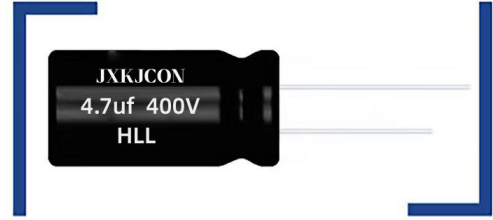


HLL 系列 Series

特点 Features

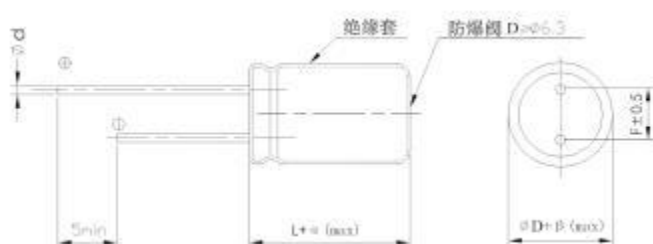
- 耐高纹波，耐高温，超长寿命，105°C 12,000~20,000 小时。
High Ripple Current High Temperature, extremely Long Life,
Life time 105°C 12,000~20,000hours.
- 专为LED驱动电源设计制造。
Specially designed for light emitting diode lamp (LED)drive source.
- RoHS指令已对应完毕。
Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Characteristics														
使用温度范围 Operating Temperature Range	-40~+105°C														
额定电压范围 Rated Voltage Range	160~450V														
标称容量范围 Nominal Capacitance Range	1~150μF														
标称容量允许偏差 Capacitance Tolerance	± 20% (120Hz, +20°C)														
漏电流 Leakage Current(+20°C)	$I \leq 0.02 CV + 10\mu A$ (2分钟, 20°C) $0.02CV + 10\mu A$ (at 20°C, after 2 minutes) C: 标称容量Capacitance (μF); V: 额定电压Rated voltage range (V)														
损耗角正切值(tgδ) Dissipation Factor (+20°C, 120Hz)	<table border="1"> <thead> <tr> <th>U_r (V)</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>tgδ</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table>	U_r (V)	160	200	250	350	400	450	tgδ	0.24	0.24	0.24	0.24	0.24	0.24
U_r (V)	160	200	250	350	400	450									
tgδ	0.24	0.24	0.24	0.24	0.24	0.24									
温度特性(阻抗比/ 120Hz) Temperature Characteristics (Impedance ratio at 120Hz)	<table border="1"> <thead> <tr> <th>U_r (V)</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Z-40°C / Z+20°C</td> <td>6</td> <td>6</td> <td>6</td> <td>7</td> <td>7</td> <td>9</td> </tr> </tbody> </table>	U_r (V)	160	200	250	350	400	450	Z-40°C / Z+20°C	6	6	6	7	7	9
U_r (V)	160	200	250	350	400	450									
Z-40°C / Z+20°C	6	6	6	7	7	9									
耐久性 Load Life	<p>在+105°C条件下，施加含额定纹波电流的额定电压，持续规定时间，并在+20°C下恢复16小时后，电容器应符合下列要求 The following specifications shall be met when the capacitors are restored to +20°C for 16 hours after D.C. bias rated ripple current is applied at +105°C, the peak voltage shall not exceed the voltage.</p> <table border="1"> <thead> <tr> <th>Time</th> <th>6.3×9, 6.3×11, 8×9, 10×9</th> <th>12,000 hours</th> </tr> </thead> <tbody> <tr> <td></td> <td>8×11.5, 8×16, 8×20, 10×12.5</td> <td>15,000 hours</td> </tr> <tr> <td></td> <td>$\varphi \geq 10 \times 16$</td> <td>20,000 hours</td> </tr> </tbody> </table> <p>Capacitance change : ±30%初始测量值以内 ±30% of the initial measured value Leakage current : ≤初始规定值 ≤Initial specified value Dissipation factor : ≤3倍初始规定值 ≤3 times of the initial specified value</p>	Time	6.3×9, 6.3×11, 8×9, 10×9	12,000 hours		8×11.5, 8×16, 8×20, 10×12.5	15,000 hours		$\varphi \geq 10 \times 16$	20,000 hours					
Time	6.3×9, 6.3×11, 8×9, 10×9	12,000 hours													
	8×11.5, 8×16, 8×20, 10×12.5	15,000 hours													
	$\varphi \geq 10 \times 16$	20,000 hours													
高温贮存 Shelf Life	<p>+105°C 1000小时贮存后，恢复16小时后 After storage for 1000 hours at +105°C and then resumed for 16 hours:</p> <p>Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value Leakage current : ≤2倍初始规定值 ≤2 times of the initial specified value Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value</p>														

