

# HL Series 85°C Low-Leakage (低漏電)

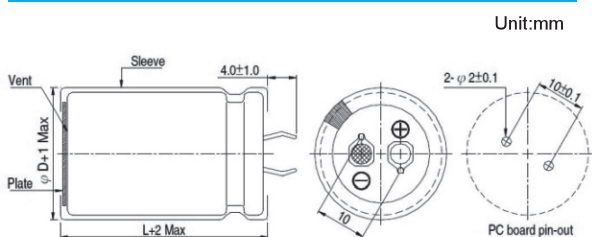
- Long Life, 2000 hours at 85°C (U<sub>R</sub>, I<sub>R</sub> applied)
- Low-leakage design
- RoHS Compliant



## SPECIFICATIONS AND CHARACTERISTICS IN BRIEF

Item	Performance Characteristics								
Standard	IEC 60384-4								
Temperature Range	-40°C (10V to 250V)、-25°C (315V to 450V) to +85°C (Operating) -55°C to +105°C (Storage)								
Rated Working Voltage Range U <sub>R</sub>	16V to 450V								
Surge Voltage U <sub>s</sub>	1.10 x U <sub>R</sub> (for U <sub>R</sub> > 250 VDC), 1.15 x U <sub>R</sub> (for U <sub>R</sub> ≤ 250 VDC)								
Nominal Capacitance Range	47µF to 10000µF								
Capacitance Tolerance	±20% (120Hz, +20°C)								
Leakage Current I <sub>L</sub>	= 0.006 x C <sub>R</sub> x U <sub>R</sub> (µA) or 6mA whichever is the smaller. Note, C <sub>R</sub> is in µF.	Test Condition: U <sub>R</sub> , 5mins., 20°C							
Characteristics at low Temperature	Max. impedance ratio at 120 Hz	U <sub>R</sub> (V)							
		Z -25 °C / Z 20 °C							
tan δ	Working Voltage (V)	16	25	35	50	63	80	100	160-500
	tan δ (max) (120Hz, +20°C)	0.30	0.25	0.25	0.25	0.25	0.22	0.20	0.16
Operational Life Time +85°C, U <sub>R</sub> , I <sub>R</sub>	Can Diameter	22,25	2000 hrs	End of Life Requirement: ΔC/C ≤ ±20% tan δ ≤ 2 x initial tan δ value I <sub>L</sub> ≤ initial specified limi					
		30,35	2000 hrs						
+85°C, U <sub>R</sub>	Can Diameter	22,25	3000 hrs						
		30,35	4000 hrs						
Shelf Life +85°C	After leaving capacitors under no load at 85°C for 2000 hours, Capacitors shall meet specified value for load life characteristics listed above.								
Others	If the capacitors are stored more than 1 year, the Leakage Current may increase. Please apply voltage through about 1 kΩ resistor, if necessary.								

## SPECIFICATIONS



## RIPPLE CURRENT MULTIPLIER

Freq(HZ)	50	120	1K	10K	100K
Coefficient	0.80	1.00	1.20	1.35	1.40

### Mounting

These capacitors are designed to be mounted by their terminations alone, and may be used in any position.

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STANDARD RATINGS								
Voltage (V)	16		25		35		63	
Cap (μF)	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
680							22×25	0.75
1000							22×30 25×25	1.00 1.00
1500					22×25	1.15	22×35 25×30 30×25	1.30 1.30 1.35
2200			22×25	1.35	22×30 25×25	1.50 1.50	22×45 25×40 30×30 35×25	1.75 1.80 1.75 1.80
3300	22×20	1.35	22×30 25×25	1.80 1.80	22×35 25×30 30×25	1.95 1.95 2.00	25×50 30×40 35×30	2.45 2.45 2.40
4700	22×25	1.80	22×35 25×30 30×25	2.30 2.30 2.40	22×45 25×40 30×30 35×25	2.55 2.65 2.60 2.65	30×50 35×40	3.20 3.20
6800	22×35 25×30 30×25	2.25 2.25 2.35	22×45 25×40 30×30 35×25	2.75 2.80 2.75 2.85	25×50 30×40 35×30	3.10 3.10 3.00	35×40	3.75
10000	22×45 25×35 30×30 35×25	2.50 2.50 2.50 2.60	25×50 30×40 35×30	3.10 3.10 3.00	30×50 35×40	3.40 3.40		

Maximum Allowable Ripple Current (A rms) at 85°C 120HZ

Case Size ΦD×L(mm)

# HL Series 85°C Low-Leakage (低漏電)

STANDARD RATINGS								
Voltage (V)	80		100		160		200	
Cap (μF)	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
220							22×30	0.71
270							25×30	0.81
330							25×35	0.95
390					22×30	1.03	25×40	1.08
					22×25	1.03		
470					22×35	1.27	22×50	1.21
					22×30	1.26		
					25×25	1.26	25×40	1.21
560					20×40	1.44	25×45	1.33
					22×30	1.45		
					25×30	1.45	30×35	1.39
680	22×30	0.90	22×35	0.95	22×40	1.95	25×50	1.51
	25×25	0.90	25×30	1.00	25×30	1.93	30×40	1.60
			30×25	1.00	30×25	1.93	35×35	1.60
1000	22×35	1.20	22×50	1.35	22×50	2.02	30×50	1.98
	25×30	1.20	25×40	1.35				
	30×25	1.25	30×30	1.35	25×40	2.00		
			35×25	1.35	30×30	2.06		
1500	22×50	1.70	25×50	1.80	30×40	3.16	35×50	2.12
	25×40	1.65						
	30×30	1.65	30×40	1.85				
	35×25	1.65	35×25	1.35				
2200	25×50	2.20	30×50	2.45	35×40	4.76		
	30×40	2.20	35×40	2.45				
	35×30	2.15	35×40	2.45				
3300	30×50	3.00						
	35×40	2.95						
4700	35×50	3.90						

Maximum Allowable Ripple Current (A rms) at 85°C 120HZ

Case Size ΦD×L(mm)

# HL Series 85°C Low-Leakage (低漏電)

STANDARD RATINGS								
Voltage (V)	250		350		400		450	
	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
47							22×30	0.44
68					22×30	0.50	22×40	0.57
100					22×35	0.63	25×35	0.72
120			22×35	0.56	22×40	0.71	22×50	0.81
150			22×40	0.74	22×50	0.83	25×45	0.94
			25×30	0.72	25×40	0.84	30×35	0.97
180	22×30	0.62	22×45	0.84	30×35	0.98	30×40	1.07
					35×30	0.98		
220	22×40	0.81	22×50	0.95	25×50	1.10	30×45	1.28
	25×30	0.79	25×40	0.95	30×40	1.10	35×40	1.28
270	25×35	0.91	25×50	1.10	30×45	1.32	30×45	1.41
			30×40	1.20				
330	25×40	1.02	30×45	1.29	30×50	1.55	35×45	1.68
	30×30	1.10	35×35	1.29	35×40	1.52		
390	25×45	1.20	35×40	1.52	35×45	1.66		
470	25×50	1.33	35×40	1.65	35×45	1.88	35×50	2.11
	30×40	1.39						
560	30×45	1.58	35×45	1.82	35×50	1.99		
680	30×50	1.81						
	35×40	1.81						
1000	35×50	2.21						

Maximum Allowable Ripple Current (A rms) at 85°C 120HZ

Case Size ΦD×L(mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.