

# HSL 系列 Series

## 特点 Features

- 7mm高，微型体积。Be 7mm in height and mini-size.
- 为VTRs、汽车音响、汽车立体声、微型收录机、微型计算器等设计。  
Designed for use in VTRs, car radios, car stereos, micro-cassette tape recorders, pocket calculators and watches.
- RoHS指令已对应完毕。Adapted to the RoHS directive.



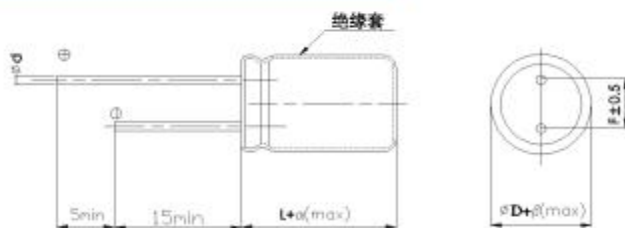
## 主要技术性能 Specifications

项目 Item	特性 Performance Characteristics																					
使用温度范围 Operating Temperature Range	-40~+85°C																					
额定电压范围 Rated Voltage Range	6.3~50V																					
标称容量范围 Nominal Capacitance Range	0.1~470μF																					
标称容量允许偏差 Capacitance Tolerance	±20% (120Hz, +20°C)																					
漏电流 Leakage Current	$I \leq 0.01CV$ or $3(\mu A)$ 2分钟(at 20°C, after 2 minutes) 取较大者(whichever is greater)																					
损耗角正切值 (tgδ) Dissipation Factor (+20°C, 120Hz)	<table border="1"> <thead> <tr> <th><math>U_R</math> (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tgδ</td> <td>0.22</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </tbody> </table>	$U_R$ (V)	6.3	10	16	25	35	50	tgδ	0.22	0.20	0.16	0.14	0.12	0.10							
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温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	<table border="1"> <thead> <tr> <th><math>U_R</math> (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>Z-25°C / +20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / +20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	$U_R$ (V)	6.3	10	16	25	35	50	Z-25°C / +20°C	4	3	2	2	2	2	Z-40°C / +20°C	8	6	4	4	3	3
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Z-40°C / +20°C	8	6	4	4	3	3																
耐久性 Load Life	+85°C加额定电压2000小时，恢复16小时后： After applying rated voltage for 2000 hours at +85°C and then resumed for 16 hours: 电容量变化率 Capacitance change : ±25%初始测量值以内 ±25% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤the initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤ 2times of the initial specified value																					
高温贮存 Shelf Life	+85°C, 1000小时贮存后，恢复16小时后： After storage for 1000 hours at +85°C and then resumed for 16 hours: 电容量变化率 Capacitance change : ±25%初始测量值以内 ±25% of the initial measured value 漏电流 Leakage current : ≤2倍初始规定值 ≤ 2times of the initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤ 2times of the initial specified value																					

## 频率修正系数 Frequency Coefficient

F(Hz)	CAP(μF)			
	60	120	1K	≥10K
0.1~68	0.8	1	1.3	1.5
100~470	0.8	1	1.15	1.2

## 外形图及尺寸表 Case Size Table



单位 Unit: mm

D	4	5	6.3	8
F	1.5	2.0	2.5	3.5
d	0.45		0.5	
α(max)	L < 9, α=1; L=9, α=1.5			
β(max)	0.5			

尺寸 Dimensions

CAP(μF)		WV		6.3V(0J)		10V(1A)		16V(1C)		25V(1E)		35V(1V)		50V(1H)	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1	0R1													4×7	1.0
0.22	R22													4×7	2.3
0.33	R33													4×7	3.5
0.47	R47													4×7	5.0
1	010													4×7	10
2.2	2R2													4×7	19
3.3	3R3													4×7	24
4.7	4R7													4×7	28
10	100					4×7	28	4×7	28	4×7	31	5×7	38		
22	220	4×7	34	4×7	35	4×7	39	5×7	48	5×7	52	6.3×7	58		
33	330	4×7	40	4×7	43	4×7	45	5×7	58	6.3×7	80	8×7	75		
						5×7	59					8×9	85		
47	470	4×7	48	4×7	45	5×7	65	6.3×7	71	8×7	85	8×9	101		
				5×7	49					8×9	96				
100	101	5×7	78	5×7	74	6.3×7	98	8×7	115	8×7	110				
				6.3×7	87	8×7	125	8×9	130	8×9	141				
220	221	6.3×7	120	6.3×7	138	8×7	140								
				8×7	145	8×9	186								
330	331	8×7	180	8×7	201										
		8×9	204												
470	471	8×7	215												
		8×9	243												

Size φD×L(mm)

Maximum Allowable Ripple Current (mA rms) at 85°C 120Hz