

HL 系列  
SERIES

基板自立型105℃、5000小时品  
105℃ 5000 hours, Miniaturized, Snap-in Terminal Type

◆特 长 / FEATURES

- 105℃、5000小时品。  
Load Life : 105℃ 5000 hours.
- RoHS指令对应品。  
RoHS compliance.



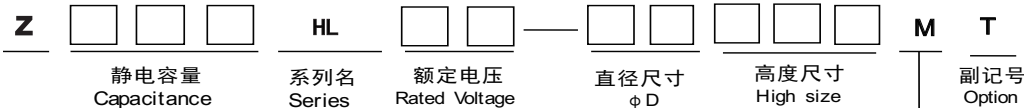
◆规格表 / SPECIFICATIONS

项 目 Items	特 性 Characteristics																									
工作温度范围 Category Temperature Range	-40 ~ +105℃	-25 ~ +105℃																								
额定电压范围 Rated Voltage Range	10 ~ 100V.DC	200 ~ 500V.DC																								
静电容量允许差 Capacitance Tolerance	±20% (20℃, 120Hz)																									
漏 电 流 Leakage Current(MAX)	$I = 3\sqrt{CV}$ (施加额定电压5分钟后) $I = 3\sqrt{CV}$ (After 5 minutes application of rated voltage) I = 漏电流 (µ A)      C = 静电容量 (µ F)      V = 额定电压 (V) Leakage Current      Capacitance      Rated Voltage																									
损失角正切值 (tanδ) Dissipation Factor(MAX)	<table border="1"> <thead> <tr> <th>额定电压(V) Rated Voltage</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>200~250</th> <th>400~450</th> <th>500</th> </tr> </thead> <tbody> <tr> <td>tan δ</td> <td>0.55</td> <td>0.50</td> <td>0.45</td> <td>0.40</td> <td>0.35</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.25</td> </tr> </tbody> </table>	额定电压(V) Rated Voltage	10	16	25	35	50	63	80	100	200~250	400~450	500	tan δ	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.20	0.20	0.25	(20℃, 120Hz)
额定电压(V) Rated Voltage	10	16	25	35	50	63	80	100	200~250	400~450	500															
tan δ	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.20	0.20	0.25															
耐 久 性 Endurance	在105℃环境中，不超过额定电压的范围内叠加额定纹波电流，连续加载5000小时后，满足以下各项要求。 After applying rated voltage with rated ripple current for 5000 hours at 105℃, the capacitors shall meet the following requirements.																									
	<table border="1"> <tr> <td>静电容量变化率 Capacitance Change</td> <td>初期值的±20%(10WV为±25%)以内 Within ±20%(For 10WV; ±25%)of the initial value.</td> </tr> <tr> <td>损 失 角 正 切 值 Dissipation Factor</td> <td>规格值的200%以下 Not more than 200% of the specified value.</td> </tr> <tr> <td>漏 电 流 Leakage Current</td> <td>规格值以下 Not more than the specified value</td> </tr> </table>	静电容量变化率 Capacitance Change	初期值的±20%(10WV为±25%)以内 Within ±20%(For 10WV; ±25%)of the initial value.	损 失 角 正 切 值 Dissipation Factor	规格值的200%以下 Not more than 200% of the specified value.	漏 电 流 Leakage Current	规格值以下 Not more than the specified value																			
静电容量变化率 Capacitance Change	初期值的±20%(10WV为±25%)以内 Within ±20%(For 10WV; ±25%)of the initial value.																									
损 失 角 正 切 值 Dissipation Factor	规格值的200%以下 Not more than 200% of the specified value.																									
漏 电 流 Leakage Current	规格值以下 Not more than the specified value																									
低 温 特 性 Low Temperature Stability (阻抗比) Impedance Ratio (MAX)	<table border="1"> <thead> <tr> <th>额定电压(V) Rated Voltage</th> <th>10~100</th> <th>200~250</th> <th>400~450</th> <th>500</th> </tr> </thead> <tbody> <tr> <td>Z(-25℃)/Z(20℃)</td> <td>3</td> <td>3</td> <td>8</td> <td>12</td> </tr> <tr> <td>Z(-40℃)/Z(20℃)</td> <td>12</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	额定电压(V) Rated Voltage	10~100	200~250	400~450	500	Z(-25℃)/Z(20℃)	3	3	8	12	Z(-40℃)/Z(20℃)	12	-	-	-	(120Hz)									
额定电压(V) Rated Voltage	10~100	200~250	400~450	500																						
Z(-25℃)/Z(20℃)	3	3	8	12																						
Z(-40℃)/Z(20℃)	12	-	-	-																						

