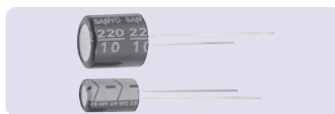


# SA Series


**High capacitance**
**Small size**

SA series is miniaturized SC series with large capacitance. Suitable for high frequency switching power supplies, etc. Lead free-flow is supported.

 SC  
(Standard)

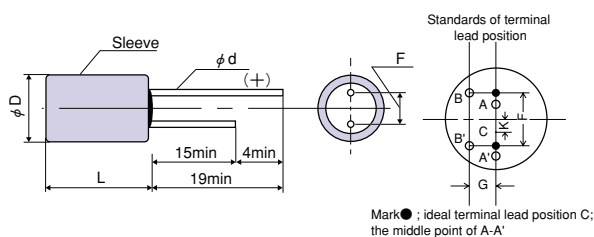
 SA  
Small size  
High capacitance

## Specifications

Items	Condition	Specifications			
Rated voltage (V)	—	6.3	10	16	20
Surge voltage (V)	Room temperature	7.2	11.5	18.4	23
Category temperature range (°C)	—	-55 to +105			
Capacitance tolerance (%)	120Hz/20°C	M : ±20			
Dissipation Factor (DF)	120Hz/20°C	Please see the attached characteristics list			
Leakage current*1	Rated voltage applied, after 2 minutes	Please see the attached characteristics list			
Equivalent series resistance (ESR)	100kHz to 300kHz/20°C	Please see the attached characteristics list			
Characteristics of impedance ratio at high temp. and low temp.	Based the value at 100kHz, +20°C	-55°C	Z/Z <sub>20°C</sub>	0.75 to 1.25	
		+105°C	Z/Z <sub>20°C</sub>	0.75 to 1.25	
Endurance	105°C, 2,000h, Rated voltage applied	ΔC/C	Within ±20% of the initial value		
		DF	Within 1.5 times of the initial limit		
		LC	Within the initial limit		
Damp heat(Steady state)	60°C, 90 to 95%RH, 1,000h, No applied voltage	ΔC/C	Within ±10% of the initial value		
		DF	Within 1.5 times of the initial limit		
		LC	Within the initial limit (after voltage processing)		
Resistance to soldering heat	Flow method (260±5°C X 10s)	ΔC/C	Within ±5% of the initial value		
		DF	Within the initial limit		
		LC	Within the initial limit (after voltage processing)		

\*1 In case of some problems for measured values, measure after applying rated voltage for 30 minutes at 105°C.

## Dimensions



(unit : mm)

Size code	φD <sup>+0.5max</sup>	L max	F	φd <sup>±0.05</sup>	G max	K max
C	6.3	7.8	2.5 ±0.5	0.45	0.5	0.5
D	6.3	10.8	2.5 ±0.5	0.60	0.5	0.5
E	8.0	11.5	3.5 ±0.5	0.60	0.8	0.8
F	10.0	11.5	5.0 ±0.5	0.60	0.8	0.8
G	12.5	23.0	5.0 ±1.0	0.80	0.8	0.8
H	16.0	26.0	7.5 ±1.0	0.80	0.8	0.8

## Size list

RV : Rated voltage

μF \ RV	6.3	10	16	20
15				C
22				C
33			C	D
47	C		D	E
68		D		E
100			E	F
150	E		F	
220		F		
330	F			
470			G	
1,000			H	
2,200	H			

**SA series characteristics list**

Size code	Part number	Rated voltage (V)	Rated capacitance ( $\mu$ F)	ESR(m $\Omega$ ) (max) 100kHz to 300kHz/20°C	Allowable ripple current (mA <sub>rms</sub> ) *1	DF (% max)	Leakage current ( $\mu$ A)(max) After 2 minutes
C	20SA15M	20	15	90	1200	6	6
	20SA22M	20	22	70	1300	6	8.8
	16SA33M	16	33	70	1370	6	10.56
	6SA47M	6.3	47	60	1430	7	5.92
D	20SA33M	20	33	70	1710	6	13.2
	16SA47M	16	47	60	1830	6	15.04
	10SA68M	10	68	50	2000	7	13.6
E	20SA47M	20	47	40	2450	6	18.8
	20SA68M	20	68	36	2600	6	27.2
	16SA100M	16	100	30	2740	6	32
	6SA150M	6.3	150	30	2780	7	18.9
F	20SA100M	20	100	30	3210	6	40
	16SA150M	16	150	28	3260	6	48
	10SA220M	10	220	27	3370	7	44
	6SA330M	6.3	330	25	3500	7	41.58
G	16SA470M	16	470	20	6080	8	300.8
H	16SA1000M	16	1000	15	9750	9	640
	6SA2200M	6.3	2200	15	9750	13	554.4

※1 100kHz, +45°C

**Temperature coefficient for allowable ripple current**

Ambient temp.	$T_x \leq 45^\circ\text{C}$	$45^\circ\text{C} < T_x \leq 65^\circ\text{C}$	$65^\circ\text{C} < T_x \leq 85^\circ\text{C}$	$85^\circ\text{C} < T_x \leq 95^\circ\text{C}$	$95^\circ\text{C} < T_x \leq 105^\circ\text{C}$
Coefficient	1	0.85	0.7	0.4	0.25

**Frequency coefficient for allowable ripple current**

Frequency	$120\text{Hz} \leq f < 1\text{kHz}$	$1\text{kHz} \leq f < 10\text{kHz}$	$10\text{kHz} \leq f < 100\text{kHz}$	$100\text{kHz} \leq f \leq 500\text{kHz}$
Coefficient	0.05	0.2	0.5	1