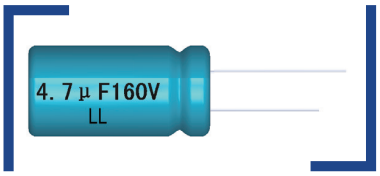
SLL SERIES

特点 Features

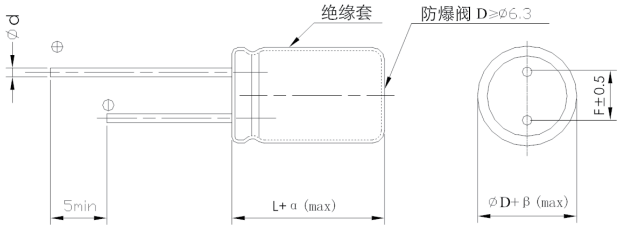


- 耐高纹波，耐高温，超长寿命，105℃ 12,000~20,000 小时。
  High Ripple Current High Temperature , extremely Long Life,
  Life time 105℃ 12,000~20,000hours.
- 专为LED驱动电源设计制造。
  Specially designed for light emitting diode lamp (LED)drive source.
- RoHS指令已对应完毕。
  Adapted to the RoHS directive.

主要技术性能 Specifications

项目 Items	特性 Characteristics
使用温度范围 Operating Temperature Range	-40~+105℃
额定电压范围 Rated Voltage Range	160~450V
标称电容量范围 Nominal Capacitance Range	1~150μF
标称电容量允许偏差 Capacitance Tolerance	± 20% (120Hz, +20°C)
漏电流 Leakage Current（+20℃）	I ≤0.02 CV+10μA (2分钟, 20℃) 0.02CV+10μA (at 20℃, 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℃, 120Hz)	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)	U_R (V) | 160 | 200 | 250 | 350 | 400 | 450 Z-40℃ / Z+20℃ | 6 | 6 | 6 | 7 | 7 | 9
耐久性 Load Life	在+105℃ 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℃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℃ for 16 hours after D.C. bias rated ripple current is applied at +105℃, the peak voltage shall not exceed the voltage. 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; φ≥10×16 — 20,000 hours 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
高温贮存 Shelf Life	+105℃ 1000小时贮存后，恢复16小时后 After storage for 1000 hours at +105℃ and then resumed for 16 hours: 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

外形图及尺寸表 Case Size Table



单位 Unit: mm

D	5	6.3	8	10	12.5
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	0.5
	‹ L≥20 › 2.0		

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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

电压 UR / 项目 Item / 容量 CR(μF) / 代码 Code	160V(2C)			200V(2D)			250V(2E)		
	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	10×12.5	8.92	270
	10×9	4.27	210	10×12.5	3.65	280			
22 / 220	10×12.5	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	12.5×20	1.38	710	12.5×20	4.65	795

电压 UR / 项目 Item / 容量 CR(μF) / 代码 Code	350V(2V)			400V(2G)			450V(2W)		
	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	10×12.5	14.0	126	10×12.5	18.4	145
5.6 / 5R6	8×16	21.0	135	8×20	14.0	155	10×16	18.4	180
				10×12.5	14.0	158			
6.8 / 6R8	10×12.5	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	12.5×20	4.30	300			

Size φD×L(mm)
Maximum Allowable Ripple Current (mA rms) at 105℃ 100KHz
Maximum ESR (Ω) at 20℃ 100KHz

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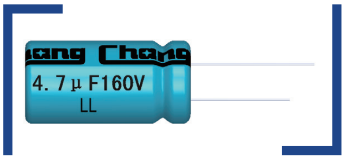
LL 系列 Series

特点 Features

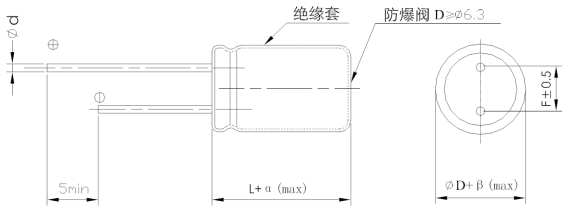


- 耐高纹波，耐高温，超长寿命，105℃ 12,000~20,000 小时。
  High Ripple Current High Temperature , extremely Long Life,
  Life time 105℃ 12,000~20,000hours.
- 专为LED驱动电源设计制造。
  Specially designed for light emitting diode lamp (LED)drive source.
- RoHS指令已对应完毕。
  Adapted to the RoHS directive.

