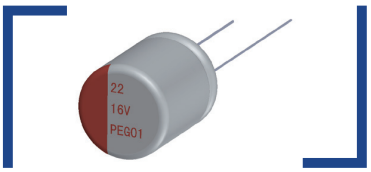
SPE Series

特点 Features

- 可适于无铅焊。
  Lead free-flow is supported.
- 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		
工作温度范围 Operating Temperature Range	-55~+105℃		
额定电压范围 Rated Voltage Range	2.5~25V		
标称电容量范围 Nominal Capacitance Range	6.8~3300μF		
标称电容量允许偏差 Nominal Capacitance Tolerance	±20%（20℃，120Hz）		
漏电流 Leakage Current	参照规格表 Reference parameter table 2分钟 at 20℃, after 2 minutes		
损耗角正切（tgδ） Dissipation Factor (Max)	20℃, 120Hz	直径 / tgδ	Φ5~Φ5.45 / 0.10 | Φ6.3(L≤7) / 0.10 | Φ6.3 (L>7) / 0.08 | Φ8~Φ10 / 0.08
等效串联电阻 ESR	参照规格表 Reference parameter table (mΩ at 100k~300kHz 20℃ max)		
高低温特性比 Characteristics of impedance ratio at high temp. and low temp	要求在100KHZ 20℃ Based the value at 100KHZ. +20℃	-55℃ / Z/Z20℃ / 5 to 1.25	+105℃ / Z/Z20℃ / 0.75 to 1.25
耐久性 Load Life	+105℃施加额定电压2000小时后，待温度恢复到20℃后进行测试，电容器应满足以下要求： After 2000 hours' application of rated voltage at 105℃, and then being stabilized at +20℃, the capacitors shall meet the following requirement:		
	电容量变化率 Capacitance Change	±20%初始值以内 Within ±20% of the initial value (16V: within ±25% of the initial value)	
	损耗角正切 Dissipation Factor	≤ 150%初始规定值 Not more than 150% of the initial specified value	
	阻抗 Equivalent Series Resistance	≤ 150%初始规定值 Not more than 150% of the initial specified value	
	漏电流 Leakage Current	≤初始规定值 Not more than the initial specified value	
稳态湿热 Damp heat(Steady state)	60℃, 90~95% RH, 不加电压1000小时 60℃ , 90~95% RH, 1000 hours, No-applied voltage.		
	电容量变化率 Capacitance Change	±20%初始值以内 Within ±20% of the initial value (16V: within ±25% of the initial value)	
	损耗角正切 Dissipation Factor	≤150%初始规定值 Not more than 150% of the initial specified value	
	阻抗 Equivalent Series Resistance	≤150%初始规定值 Not more than 150% of the initial specified value	
	漏电流 Leakage Current	≤初始规定值 Not more than the initial specified value	
耐焊接热 Resistance to Soldering Heat	（VPS）(260℃ X 10s)		
	电容量变化率 Capacitance Change	±10%初始值以内 Within ±10% of the initial value (16V以上: within ±15% of the initial value)	
	损耗角正切 Dissipation Factor	≤初始规定值 Not more than the initial specified value	
	阻抗 Equivalent Series Resistance	≤初始规定值 Not more than the initial specified value	
	漏电流 Leakage Current	≤初始规定值 Not more than the initial specified value	

※ 当产生疑问的时候，用以下电压处理后测定。
电压处理: 125℃下，连续加载120 分钟的电压。加载电压为额定电压。
When in doubt, apply the following voltage treatment and measure.
Voltage processing: under the condition of 125 ℃ ambient temperature, continuous load voltage of 120 minutes. Load voltage is rated voltage.

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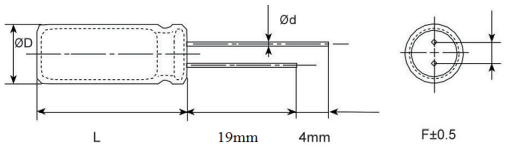
尺寸图 Dimensions



尺寸表 Size List

单位 Unit: mm

D(+0.5max)	5	5.45	6.3		8	10
F(±0.5)	2.0	2.5	2.5		3.5	5
d(±0.05)	0.5	0.5	0.5	0.6	0.6	0.6
L	+1max					

标称电容量、额定电压、额定纹波电流与尺寸对应表
Nominal Capacitance, Rated Voltage, Rated Ripple Current and Case Size Table

