

## 特点 Features

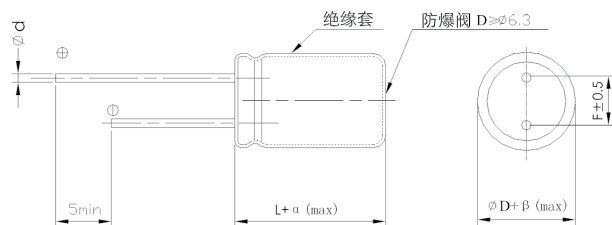
- 耐高纹波，耐高温，特长寿命，105°C 10000小时。  
High Ripple Current High Temperature , extremely Long Life, 105°C 10000 hours.
- RoHS指令已对应完毕。  
Adapted to the RoHS directive.



## 主要技术性能 Specifications

项目 Items	特性 Characteristics														
使用温度范围 Operating Temperature Range	-25~+105°C														
额定电压范围 Rated Voltage Range	160~450V														
标称电容容量范围 Nominal Capacitance Range	2.2~330μF														
标称电容容量允许偏差 Capacitance Tolerance	±20% (+20°C, 120Hz)														
漏电流 Leakage Current	$I \leq 0.02CV + 10(\mu A)$ 5分钟 20°C (at 20°C, after 5 minutes)														
损耗角正切值 (tgδ) Dissipation Factor (+20°C, 120Hz)	<table border="1"> <tr> <td><math>U_R</math> (V)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>tgδ</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </table>	$U_R$ (V)	160	200	250	350	400	450	tgδ	0.20	0.20	0.20	0.24	0.24	0.24
$U_R$ (V)	160	200	250	350	400	450									
tgδ	0.20	0.20	0.20	0.24	0.24	0.24									
温度特性 Temperature Characteristic (Impedance ratio at 120Hz)	<table border="1"> <tr> <td><math>U_R</math> (V)</td> <td>160</td> <td>200</td> <td>250</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>3</td> <td>3</td> <td>4</td> <td>6</td> <td>7</td> <td>7</td> </tr> </table>	$U_R$ (V)	160	200	250	400	420	450	Z-25°C / Z+20°C	3	3	4	6	7	7
$U_R$ (V)	160	200	250	400	420	450									
Z-25°C / Z+20°C	3	3	4	6	7	7									
耐久性 Load Life	<p>施加额定工作电压,在105°C 10000小时试验后,电容器应符合下列要求 After application of the rated voltage at 105°C 10000 hours , the capacitors shall meet the below requirement</p> <p>时间 Time : 105°C 10000 hours</p> <p>电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value</p> <p>漏 电 流 Leakage current : ≤初始规定值≤Initial specified value</p> <p>损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value</p>														
高温贮存 Shelf Life	<p>+105°C 1000小时贮存后, 恢复16小时后 After storage for 1000 hours at +105°C and then resumed for 16 hours:</p> <p>电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value</p> <p>漏 电 流 Leakage current : ≤4倍初始规定值≤4 times of the initial specified value</p> <p>损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value</p>														

## 外形图及尺寸表 Case Size Table



单位 Unit: mm

	D	8	10	12.5	16	18
F		3.5	5.0	5.0	7.5	7.5
d		0.5	0.6	0.6	0.8	0.8

αMAX	◁ L < 20 ▷ 1.5	βMAX	◁ D < 20 ▷ 0.5
	◁ L ≥ 20 ▷ 2.0		◁ D ≥ 20 ▷ 1.0

## 频率修正系数 Frequency Coefficient

Frequency (Hz) \ CAP(μF)	120	1K	10K	100K
≤100	1.00	1.75	2.25	2.50
> 100	1.00	1.67	2.05	2.25

## 尺寸 Dimensions

CAP(μF) \ WV		160V(2C)		200V(2D)		250V(2E)	
		Size	Ripple	Size	Ripple	Size	Ripple
4.7	4R7					8×11.5	78
6.8	6R8			8×11.5	89	10×12.5	100
10	100	10×12.5	120	10×12.5	120	10×16	135
22	220	10×16	198	10×20	220	10×20	213
33	330	10×20	270	12.5×20	290	12.5×20	295
47	470	12.5×20	350	12.5×25	355	16×20	405
68	680	12.5×25	460	16×20	480	16×25	535
100	101	16×20	585	16×25	640	16×25	640
150	151	16×25	770	16×35	910	18×25	743
220	221	16×35	950	18×35	1050	18×30	960
330	331	18×35	1220				

CAP(μF) \ WV		350V(2V)		400V(2G)		450V(2W)	
		Size	Ripple	Size	Ripple	Size	Ripple
2.2	2R2	8×11.5	52	8×11.5	53	8×11.5	50
3.3	3R3	8×11.5	63	8×16	72	8×16	70
4.7	4R7	8×16	88	10×12.5	90	10×16	88
6.8	6R8	10×12.5	102	10×16	113	10×20	113
10	100	10×20	150	10×16	134	12.5×20	150
22	220	12.5×20	240	12.5×25	265	12.5×20	225
33	330	12.5×25	325	16×25	370	16×30	370
47	470	16×25	445	16×30	480	16×35	475
68	680	16×30	575	16×25	530	18×30	546
82	820	16×35	650	18×30	635	18×30	585
100	101	18×35	755	18×30	704	18×40	733

Size φD×L(mm)  
Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

## Product symbol system for Aluminum Electrolytic Capacitors



### 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  $\mu\text{F}$  is represented by a three-digit code. The first two digits are significant and the third digit indicates the number of zeros following the significant figure. "R" represents the decimal point for capacitance under  $10\mu\text{F}$ .

Example:

Capacitance( $\mu\text{F}$ )	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 indicates 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:

$\Phi\text{D}$	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 page 11)

Radial type terminal code (please refer to page 12~15)

Snap-in Type and Screw Type 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 2200 $\mu\text{F}$  20% 12.5 $\times$ 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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