

LL/LM Series

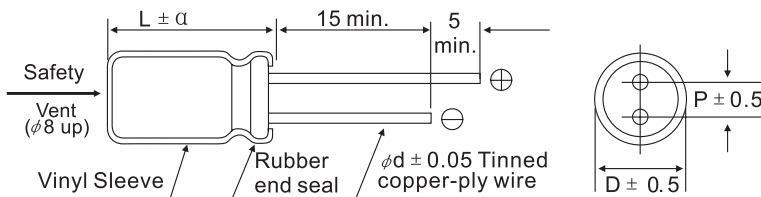
- Low leakage current type
- LL:85 °C 1000 hours
- LM:105 °C 1000 hours
- RoHS Compliant



■ 規格表 SPECIFICATIONS

項目 Items	特性參數 Characteristics								
使用溫度範圍 Category Temperature Range	LL:-40~+85 °C				LM:-40~+105 °C				
額定工作電壓範圍 Rated Voltage Range	6.3 ~ 100V								
靜電容量允許偏差 Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)								
漏電流 Leakage Current	I ≤ 0.002CV or 0.4 µA, which is greater after application of rated Voltage for 1 minutes. 施加額定工作電壓1分鐘後讀數，二者較大值。 (at 20°C) I:漏電流 (µA)、C: 靜電容量 (µF)、額定電壓 (V)								
損耗角正切值 tan δ Dissipation Factor	Rated voltage(V)	6.3	10	16	25	35	50	63	100
	tan δ (Max.)	0.24	0.20	0.16	0.14	0.12	0.10	0.09	0.08
標稱容量超過1000 µF,則每增加1000 µF,損耗角正切值增加0.02 When nominal capacitance exceeds 1000 µF, add 0.02 to the value above for each 1000 µF increase.(at 20°C, 120Hz)									
低溫特性 Low temperature Characteristics (Max. Impedance Ratio)	電容器低溫的阻抗比值，不應超過下表所列出的值 Impedance ratio values must not exceed values listed in below table.								
	Rated voltage(V)	6.3	10	16	25	35	50	63	100
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2
Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3	
耐久性 Endurance	施加額定工作電壓，經恢復到20°C後，測試性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored at 20°C after the rated voltage is applied.								
	Capacitance change	≅ ±20% of the initial value							
	D.F.(tan δ)	≅ 150% of the specified value							
	Leakage current	≅ The specified value							
高溫儲存特性 Shelf Life	LL: 85°C或LM: 105°C 放置1000小時，經恢復到20°C後，測試性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored at 20°C after exposing them for 1000 hours at 85°C without voltage applied.								
	Capacitance change	≅ ±20% of the initial value							
	D.F.(tan δ)	≅ 200% of the specified value							
	Leakage current	≅ The specified value							

■ 外形圖 DIMENSIONS (mm)



ΦD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	2.5	7.5
φd	0.5	0.5	0.5	0.6	0.6	0.8	0.8

α	(L<20) 1.5
	(L≥20) 2.0

■ 紋波電流補正係數 RATED RIPPLE CURRENT COEFFICIENT

- 頻率係數 Frequency Coefficient

Frequency(Hz) Coefficient Capacitance(µF)	50	120	300	1k	10k	100k
0.1 ~ 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 ~ 47	0.75	1.00	1.25	1.50	1.75	1.80
100 ~ 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 ~ 10,000	0.85	1.00	1.03	1.05	1.08	1.08

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■ 尺寸與最大紋波電流一覽表 STANDARD RATINGS

WV(V) cap(μF)	6.3(0J)		10(1A)		16(1C)		25(1E)	
4.7							5 × 11	48
6.8							5 × 11	55
10					5 × 11	58	5 × 11	72
15					5 × 11	75	5 × 11	85
22			5 × 11	62	5 × 11	86	5 × 11	100
33	5 × 11	60	5 × 11	88	5 × 11	105	5 × 11	145
47	5 × 11	80	5 × 11	115	6.3 × 11	140	5 × 11	175
68	5 × 11	90	6.3 × 11	150	6.3 × 11	165	8 × 12	230
100	5 × 11	100	6.3 × 11	185	8 × 12	234	8 × 12	285
150	6.3 × 11	140	8 × 12	250	8 × 12	285	10 × 13	375
220	6.3 × 11	230	8 × 12	320	10 × 13	374	10 × 16	420
330	6.3 × 11	280	10 × 13	410	10 × 16	423	10 × 20	490
470	10 × 13	390	10 × 16	530	10 × 20	550	13 × 20	660
680	10 × 16	480	10 × 20	610	13 × 20	735	13 × 25	810
1,000	10 × 20	655	13 × 20	810	13 × 25	920	16 × 26	1,010
1,500	13 × 20	910	13 × 25	1,020	16 × 26	1,150	16 × 32	1,270
2,200	13 × 20	1,065	16 × 26	1,200	16 × 26	1,310	16 × 35	1,450
3,300	16 × 26	1,270	16 × 32	1,430	16 × 35	1,550	18 × 40	1,730
4,700	16 × 32	1,510	16 × 35	1,650	18 × 36	1,830		
6,800	16 × 26	1,760	18 × 36	1,895				
10,000	18 × 40	1,910						

WV(V) Cap(μF)	35(1V)		50(1H)		63(1J)		100(2A)	
0.1			5 × 11	1.2			5 × 11	2.2
0.15			5 × 11	1.7			5 × 11	3.2
0.22			5 × 11	2.4			5 × 11	4.7
0.33			5 × 11	3.5			5 × 11	7.2
0.47			5 × 11	5.2			5 × 11	10.2
0.68			5 × 11	7.5			5 × 11	14.6
1.0			5 × 11	10.8			5 × 11	20
1.5			5 × 11	17			5 × 11	24
2.2			5 × 11	24			5 × 11	28
3.3			5 × 11	41			5 × 11	46
4.7	5 × 11	90	5 × 11	46			5 × 11	50
6.8			5 × 11	55	5 × 11	60	6.3 × 11	66
10	5 × 11	90	5 × 11	72	6.3 × 11	75	8 × 12	92
15	5 × 11	90	6.3 × 11	95	6.3 × 11	105	8 × 12	112
22	6.3 × 11	110	6.3 × 11	112	8 × 12	116	10 × 13	137
33	6.3 × 11	145	8 × 12	165	8 × 12	172	10 × 16	184
47	8 × 12	195	8 × 12	195	10 × 13	204	10 × 20	222
68	8 × 12	235	10 × 13	255	10 × 16	271	10 × 20	292
100	10 × 13	305	10 × 16	325	10 × 20	333	13 × 20	375
150	10 × 16	405	10 × 20	425	13 × 20	453	13 × 25	475
220	10 × 20	445	13 × 20	495	13 × 20	552	16 × 26	582
330	13 × 20	555	13 × 20	610	13 × 25	712	16 × 32	735
470	13 × 25	685	16 × 26	760	16 × 26	853	18 × 36	912
680	16 × 26	850	16 × 26	920	16 × 32	1,052		
1,000	16 × 26	1,110	16 × 32	1,150	18 × 36	1,332		
1,500	16 × 35	1,395	18 × 40	1,490				
2,200	18 × 36	1,585						

← Ripple current :(mArms,at 105°C ,120Hz)
 Case size : ΦD × L(mm)

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