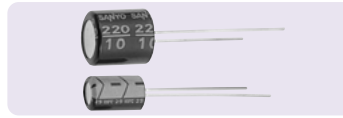


# SA Series


**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

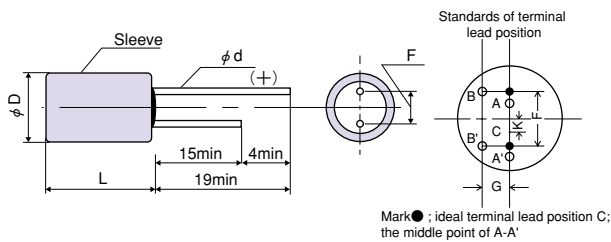
## Specifications

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 ±0.05	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 $^{\circ}$ 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 $^{\circ}$ C

**Temperature coefficient for allowable ripple current**

Ambient temp.	$T_x \leq 45^{\circ}$ C	$45^{\circ}$ C < $T_x \leq 65^{\circ}$ C	$65^{\circ}$ C < $T_x \leq 85^{\circ}$ C	$85^{\circ}$ C < $T_x \leq 95^{\circ}$ C	$95^{\circ}$ C < $T_x \leq 105^{\circ}$ 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

# Aluminum Solid Capacitors with Conductive Polymer

## Aluminum Solid Capacitors with Organic Semiconductive Electrolyte

### Series integration

① Since the following models of the SC, SA, SL, SH, SVP and SVQP series have been integrated into models with a higher voltage rating, please consider these higher voltage rating models for new adoption or model changes.

Series	Size code	Applicable model	Alternative model
SC	A	16SC1M	25SC1M
		16SC1R5M	25SC1R5M
	B	6SC10M	10SC10M
	C	16SC10M	25SC10M
		6SC22M	10SC22M
D	6SC47M	10SC47M	
SA	C	10SA33M	16SA33M
	E	10SA100M	16SA100M
SL	B'	6SL10M	10SL10M
	C'	6SL22M	10SL22M
		6SL33M	10SL33M
		6SL47M	10SL47M
SH	A	16SH1M	25SH1M
		16SH1R5M	25SH1R5M
	C	16SH10M	25SH10M

Series	Size code	Applicable model	Alternative model
SVP	A5	6SVP15M	10SVP15M
		4SVP22M	6SVP22M
	B6	10SVP22M	16SVP22M
		6SVP33M	10SVP33M
	C6	6SVP56M	10SVP56M
		4SVP82M	6SVP82M
	E7	10SVP82M	16SVP82M
		6SVP120M	10SVP120M
		6SVP150M	10SVP150MX
		4SVP150M	10SVP150MX
	F8	4SVP220M	6SVP220MX
		4SVP470M	6SVP470MX
		6SVQP150M	10SVQP150M
SVQP	E7	4SVQP220M	6SVQP220M

② Production of the SG, SV, SM and SN series has been discontinued. Therefore, customers using these series at present are kindly requested to substitute the SP series for the SG series, and the SVP series for the SV, SM and SN series.