主要技术性能 Specifications

项目 Items	特性 Characteristics
使用温度范围 Operating Temperature Range	-40~+105℃
额定电压范围 Rated Voltage Range	160~450V
标称电容量范围 Nominal Capacitance Range	1~150μF
标称电容量允许偏差 Capacitance Tolerance	± 20% (120Hz, +20°C)
漏电流 Leakage Current（+20℃）	I ≤0.02 CV+10μA (2分钟, 20℃) 0.02CV+10μA (at 20℃, 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℃, 120Hz)	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)	U_R (V) | 160 | 200 | 250 | 350 | 400 | 450 Z-40℃ / Z+20℃ | 6 | 6 | 6 | 7 | 7 | 9
耐久性 Load Life	在+105℃ 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℃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℃ for 16 hours after D.C. bias rated ripple current is applied at +105℃, the peak voltage shall not exceed the voltage. 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; φ≥10×16 — 20,000 hours 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
高温贮存 Shelf Life	+105℃ 1000小时贮存后，恢复16小时后 After storage for 1000 hours at +105℃ and then resumed for 16 hours: 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

外形图及尺寸表 Case Size Table



单位 Unit: mm

D	5	6.3	8	10	12.5
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
	‹ L≥20 › 2.0

βMAX	0.5

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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

电压 UR / 项目 Item / 代码 Code / 容量 CR(μF)		160V(2C)			200V(2D)			250V(2E)		
		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	10×12.5	8.92	270
		10×9	4.27	210	10×12.5	3.65	280			
22	220	10×12.5	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	12.5×20	1.38	710	12.5×20	4.65	795

电压 UR / 项目 Item / 代码 Code / 容量 CR(μF)		350V(2V)			400V(2G)			450V(2W)		
		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	10×12.5	14.0	126	10×12.5	18.4	145
5.6	5R6	8×16	21.0	135	8×20	14.0	155	10×16	18.4	180
					10×12.5	14.0	158			
6.8	6R8	10×12.5	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	12.5×20	4.30	300			

Size φD×L(mm)
Maximum Allowable Ripple Current (mA rms) at 105℃ 100KHz
Maximum ESR (Ω) at 20℃ 100KHz

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Product symbol system for Aluminum Electrolytic Capacitors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
① Series			② Voltage		③ Capacitance			④ Tolerance	⑤ Size code				⑥ Terminal Code			⑦ Brand	⑧ Sleeve	⑨ Other	⑩ Supplement Code	

① Series

Series is represented by a two-letter code. For example "SGR".

② Voltage

Voltage in volts(V) is represented by a one-digit and one-letter code.
Example:

Voltage(V)	2.5	4	6.3	10	16	25	35	50	63	80	100
Code	0E	0G	0J	1A	1C	1E	1V	1H	1J	1K	2A

Voltage(V)	160	200	250	315	350	400	420	450	500	550
Code	2C	2D	2E	2F	2V	2G	2M	2W	2H	2L

③ Capacitance

Capacitance in μF is represented by a three-digit code.the first two digis are significant and the third digit indicates the number of zeros following the significant figure "R" represents the decimal point for capacitance under 10μF.
Example:

Capacitance(μF)	0.1	0.47	1	4.7	10	47	100	470	1000	4700	10000
Code	0R1	R47	010	4R7	100	470	101	471	102	472	103

④ Tolerance

Tolerance is represented by a one-letter code.
Example:

Tolerance(%)	-5~+5	-10~+10	-15~+15	-20~+20	-0~+20	-5~+20	-10~+20	-0~+30	+10~+30	-10~+30	-15~+20
Code	J	K	Y	M	R	H	V	F	G	Q	E

⑤ Size code

Size code is represented by a one-letter and three-digit code. The first one-letter indicate case diameter in mm .The last three digits indicate case length in mm, When the height of a product exceeds 100mm, if the last digit is 0,it is represented by A, otherwise, it is represented by B .
Example:

ΦD	4	5	6.3	8	10	12	12.5	13	16	18	20	22	25	30	35	40	50	63.5	89
Code	B	C	E	F	G	H	I	J	L	M	O	P	Q	R	S	T	U	W	Y

L	5	5.4	9	10	11	11.5	12	14	16	20	25	50	100	105	110	115	120	200	205
Code	050	054	090	100	110	115	120	140	160	200	250	500	10A	10B	11A	11B	12A	20A	20B

Note:When a case size is required and not shown in the table ,please contact with us for further discussion.

⑥ Terminal Code

Terminal Code is represented by a combination of letters or numbers
SMD Type terminal code (please refer to page11)
Radial type terminal code (please refer to page 12~15)
Snap-in Type and ScrewType terminal code(please refer to page 16~17)
Note:When a terminal code is required and not shown in the table ,please contact with us for further discussion.

⑦ Brand

The Surge trademark is represented by the letter "S".

⑧ Sleeve

The sleeve material is represented by the letter E for PET and V for PVC.

⑨ Other

It is represented by a letter or number for rubber shape or other information.

⑩ Supplement Code

For special control purposes.

For example: SGR 16V 2200μF 20% 12.5×25 taping F=5.0 Brand: Surge PVC Sleeve

S	G	R	1	C	2	2	2	M	I	2	5	0	B	5	0	S	V	0

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