

SP Series

Lug/Snap-in Terminal Type (插入/自立型) , Standard (标准品)

FEATURES 特点

- 1 . Directly mountable on printed circuit board without holders.
- 2 . Smaller in sizes than ordinary capacitors.
- 3 . Terminal spacing fixed at 10mm for PC board plug in.
- 4 . Aluminum case designed with explosion-proof vent .

SPECIFICATIONS 规格表

Item 项目	Performance Characteristics 特性参数								
Operation Temperature Range 工作温度范围	-40 to +85°C				-25 to +85°C				
Rated Working Voltage Range 额定电压范围	10 to 250V				350 to 450V				
Nominal Capacitance Range 静电容量范围	68 to 82000 μF								
Capacitance Tolerance 静电容量允许偏差	±20% (120HZ 20°C)								
Leakage Current 漏电流	LC≤3√CV (μA) after 5 minutes application of rated working voltage at +20°C 施加额定工作电压充电5分钟后读数。 [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)	10	16	25	35	50	63	80	100
	tan δ(max.)	0.26	0.22	0.18	0.16	0.14	0.12	0.1	0.2
	Working Voltage(V)	160~250	350~400	450					
	tan δ(max)	0.15	0.15	0.2					
For capacitance value>33000μF,add following calculated value: $\frac{(\text{Rated capacitance})-33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$									
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)	10~100	160~250	350	400~450				
	Z-25°C/Z+20°C	4	3	5	8				
	Z-40°C/Z+20°C	15	15	-	-				
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	2,000 hours			Leakage current 漏电流	≤Initial specified value 初始规格值			
	Ambient temp. 环境温度	+85°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 +85°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	1,000 hours			Leakage current 漏电流	≤Initial specified value 初始规格值			
	Ambient temp. 环境温度	+85°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)								

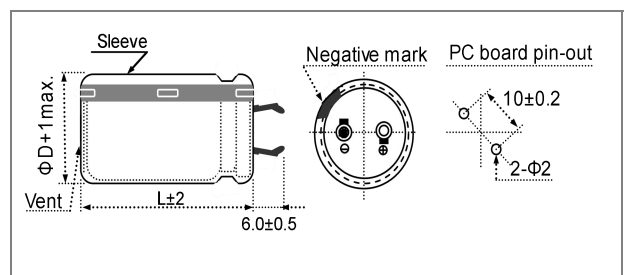
Multiplier for Ripple Current vs. Frequency

纹波电流频率修正系数

If capacitors are used to filter circuits at a frequency other than 120Hz, the maximum ripple current must be multiplied by the figure shown in the table below.

Freq.(Hz)	60	120	1K	10~50K
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.15	1.47
350~450V	0.80	1.00	1.15	1.47

CASE SIZE TABLE 尺寸图 (Unit : mm)



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Voltage(Code)		10V(1A)		16V(1C)		25V(1E)		35V(1V)	
Cap.(μF)	Code	Case Size	R.C	Case Size	R.C	Case Size	R.C	Case Size	R.C
3300	332							20×30	2.14
3900	392							20×30	2.28
								22×25	2.22
4700	472							20×35	2.46
						20×25	2.18	22×30	2.46
								25×25	2.43
6800	682					20×35	2.56	22×40	2.97
				20×25	2.33			25×30	2.89
						22×30	2.56	30×25	3.09
8200	822					20×40	2.91	22×45	3.47
				20×30	2.56	22×35	2.86	25×35	3.33
				22×25	2.56	25×25	2.78	30×30	3.29
10000	103							22×50	3.75
		20×25	2.22	20×35	2.85	22×35	3.31	25×40	3.65
				22×30	2.89	25×30	3.16	30×30	3.61
12000	123	20×30	2.44	20×40	3.2	22×40	3.77	25×40	4.15
		22×25	2.41	22×30	3.13	25×35	3.63	30×35	4.14
				25×25	3.01	30×25	3.80	35×30	4.27
15000	153	20×35	2.9	22×35	3.69	22×50	4.21	30×40	4.8
		22×30	2.88	25×30	3.64	25×40	4.10	35×35	4.95
		25×25	2.88	30×25	3.73	30×30	4.00		
18000	183	20×40	3.31	22×40	3.98	25×45	4.68	30×45	5.3
		22×35	3.22	25×35	3.98	30×35	4.66	35×40	5.71
		25×30	3.08	30×30	3.88	35×30	4.68		
22000	223	22×40	3.79	22×50	4.52	30×40	5.33	35×45	6.38
		25×30	3.66	25×40	4.44				
		30×25	3.53	30×30	4.38	35×35	5.26		
33000	333	22×50	4.58	25×50	5.49				
		25×40	4.56	30×40	5.6	35×45	6.75		
		30×30	4.58	35×30	5.46				
39000	393	25×45	5.29						
		30×35	5.21	30×45	6.21	35×50	7.56		
		35×30	5.50	35×35	6.12				
47000	473	25×50	5.78						
		30×40	5.78	30×50	6.93				
		35×35	5.55	35×40	6.89				
68000	683	30×50	7.50						
		35×40	7.48						
82000	823	35×50	8.50						

