1.69	30 × 25 1.73		22 × 45 1.80	25.4 × 35 1.79	30 × 30 1.84	35 × 25 1.88		25.4 × 50 2.05	30 × 35 1.94	35 × 30 1.98
820	22 × 45 1.98	25.4 × 35 1.96	30 × 30 2.02	35 × 25 2.06		25.4 × 45 2.16	30 × 30 2.02	35 × 25 2.06			30 × 40 2.23	35 × 35 2.29
1000	22 × 50 2.28	25.4 × 40 2.28	30 × 30 2.23	35 × 25 2.28		25.4 × 50 2.48	30 × 35 2.35	35 × 30 2.41			30 × 50 2.68	35 × 40 2.65
1200		25.4 × 45 2.41	30 × 35 2.38	35 × 30 2.44			30 × 40 2.50	35 × 35 2.57				35 × 45 2.80
1500		25.4 × 50 2.81	30 × 40 2.79	35 × 35 2.73			30 × 50 3.04	35 × 40 3.00				35 × 50 3.25

WV μF ØD	350				400				450			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
68	22 × 20 0.41	25.4 × 20 0.45										
82	22 × 25 0.48	25.4 × 20 0.49			22 × 20 0.52							
100	22 × 25 0.53	25.4 × 25 0.58	30 × 20 0.60		22 × 25 0.62	25.4 × 20 0.63			22 × 25 0.66			
120	22 × 30 0.62	25.4 × 25 0.64	30 × 20 0.65		22 × 25 0.72	25.4 × 25 0.70	30 × 20 0.77		22 × 30 0.75	25.4 × 25 0.74		
150	22 × 35 0.74	25.4 × 30 0.76	30 × 25 0.78		22 × 30 0.85	25.4 × 25 0.83	30 × 25 0.85		22 × 35 0.89	25.4 × 30 0.93	30 × 25 0.91	
180	22 × 40 0.85	25.4 × 30 0.83	30 × 25 0.86		22 × 35 0.97	25.4 × 30 0.96	30 × 25 1.00		22 × 40 1.02	25.4 × 30 1.02	30 × 25 1.00	35 × 25 1.02
220	22 × 45 0.98	25.4 × 35 0.98	30 × 30 1.00	35 × 25 1.03	22 × 40 1.13	25.4 × 35 1.13	30 × 25 1.10	35 × 25 1.13	22 × 45 1.16	25.4 × 35 1.17	30 × 30 1.16	35 × 25 1.13
270	22 × 50 1.14	25.4 × 40 1.14	30 × 30 1.11	35 × 25 1.14	22 × 45 1.30	25.4 × 40 1.30	30 × 30 1.28	35 × 25 1.32	22 × 50 1.32	25.4 × 40 1.32	30 × 35 1.35	35 × 25 1.33
330		25.4 × 45 1.31	30 × 35 1.30	35 × 30 1.33		25.4 × 45 1.50	30 × 35 1.49	35 × 30 1.46		25.4 × 50 1.52	30 × 40 1.56	35 × 35 1.50
390		25.4 × 50 1.49	30 × 40 1.48	35 × 35 1.52		25.4 × 50 1.70	30 × 40 1.69	35 × 30 1.67			30 × 45 1.77	35 × 40 1.74
470			30 × 45 1.69	35 × 35 1.67			30 × 45 1.93	35 × 35 1.91			30 × 50 2.07	35 × 40 2.04
560			30 × 50 1.92	35 × 40 1.90			30 × 50 2.12	35 × 40 2.12				35 × 45 2.26
680								35 × 45 2.37				35 × 50 2.51

WV μF ØD	500			
	22	25.4	30	35
68	22 × 30 0.73			
82	22 × 35 0.83	25.4 × 25 0.83		
100	22 × 40 0.94	25.4 × 30 0.94	30 × 25 0.91	
120	22 × 50 1.08	25.4 × 30 1.02	30 × 25 1.04	35 × 25 1.01
150	22 × 55 1.24	25.4 × 35 1.21	30 × 30 1.19	35 × 25 1.18
180	22 × 60 1.38	25.4 × 40 1.36	30 × 35 1.34	35 × 30 1.25
220		25.4 × 50 1.52	30 × 40 1.51	35 × 30 1.51
270			30 × 45 1.69	35 × 35 1.62
330			30 × 50 1.89	35 × 40 1.81
390				35 × 45 2.08
470				35 × 50 2.28

Case size ØD × L (mm)
Ripple current (Arms) at 105°C, 120Hz



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