◆纹波电流修正系数 / MULTIPLIER FOR RIPPLE CURRENT

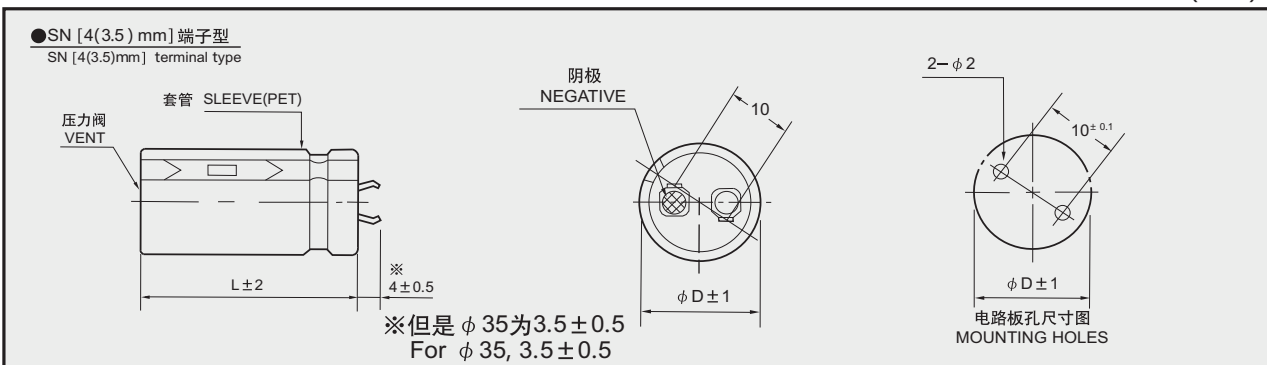
频率 (Hz) Frequency		60(50)	120	500	1k	10k≤
系 数 Coefficient	10~100WV	0.90	1.00	1.05	1.10	1.15
	200~250WV	0.80	1.00	1.20	1.30	1.50
	400~500WV	0.80	1.00	1.20	1.25	1.40

◆产品型号体系 / PARTNUMBER



容量允许偏差  
Capacitance Tolerance (mm)

◆尺寸图 / DIMENSIONS



◆标准品一览表/STANDARD SIZE

V <sub>DC</sub> Cap (μF) φD	10				16			
	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
5600					22×25: 1.44			
6800					22×30: 1.66			
8200	22×25: 1.36				22×30: 1.79	25×25: 1.67		
10000	22×30: 1.65				22×35: 2.08	25×30: 2.07		
12000	22×35: 1.85	25×25: 1.82			22×40: 2.36	25×35: 2.37	30×25: 2.13	
15000	22×40: 2.12	25×30: 2.11	30×25: 2.14		22×45: 2.69	25×40: 2.72	30×30: 2.54	
18000	22×45: 2.40	25×35: 2.32	30×30: 2.37			25×45: 3.06	30×35: 3.02	35×30: 3.09
22000		25×40: 2.59	30×30: 2.73			25×50: 3.39	30×40: 3.46	35×30: 3.31
27000		25×45: 3.01	30×35: 3.13	35×30: 3.05			30×45: 3.88	35×35: 3.85
33000		25×50: 3.43	30×40: 3.53	35×35: 3.49			30×50: 4.33	35×40: 4.33
39000			30×45: 3.78	35×40: 3.96				35×45: 4.96
47000			30×50: 4.58	35×45: 4.60				35×50: 5.49
56000				35×50: 5.06				