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

Case Size ΦD x L(mm)

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Voltage(Code)		50V(1H)		63V(1J)		80V(1K)		100V(2A)	
Cap.(μF)	Code	Case Size	R.C	Case Size	R.C	Case Size	R.C	Case Size	R.C
680	681							20×25	1.66
820	821							20×30	1.85
								22×25	1.86
1000	102					20×25	1.56	20×35	2.02
								22×30	2.02
1200	122					20×30	1.8	20×40	2.12
								22×30	2.12
						22×25	1.77	25×25	2.11
1500	152			20×25	1.69	20×35	2.1	22×30	2.45
						22×30	2.01	25×30	2.47
1800	182	20×25	1.7	20×30	2.04	20×40	2.3	22×40	2.77
				22×25	1.9	22×30	2.11	25×35	2.81
						25×25	2.26	30×25	2.65
2200	222	20×30	2.07	20×35	2.4	22×40	2.53	22×45	3.15
				22×30	2.35	25×30	2.53	25×40	3.21
		22×25	1.93	25×25	2.3	30×25	2.56	30×30	3.17
3300	332	20×40	2.41	22×40	2.72	22×50	3.23	25×50	4.15
		22×30	2.41	25×30	2.74	25×40	3.29	30×40	4.18
		25×25	2.38	30×25	2.78	30×30	3.25	35×35	4.07
3900	392			22×35	2.72	22×45	3.09	25×45	3.62
				25×30	2.68	25×35	3.13	30×35	3.7
				30×30	3.09			35×35	4.61
4700	472	22×40	3.02	22×50	3.69	25×50	4.28	30×50	5.26
		25×30	3.07	25×40	3.59	30×40	4.23		
				25×45	3.60			35×40	5.23
6800	682	30×25	3.01	30×30	3.54	35×30	4.12	35×50	6.01
		22×50	3.94	25×50	4.52	30×50	5.27		
		25×40	3.87	30×40	4.55	35×40	5.24		
8200	822	30×35	3.93	35×30	4.44				
		25×45	4.44	30×45	5.12	35×45	5.89		
		30×35	4.47					35×35	5.05
10000	103	30×40	5.08	30×50	5.78	35×50	6.63		
		35×35	4.92	35×40	5.78				
12000	123	30×50	5.72	35×45	6.47				
		35×40	5.69						
15000	153	35×45	6.56						
18000	183	35×50	7.14						