外形图及尺寸表 Case Size Table



单位 Unit: mm

D	5	6.3	8	10	13
F	2.0	2.5	3.5	5.0	5.0
d	0.5	0.5	0.5、0.6	0.6	0.6
αMAX	L < 20 > 1.5		βMAX		
	L ≥ 20 > 2.0				
			0.5		

允许纹波电流的修正系数 Coefficient of Allowable Ripple Current

频率 Frequency(Hz)	50	120	1K	10K	100K
修正系数Coefficient	0.40	0.50	0.80	0.90	1.00

尺寸 Dimensions

容量 CR(μF)	代码 Cod	电压 UR	160V(2C)			200V(2D)			250V(2E)			
			项目 Item	Size	ESR	Ripple	Size	ESR	Ripple	Size	ESR	Ripple
				φD×L(mm)	ΩMAX	(mA)	φD×L(mm)	ΩMAX	(mA)	φD×L(mm)	ΩMAX	(mA)
1	010		6.3×9	18.5	50	6.3×9	17.4	52	6.3×9	22.0	54	
1.5	1R5		6.3×9	13.9	60	6.3×9	17.4	62	6.3×9	22.0	65	
1.8	1R8		6.3×9	13.9	65	6.3×9	13.9	68	6.3×11	17.4	70	
2.2	2R2		6.3×9	13.9	70	6.3×11	13.9	72	6.3×11	15.1	75	
2.7	2R7		6.3×11	13.9	80	6.3×11	11.3	84	6.3×11	15.1	88	
3.3	3R3		6.3×11	11.3	85	6.3×11	11.3	90	6.3×11	15.1	92	
4.7	4R7		6.3×11	11.3	105	6.3×11	11.3	110	6.3×11	11.8	120	
5.6	5R6		6.3×11	11.3	110	8×9	7.98	115	8×9	9.89	130	
6.8	6R8		6.3×11	11.3	125	8×9	7.98	130	8×9	9.89	160	
8.2	8R2		8×9	11.3	135	8×9	7.98	145	8×9	9.89	175	
10	100		8×9	7.5	150	8×11.5	3.65	160	8×11.5	9.89	200	
15	150		8×11.5	4.27	190	8×16	3.65	230	10×13	8.92	270	
			10×9	4.27	210	10×13	3.65	280				
22	220		10×13	2.25	250	10×16	3.24	340	10×16	4.65	380	
33	330		10×16	1.87	415	10×20	2.38	550	10×20	4.65	570	
47	470		10×20	1.87	525	13×20	1.38	710	13×20	4.65	795	

容量 CR(μF)	代码 Code	电压 UR	350V(2V)			400V(2G)			450V(2W)			
			项目 Item	Size	ESR	Ripple	Size	ESR	Ripple	Size	ESR	Ripple
				φD×L(mm)	ΩMAX	(mA)	φD×L(mm)	ΩMAX	(mA)	φD×L(mm)	ΩMAX	(mA)
1.0	010		6.3×9	33.0	50	6.3×11	38.0	54	6.3×11	38.0	58	
1.2	1R2		6.3×11	33.0	55	8×9	38.0	60	8×11.5	38.0	65	
1.5	1R5		6.3×11	33.0	63	8×9	38.0	66	8×11.5	38.0	70	
1.8	1R8		6.3×11	33.0	70	8×9	33.0	75	8×11.5	38.0	80	
2.2	2R2		8×9	33.0	77	8×9	33.0	78	8×11.5	33.0	88	
			8×11.5	33.0	80	8×11.5	33.0	82				
2.7	2R7		8×11.5	33.0	85	8×11.5	33.0	88	8×16	33.0	100	
3.3	3R3		8×11.5	21.0	100	8×11.5	21.0	100	8×16	33.0	110	
			10×9	21.0	115	10×9	21.0	120				
4.7	4R7		10×9	21.0	120	10×13	14.0	126	10×13	18.4	145	
5.6	5R6		8×16	21.0	135	8×20	14.0	155	10×16	18.4	180	
						10×13	14.0	158				
6.8	6R8		10×13	16.2	165	8×20	10.2	170	10×16	12.0	200	
						10×16	10.2	180				
8.2	8R2		10×16	13.5	180	10×16	10.2	190	10×20	12.0	235	
10	100		10×16	13.5	215	10×16	9.50	220	10×20	6.50	285	
15	150		10×20	9.50	295	13×20	4.30	300				

Size φD×L(mm)

Maximum Allowable Ripple Current (mA rms) at 105°C 100KHz

Maximum ESR (Ω) at 20°C 100KHz