V <sub>DC</sub> Cap (μF) φD	25				35			
	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
2700					22×25: 1.29			
3300					22×30: 1.54			
3900	22×25: 1.31				22×35: 1.77	25×25: 1.55		
4700	22×30: 1.55				22×40: 2.01	25×30: 1.87		
5600	22×35: 1.77	25×25: 1.56			22×45: 2.25	25×35: 2.18	30×25: 1.80	
6800	22×40: 2.02	25×30: 1.88			22×50: 2.49	25×40: 2.45	30×30: 2.28	
8200	22×45: 2.27	25×35: 2.18	30×25: 1.92			25×45: 2.80	30×35: 2.69	
10000	22×50: 2.56	25×40: 2.53	30×30: 2.38				30×40: 3.04	35×30: 2.78
12000		25×45: 2.79	30×35: 2.70	35×30: 2.76			30×45: 3.38	35×35: 3.30
15000			30×40: 3.13	35×30: 3.00				35×40: 3.88
18000			30×45: 3.52	35×35: 3.50				35×45: 4.40
22000			30×50: 3.92	35×40: 3.95				
27000				35×50: 4.72				

V <sub>DC</sub> Cap (μF) φD	50				63			
	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
1000					22×25: 1.10			
1200					22×25: 1.17			
1500	22×25: 1.21				22×30: 1.41	25×25: 1.38		
1800	22×25: 1.28				22×35: 1.62	25×30: 1.63		
2200	22×30: 1.52	25×25: 1.46			22×40: 1.85	25×30: 1.75	30×25: 1.66	
2700	22×35: 1.77	25×30: 1.76			22×45: 2.10	25×35: 2.03	30×30: 2.01	
3300	22×40: 2.02	25×30: 1.87	30×25: 1.72			25×40: 2.33	30×30: 2.15	
3900	22×45: 2.27	25×35: 2.20	30×30: 2.09			25×45: 2.58	30×35: 2.46	35×30: 2.31
4700		25×40: 2.43	30×30: 2.22				30×40: 2.82	35×35: 2.77
5600		25×45: 2.72	30×35: 2.58	35×30: 2.35			30×45: 3.22	35×40: 3.20
6800			30×40: 3.01	35×35: 2.91				35×45: 3.61
8200			30×50: 3.63	35×40: 3.36				35×50: 3.94
10000				35×45: 3.79				
12000				35×50: 4.06				

V <sub>DC</sub> Cap (μF) φD	80				100			
	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
560					22×25: 1.01			
680					22×30: 1.19			
820	22×25: 1.09				22×35: 1.33	25×25: 1.26		
1000	22×30: 1.29				22×40: 1.56	25×30: 1.52	30×25: 1.47	
1200	22×35: 1.48	25×25: 1.32			22×45: 1.76	25×35: 1.76	30×30: 1.76	
1500	22×40: 1.70	25×30: 1.74	30×25: 1.58		22×50: 2.00	25×40: 2.03	30×30: 1.89	
1800	22×45: 1.91	25×35: 1.86	30×25: 1.68			25×45: 2.29	30×35: 2.19	35×30: 2.05
2200		25×45: 2.22	30×30: 2.02				30×40: 2.52	35×35: 2.48
2700			30×35: 2.50	35×30: 2.18			30×45: 2.86	35×40: 2.87
3300			30×40: 2.69	35×35: 2.60				35×45: 3.25
3900			30×45: 2.94	35×40: 3.00				35×50: 3.56
4700				35×45: 3.44				
5600				35×50: 3.72				

↑ 纹波电流 Ripple Current (A r.m.s./120Hz, 105°C)  
铝壳尺寸 Case Size φ D × L(mm)

