

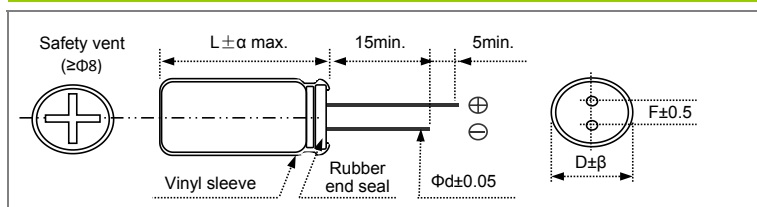
**LL Series**

**+105°C, Low Leakage Current 低漏电**

**SPECIFICATIONS 规格表**

Item 项目	Performance Characteristics 特性参数								
Operation Temperature Range 工作温度范围	-40 to +105°C								
Rated Working Voltage Range 额定电压范围	6.3 to 100V								
Nominal Capacitance Range 静电容量范围	0.1 to 3300μF								
Capacitance Tolerance 静电容量允许偏差	±20%(120Hz, +20°C)								
Leakage Current 漏电流	LC ≤ 0.002CV or 0.4(μA) Whichever is greater measured after 2 minutes application of rated working voltage at +20 °C 施加额定工作电压充电2分钟后读数，二者取大值。 [C：静电容量(μF)，V：额定电压(V)]								
Dissipaom Factor (tan δ) 损失角正切值 (120Hz, +20°C)	Working Voltage(v)	6.3	10	16	25	35	50	63	100
	tan δ(max)	0.28	0.24	0.2	0.16	0.14	0.12	0.1	0.08
	For capacitance value >1000μF, add 0.02 per another 1000μF 标称容量值超过1000uF，则每增加1000uF，损失角正切值增加0.02								
Low Temperature characteristics 温度特性(阻抗比)	Impedance ratio max. at 120 Hz 阻抗比最大值								
	Working Voltage(V)	6.3	10	16	25	35	50	63	100
	Z(-25°C)/Z(+20°C)	5	4	3	2	2	2	2	2
	Z(-40°C)/Z(+20°C)	12	10	8	5	4	3	3	3
For capacitance value >1000μF, (1) Add 0.5 per another 1000μF for Z(-25°C)/ Z(+20°C) 标称容量值超过1000uF，则每增加1000uF，阻抗比值增加0.5；(2) Add 1.0 per another 1000μF for Z(-40°C)/ Z(+20°C) 每增加1000uF，阻抗比值增加1.0									
High Temperature Loading (Endurance) 高温负荷寿命(耐久性)	Test conditions 试验条件				Post test requirements at +20°C 试验后特性应满足如下要求				
	Duration 持续时间	1,000 hours			Leakage current 漏电流	≤Initial specified value 初始规格值			
	Ambient temp. 环境温度	+105°C			Cap. Change 静电容量变化率	within ±20% of initial measured value 初始测试值的±20%内			
	Applied voltage 施加电压	DC voltage with maximum permissible ripple current specified at +105°C 施加直流电压与额定纹波电流所加电压峰值 [DC+AC]不超过额定工作电压			D.F.(tan δ) 损失角正切值	≤200% of initial specified value 2倍初始规格值			
Before test requirement: Resumed 16 hours at normal temperature 测试前将电容在常温中放置16小时									
Shelf Life 高温储存寿命	Test conditions 试验条件				Post test requirements at +20°C 试验后特性应满足如下要求				
	Duration 持续时间	500 hours			Leakage current 漏电流	≤Initial specified value 初始规格值			
	Ambient temp. 环境温度	+105°C			Cap. Change 静电容量变化率	within ±20% of initial measured value 初始测试值的±20%内			
	Applied voltage 施加电压	(None) 无			D.F.(tan δ) 损失角正切值	≤200% of initial specified value 2倍初始规格值			
*(Before the measurements, the capacitor shall be pretreated by applying DC working voltage for 30min, after discharged and then stored under standard atmospheric conditions for 24-48 hours) 测试前应将电容在常温中施加工作电压30分钟，放电后在标准气压下放置24~48小时									
Other 其他	JIS C-5101 (IEC 60384)								

**CASE SIZE TABLE 尺寸图 (Unit : mm)**



ΦD	5	6.3	8	10	13
P	2.0	2.5	3.5	5.0	5.0
Φd	0.5	0.5	0.6	0.6	0.6
α	(L < 20) 1.5			(L ≥ 20) 2.0	
β	(D < 20) 0.5			(D ≥ 20) 1.0	

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**STANDARD RATINGS 标准品一览表**

Voltage(Code)		6.3V(0J)		10V(1A)		16V(1C)		25V(1E)	
Cap.(μF)	Code	Case Size	R.C	Case Size	R.C	Case Size	R.C	Case Size	R.C
4.7	4P7							5×11	18
10	010					5×11	24	5×11	30
22	022	5×11	21	5×11	33	5×11	45	5×11	48
33	033	5×11	33	5×11	48	5×11	54	5×11	57
47	047	5×11	45	5×11	57	5×11	66	5×11	69
100	101	5×11	78	5×11	87	6.3×12	105	6.3×12	111
220	221	6.3×12	129	6.3×12	138	8×12	180	8×12	192
330	331	6.3×12	159	8×12	198	8×12	216	10×13	252
470	471	8×12	216	8×12	234	10×13	282	10×16	324
1000	102	10×13	342	10×16	378	10×20	474	13×21	570
2200	222	13×21	630	13×21	660				
3300	332	13×21	750						

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD × L (mm)

Voltage(Code)		35V(1V)		50V(1H)		63V(1J)		100V(2A)	
Cap.(μF)	Code	Case Size	R.C	Case Size	R.C	Case Size	R.C	Case Size	R.C
1	001			5×11	10			5×11	10
2.2	2P2			5×11	14			5×11	18
3.3	3P3			5×11	21			5×11	24
4.7	4P7	5×11	21	5×11	24	5×11	27	5×11	27
10	010	5×11	33	5×11	39	5×11	42	6.3×12	45
22	022	5×11	51	6.3×12	57	6.3×12	69	8×12	78
33	033	5×11	63	6.3×12	75	8×12	84	10×13	102
47	047	6.3×12	84	6.3×12	90	8×12	114	10×16	138
100	101	8×12	138	8×12	150	10×13	180	13×21	240
220	221	10×13	222	10×16	264	10×20	294		
330	331	10×16	294	10×20	398	13×21	408		
470	471	10×20	384	13×21	456				

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD × L (mm)

**Multiplier for Ripple Current vs. Frequency 纹波电流频率修正系数**

**(1) Frequency Coefficient 频率系数**

Cap(μF)	50Hz	120Hz	300Hz	1KHz	10KHz~
≤47	0.75	1.0	1.35	1.57	2.0
56~470	0.8	1.0	1.23	1.34	1.5
680~3300	0.8	1.0	1.1	1.13	1.5

**(2) Temperature Coefficient 温度修正系数**

Temperature(°C)	55	60	70	85	105
Factor	2.23	2.17	2.00	1.75	1.00

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