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

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Voltage(Code)		160V(2C)		200V(2D)		250V(2E)		350V(2V)	
Cap.(μF)	Code	Case Size	R.C	Case Size	R.C	Case Size	R.C	Case Size	R.C
180	181					20×25	1.2		
220	221			20×25	1.19	20×30	1.26	22×35	1.47
						22×25	1.24	25×30	1.53
330	331	20×25	1.55	20×30	1.56	20×35	1.68	22×45	1.87
						22×30	1.66		
				22×25	1.51	25×25	1.61	30×30	2.03
390	391	20×30	1.63	20×35	1.74	20×40	1.92	25×40	2.14
				22×30	1.73	22×35	1.88		
		22×25	1.63	25×25	1.71	25×30	1.88	30×35	2.23
470	471	20×35	1.9	20×40	2.03	22×40	2.15	30×35	2.53
		22×30	1.86	22×30	1.97	25×35	2.15	35×30	2.55
		25×25	1.86	25×30	1.95	30×25	2.04		
560	561	20×40	2.14	22×40	2.18	22×45	2.48	30×40	2.73
		22×30	2.15	25×30	2.15	25×35	2.35	35×35	2.75
		25×30	2.15	30×25	2.15	30×30	2.35		
680	681	22×40	2.35	22×45	2.48	25×40	2.67	35×40	3.15
		25×30	2.33	25×35	2.48	30×35	2.71		
		30×25	2.33	30×30	2.48				
820	821	22×45	2.68	22×50	2.81	25×50	3.01	35×45	3.47
		25×35	2.65	25×40	2.79	30×35	2.98		
		30×30	2.64	30×30	2.75	35×30	2.96		
1000	102	22×50	3.02	25×45	3.28	30×45	3.56		
		25×40	3	30×35	3.15	35×35	3.48		
		30×30	2.96	35×30	3.25				
1200	122	25×45	3.43	25×50	2.61	30×50	3.99		
		30×35	3.41	30×40	3.61	35×40	3.84		
		35×30	3.4	35×35	3.57				
1500	152	30×40	3.96	30×45	4.13	35×45	4.33		
		35×35	3.94	35×40	4.06				
1800	182	30×45	4.31	35×45	4.59	35×50	4.54		
		35×35	4.28						
2200	222	35×40	4.96	35×50	5.25				

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

Case Size ΦD xL(mm)

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Voltage(Code)		400V(2G)		420V(2M)		450V(2W)	
Cap.(μF)	Code	Case Size	R.C	Case Size	R.C	Case Size	R.C
68	068	20×25	0.75	20×25	0.7	20×30	0.7
						22×25	0.71
82	082	20×30	0.82	20×30	0.8	20×35	0.8
		22×25	0.84	22×25	0.85	22×25	0.86
100	101	20×30	0.95	20×35	0.9	20×35	0.88
		22×30	0.99	22×30	0.97	22×30	0.95
		25×25	0.99	25×25	0.98	25×25	0.97
120	121	20×35	1.07	20×35	1.04	20×40	0.99
		22×30	1.09	22×30	1.07	22×35	1.07
		25×25	1.13	25×25	1.08	25×30	1.09
						30×25	1.12
150	151	20×40	1.22	20×45	1.17	22×40	1.18
		22×35	1.24	22×35	1.21	25×30	1.25
		25×30	1.27	25×30	1.26	30×25	1.29
				30×25	1.3		
180	181	22×40	1.41	22×40	1.33	22×45	1.32
		25×30	1.44	25×35	1.42	25×35	1.4
		30×25	1.52	30×25	1.48	30×30	1.45
220	221	22×45	1.58	22×45	1.55	25×40	1.59
		25×35	1.64	25×35	1.58	30×30	1.64
		30×30	1.66	30×30	1.65	35×30	1.66
270	271	25×40	1.79	25×40	1.74	25×45	1.73
		30×30	1.82	30×35	1.90	30×35	1.89
				35×30	1.94	35×30	1.9
330	331	25×45	2.00	25×50	2.20	30×40	2.12
		30×35	2.05	30×35	1.98	35×35	2.15
		35×30	2.05	35×35	2.17		
390	391	30×40	2.26	30×40	2.22	30×45	2.35
		35×35	2.28	35×35	2.27	35×40	2.38
470	471	30×45	2.51	30×45	2.50	35×45	2.68
		35×40	2.54	35×40	2.61		
560	561	35×40	2.85	35×45	2.95		
680	681	35×50	3.10				

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

Case Size ΦD xL(mm)

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