Rated Volt. (V)	Capacitance (uF)	Size ΦD×L(mm)	Tanδ (120HZ,20℃)	LC (μA)	ESR (mΩ/at 100k~300kHz 20℃ max)	Rated R. C. (mA/rms at 100kHz, 105℃)
2.5	330	5×7	0.1	165	20	2900
	330	5×8	0.1	165	20	2900
	390	5.45×7	0.1	195	20	3100
	470	5×8	0.1	235	20	2900
	470	5×9	0.1	235	20	2900
	470	6.3×6	0.1	235	20	3100
	560	5×9	0.1	280	20	3100
	560	5.45×9	0.1	280	20	3100
	560	6.3×8	0.08	280	12	3100
	680	5.45×9	0.1	340	20	3100
	820	6.3×8	0.08	410	12	3900
	820	8×8	0.08	410	12	5400
	1000	6.3×9	0.08	500	12	3900
	1000	8×8	0.08	500	12	5400
	1000	8×11.5	0.08	500	12	5400
	1500	8×8	0.08	750	12	5400
	1500	8×11.5	0.08	750	12	5400
	1500	10×12	0.08	750	12	5400
	2200	10×12	0.08	1100	12	5400
	3300	10×12	0.08	1650	12	5400
4	330	5×7	0.1	264	20	2900
	330	5×8	0.1	264	20	2900
	390	5.45×7	0.1	312	20	3100
	470	5×8	0.1	376	20	2900
	470	5×9	0.1	376	20	2900
	560	5×9	0.1	448	20	3100
	560	5.45×9	0.1	448	20	3100
	560	6.3×8	0.08	448	12	3900
	680	5.45×9	0.1	544	20	3100
	820	6.3×8	0.08	656	12	3900
	1000	6.3×9	0.08	800	12	3900
	1200	8×8	0.08	960	12	5400
	1500	8×8	0.08	1200	12	5400
	1500	8×11.5	0.08	1200	12	5400

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Rated Volt. (V)	Capacitance (uF)	Size ΦD×L(mm)	Tanδ (120HZ,20℃)	LC (μA)	ESR (mΩ/at 100k~300kHz 20℃ max)	Rated R. C. (mA/rms at 100kHz, 105℃)
6.3	100	5×7	0.1	126	20	3100
	220	5×7	0.1	277	20	3100
	220	5.45×7	0.1	277	20	3100
	220	6.3×5.4	0.1	277	20	2700
	270	5×7	0.1	340	20	3100
	270	5.45×7	0.1	340	20	3100
	270	6.3×5.4	0.1	340	20	2700
	330	5×8	0.1	415	20	3100
	330	6.3×6	0.1	415	20	3100
	390	5×8	0.1	491	20	3100
	470	5×9	0.1	592	20	3100
	470	5.45×9	0.1	592	20	3700
	470	6.3×6	0.1	592	20	3100
	470	6.3×8	0.08	592	12	3900
	470	8×8	0.08	592	12	3900
	500	5×9	0.1	630	20	3100
	560	5.45×9	0.1	705	20	3700
	560	6.3×8	0.08	705	12	3900
	560	8×8	0.08	705	12	5100
	680	6.3×8	0.08	856	12	3900
	680	8×8	0.08	856	12	4700
	820	6.3×8	0.08	1033	12	3900
	820	6.3×9	0.08	1033	12	3900
	820	8×8	0.08	1033	12	4700
	1000	6.3×10	0.08	1260	12	3900
	1000	8×8	0.08	1260	12	5100
	1000	8×11.5	0.08	1260	12	5400
	1200	8×8	0.08	1512	12	5400
	1200	8×11.5	0.08	1512	12	5400
	1500	8×11.5	0.08	1890	12	5400
	1500	10×12	0.08	1890	12	5400
	2200	10×12	0.08	2772	12	5400
	3300	10×12	0.08	4158	12	5400
7.5	270	5×7	0.1	405	20	3100
	330	5×8	0.1	495	20	3100
	330	5.45×7	0.1	495	20	3100
	390	5×9	0.1	585	20	3300
	470	5.45×9	0.1	705	20	3700
	470	6.3×8	0.08	705	12	4100
	500	5.45×9	0.1	750	20	3700
	560	6.3×8	0.08	840	12	4300
	560	8×8	0.08	840	12	4700
	680	6.3×9	0.08	1020	12	4300

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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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