Upgrade

HL Long Life Series

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

Solvent Proof WV≦100V

Long Life

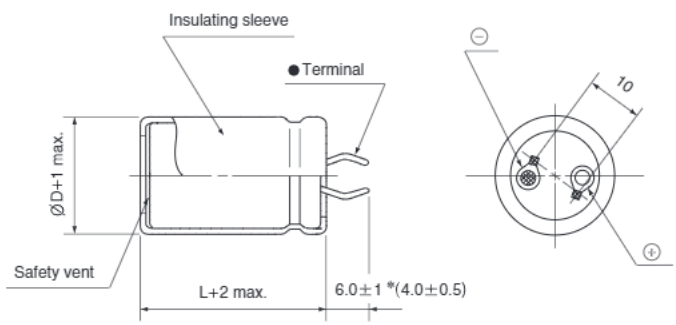
HK ⇨ HL
Long life

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.
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

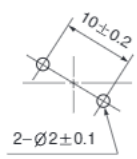
WV	10	16	25, 35	50, 63	80, 100	160 ~ 400	450
tanδ	0.50	0.40	0.35	0.25	0.20	0.15	0.20

DRAWING

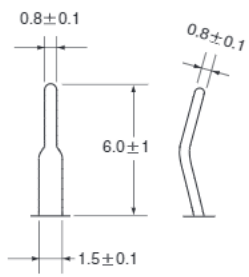
Unit : mm



PC Board Mounting Holes



Terminal



* 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

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 2.80	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 3.30	← Case size ØD×L (mm) ← Ripple current (Arms) at 105°C, 120Hz			

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
120									22×20 0.56			
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
56	22×20 0.37				22×20 0.40	25.4×20 0.45			22×25 0.44			
68	22×20 0.41	25.4×20 0.45			22×25 0.48	25.4×20 0.49			22×30 0.51	25.4×25 0.52		
82	22×25 0.48	25.4×20 0.49			22×25 0.52	25.4×25 0.58	30×20 0.59		22×30 0.56	25.4×25 0.58		
100	22×25 0.53	25.4×25 0.58	30×20 0.60		22×30 0.62	25.4×25 0.63	30×20 0.66		22×35 0.66	25.4×30 0.68	30×25 0.70	
120	22×30 0.62	25.4×25 0.64	30×20 0.65		22×35 0.72	25.4×25 0.70	30×25 0.77		22×40 0.75	25.4×30 0.74	30×25 0.77	35×25 0.83
150	22×35 0.74	25.4×30 0.76	30×25 0.78		22×40 0.85	25.4×30 0.83	30×25 0.85		22×45 0.89	25.4×40 0.93	30×30 0.91	35×25 0.93
180	22×40 0.85	25.4×30 0.83	30×25 0.86		22×45 0.97	25.4×35 0.96	30×30 1.00	35×25 1.02	22×50 1.02	25.4×40 1.02	30×30 1.00	35×25 1.02
220	22×45 0.98	25.4×35 0.98	30×30 1.00	35×25 1.03	22×50 1.13	25.4×40 1.13	30×30 1.10	35×25 1.13		25.4×45 1.17	30×35 1.16	35×25 1.13
270	22×50 1.14	25.4×40 1.14	30×30 1.11	35×25 1.14		25.4×45 1.30	30×35 1.28	35×30 1.32			30×40 1.35	35×30 1.30
330		25.4×45 1.31	30×35 1.30	35×30 1.33		25.4×50 1.50	30×40 1.49	35×30 1.46			30×45 1.56	35×35 1.50
390		25.4×50 1.49	30×40 1.48	35×35 1.52			30×45 1.69	35×35 1.67			30×50 1.77	35×40 1.74
470			30×45 1.69	35×35 1.67			30×50 1.93	35×40 1.91	← Case size ØD×L (mm)			
560			30×50 1.92	35×40 1.90					↑ Ripple current (Arms) at 105°C, 120Hz			