◆标准品一览表/STANDARD SIZE

V <sub>DC</sub> Cap (μF)	φD	200				220				
		φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35	
270	22×25	1.09				22×25	1.04			
330	22×30	1.31				22×30	1.26			
390	22×30	1.32	25×25	1.27		22×35	1.47	25×25	1.21	
470	22×35	1.54	25×30	1.54		22×40	1.64	25×30	1.47	
560	22×40	1.75	25×30	1.54		22×45	1.86	25×35	1.71	
680	22×45	1.96	25×35	1.79	30×25	1.46	22×50	2.05	25×40	1.94
820	22×50	2.15	25×40	2.03	30×30	1.77	35×25	1.59	30×30	1.71
1000			25×45	2.26	30×35	2.06	35×30	1.93	25×45	2.16
1200					30×40	2.34	35×35	2.22	30×35	1.99
1500					30×45	2.60	35×40	2.56	30×40	2.26
1800							35×45	2.85	30×45	2.51
2200							35×50	3.14	30×50	2.75
									35×40	2.50
									35×50	3.04

V <sub>DC</sub> Cap (μF)	φD	250				400				
		φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35	
82						22×25	0.64			
100						22×30	0.74			
120						22×30	0.79	25×25	0.79	
150						22×35	0.92	25×30	0.95	
180						22×40	1.05	25×35	1.10	
220	22×25	0.97				22×50	1.28	25×35	1.12	
270	22×30	1.18						30×25	0.97	
330	22×35	1.37	25×25	1.14			25×45	1.40	30×30	1.17
390	22×40	1.56	25×30	1.38			25×50	1.55	30×35	1.36
470	22×45	1.74	25×35	1.61	30×25	1.34			30×40	1.55
560	22×50	1.92	25×40	1.83	30×30	1.63	35×25	1.48	30×45	1.72
680			25×45	2.04	30×35	1.90	35×30	1.80	30×50	1.89
820			25×50	2.24	30×40	2.15	35×35	2.38	35×25	1.10
1000					30×45	2.39	35×40	2.39	35×30	1.33
1200					30×50	2.62	35×40	2.39	35×35	1.35
1500							35×50	2.92	35×40	1.53
									35×45	1.78
									35×50	1.98
									35×50	2.19

V <sub>DC</sub> Cap (μF)	φD	420				450				
		φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35	
82	22×25	0.61				22×25	0.60			
100	22×30	0.74				22×30	0.73	25×25	0.72	
120	22×35	0.86	25×25	0.75		22×35	0.84	25×30	0.87	
150	22×40	0.98	25×30	0.90		22×40	0.97	25×30	0.89	
180	22×45	1.09	25×35	1.05	30×25	0.93	22×45	1.08	25×35	1.03
220	22×50	1.21	25×40	1.19	30×30	1.12	25×40	1.17	30×25	0.90
270			25×45	1.34	30×35	1.30	25×50	1.43	30×30	1.08
330					30×40	1.47	30×35	1.28	30×30	1.10
390					30×45	1.64	35×25	1.05	35×25	1.04
470					30×50	1.81	35×30	1.27	35×30	1.25
560							35×35	1.45	35×30	1.25
							35×40	1.68	35×35	1.43
							35×45	1.85	35×40	1.66
							35×50	2.07	35×45	1.85
									35×50	2.04

V <sub>DC</sub> Cap (μF)	φD	500				
		φ 22	φ 25	φ 30	φ 35	
47	22×25	0.44				
56	22×30	0.51				
68	22×30	0.56	25×25	0.55		
82	22×35	0.68	25×30	0.64	30×25	0.63
100	22×40	0.77	25×35	0.74	30×25	0.69
120	22×50	0.87	25×35	0.81	30×30	0.81
150			25×45	0.97	30×35	0.96
180			25×50	1.10	35×25	0.78
220					35×30	0.92
270					30×40	1.07
330					35×30	1.00
390					30×45	1.22
470					35×40	1.21
					35×40	1.32
					35×45	1.50
					35×55	1.73
					35×60	1.92

↑ 纹波电流 Ripple Current (A r.m.s./120Hz, 105°C)  
铝壳尺寸 Case Size φ D × L(mm)