

## Surface Mount Type **SP-Cap**

Series : **SX (Low ESR Products)**



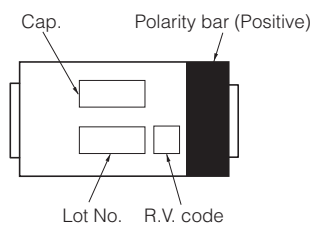
### Features

- Large capacitance (560  $\mu\text{F}$  max.)
- Low ESR (4.5  $\text{m}\Omega$  to 9  $\text{m}\Omega$ )
- High ripple current (8500  $\text{mAr.m.s.}$  max.)
- RoHS compliance, Halogen free

### Specifications

Series	SX			
Category temp. range	-55 °C to +105 °C			
Rated voltage range	2 V.DC to 6.3 V.DC			
Nominal cap.range	82 $\mu\text{F}$ to 560 $\mu\text{F}$			
Capacitance tolerance	$\pm 20\%$ (120 Hz/+20 °C)			
DC leakage current	$I \leq 0.1 \text{ CV}$ ( $\mu\text{A}$ ) 2 minutes			
Dissipation factor ( $\tan \delta$ )	$\leq 0.06$ (120 Hz/+20 °C)			
Surge voltage (V.DC)	Rated voltage $\times 1.25$ (15 °C to 35 °C)			
Endurance	+105 °C, 2000 h, rated voltage applied			
	Capacitance change	Within $\pm 20\%$ of the initial value		
	$\tan \delta$	$\leq 2$ times of the initial limit		
	DC leakage current	$\leq 3$ times of the initial limit		
Damp heat (Steady state)	+60 °C, 90 %, 500 h, No-applied voltage			
	Capacitance change of initial measurd value	2 to 2.5 V.DC	4 V.DC	6.3 V.DC
		+70 %, -20 %	+60 %, -20 %	+50 %, -20 %
	$\tan \delta$	$\leq 2$ times of the initial limit		
DC leakage current	Within the initial limit			

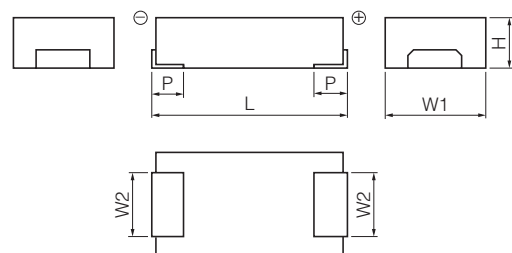
### Marking



Rated voltage mark

d	2 V.DC
e	2.5 V.DC
g	4 V.DC
j	6.3 V.DC

### Dimensions (not to scale)



Unit : mm

Series	$L \pm 0.2$	$W1 \pm 0.2$	$W2 \pm 0.1$	$H \pm 0.1$	$P \pm 0.3$
SX	7.3	4.3	2.4	1.9	1.3

\* Externals of figure are the reference.

## Characteristics list

Reflow \*3 &lt;Standard&gt;

Series	Rated voltage (V.DC)	Capacitance (±20%) (μF)	Case size (mm)			Specification		Part number	Min.*4 Packaging Q'ty (pcs)	
			L	W	H	*1 Ripple current (mA r.m.s.)	*2 ESR (mΩ max.)			
SX	2	180	7.3	4.3	1.9	6300	9	EEFSX0D181ER	3500	
		220	7.3	4.3	1.9	6300	9	EEFSX0D221ER	3500	
		270	7.3	4.3	1.9	6300	9	EEFSX0D271ER	3500	
			7.3	4.3	1.9	7500	6	EEFSX0D271XE	3500	
			7.3	4.3	1.9	8500	4.5	EEFSX0D271E4	3500	
		330	7.3	4.3	1.9	6300	9	EEFSX0D331ER	3500	
			7.3	4.3	1.9	7500	6	EEFSX0D331XE	3500	
			7.3	4.3	1.9	8500	4.5	EEFSX0D331E4	3500	
		390	7.3	4.3	1.9	6300	9	EEFSX0D391ER	3500	
			7.3	4.3	1.9	7500	6	EEFSX0D391XE	3500	
			7.3	4.3	1.9	8500	4.5	EEFSX0D391E4	3500	
		470	7.3	4.3	1.9	6300	9	EEFSX0D471ER	3500	
	7.3		4.3	1.9	7500	6	EEFSX0D471XE	3500		
	7.3		4.3	1.9	8500	4.5	EEFSX0D471E4	3500		
	560	7.3	4.3	1.9	8500	4.5	EEFSX0D561E4	3500		
	2.5	150	7.3	4.3	1.9	6300	9	EEFSX0E151ER	3500	
		180	7.3	4.3	1.9	6300	9	EEFSX0E181ER	3500	
		220	7.3	4.3	1.9	6300	9	EEFSX0E221ER	3500	
			7.3	4.3	1.9	7000	7	EEFSX0E221E7	3500	
		270	7.3	4.3	1.9	7000	7	EEFSX0E271E7	3500	
		330	7.3	4.3	1.9	6300	9	EEFSX0E331ER	3500	
			7.3	4.3	1.9	7500	6	EEFSX0E331XE	3500	
			7.3	4.3	1.9	8500	4.5	EEFSX0E331E4	3500	
		390	7.3	4.3	1.9	6300	9	EEFSX0E391ER	3500	
			7.3	4.3	1.9	7500	6	EEFSX0E391XE	3500	
			7.3	4.3	1.9	8500	4.5	EEFSX0E391E4	3500	
		470	7.3	4.3	1.9	6300	9	EEFSX0E471ER	3500	
			7.3	4.3	1.9	7500	6	EEFSX0E471XE	3500	
			7.3	4.3	1.9	8500	4.5	EEFSX0E471E4	3500	
		4	82	7.3	4.3	1.9	6300	9	EEFSX0G820ER	3500
			100	7.3	4.3	1.9	6300	9	EEFSX0G101ER	3500
			150	7.3	4.3	1.9	6300	9	EEFSX0G151ER	3500
				7.3	4.3	1.9	7000	7	EEFSX0G151E7	3500
	180		7.3	4.3	1.9	6300	9	EEFSX0G181ER	3500	
	220		7.3	4.3	1.9	6300	9	EEFSX0G221ER	3500	
	270		7.3	4.3	1.9	6300	9	EEFSX0G271ER	3500	
330	7.3		4.3	1.9	6300	9	EEFSX0G331ER	3500		
	7.3		4.3	1.9	7500	6	EEFSX0G331XE	3500		
6.3	120		7.3	4.3	1.9	7000	7	EEFSX0J121E7	3500	
	150	7.3	4.3	1.9	6300	9	EEFSX0J151ER	3500		
	180	7.3	4.3	1.9	6300	9	EEFSX0J181ER	3500		
	220	7.3	4.3	1.9	6300	9	EEFSX0J221ER	3500		

\*1: Ripple current (100 kHz/ +45°C), \*2: ESR (100 kHz/+20°C)

\*3: Please refer to the page of "Mounting Specifications".

\*4: Please contact us when 500 pcs packing is necessary.

## Temperature compensation multipliers for ripple current

Temp.	T ≤ 45 °C	45 °C < T ≤ 85 °C	85 °C < T ≤ 105 °C
Coefficient	1.0	0.7	0.25

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