

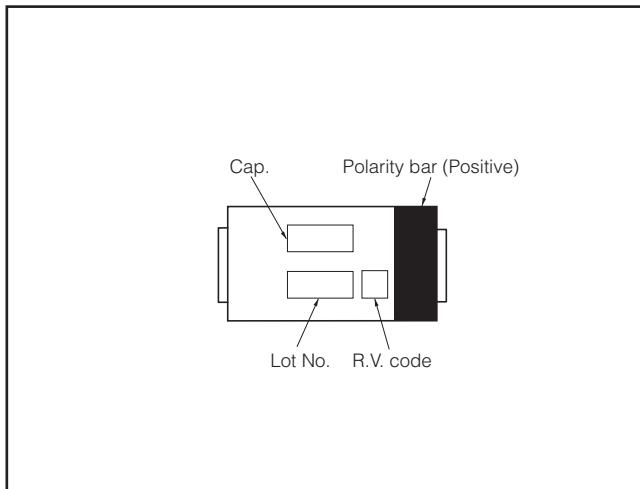
Surface Mount Type

SP-CapSeries: **SX** (Low ESR Products)**■ Features**

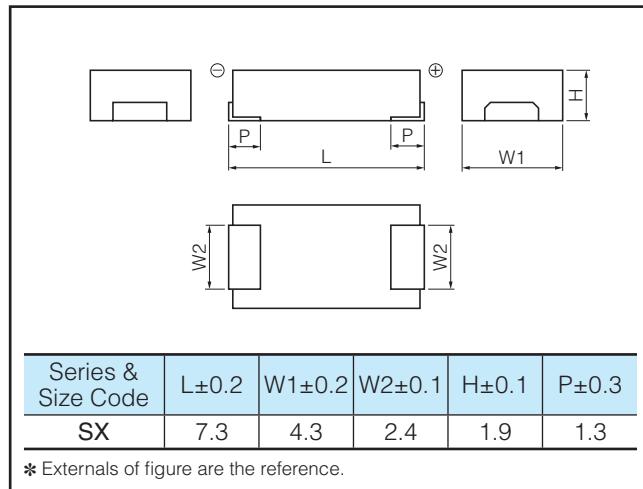
- Large capacitance (560 μF max.)
- Low ESR (4.5 m Ω to 9 m Ω)
- RoHS directive compliant

■ Specifications

Series & Size Code	SX			
Category Temp. Range	-55 °C to +105 °C			
Rated Voltage Range	2 V.DC to 6.3 V.DC			
Nominal Cap.Range	82 μF to 560 μF			
Capacitance Tolerance	$\pm 20\%$ (120 Hz/+20 °C)			
DC Leakage Current	$I \leq 0.1 \text{ CV} (\mu\text{A})$ 2 minutes			
$\tan \delta$	≤ 0.06 (120 Hz/+20 °C)			
Surge Voltage	Rated Voltage $\times 1.25$ (15 °C to 35 °C)			
Endurance	After applying rated voltage for 2000 hours at 105 °C ± 2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.			
	Capacitance change	$\pm 20\%$ of initial measured value		
	$\tan \delta$	$\leq 200\%$ of initial specified value		
	DC leakage current	$\leq 300\%$ of initial specified value		
Moisture resistance	After storing for 500 hours at 60 °C, 90 %			
	Capacitance change of initial measurd value	2, 2.5 V.DC +70, -20 %	4 V.DC +60, -20 %	6.3 V.DC +50, -20 %
	$\tan \delta$	$\leq 200\%$ of initial specified value		
	DC leakage current	\leq Initial specified value		

■ Marking**■ Dimensions in mm(not to scale)**

(Unit : mm)



■ Low ESR Products

Series & Size Code	Rated Voltage (V.DC)	Capacitance ($\pm 20\%$) (μF)	Case Size			Specification		Part number	*4 Min. Packaging Q'ty (pcs)	Reflow *3 <Standard>	
			L (mm)	W (mm)	H (mm)	*1 Ripple current (A.r.m.s.)	*2 ESR (m Ω max.)				
SX	2	180	7.3	4.3	1.9	6.3	9	EEFSX0D181ER	3500		
		220	7.3	4.3	1.9	6.3	9	EEFSX0D221ER	3500		
		270	7.3	4.3	1.9	6.3	9	EEFSX0D271ER	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0D271XE	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0D271E4	3500		
		330	7.3	4.3	1.9	6.3	9	EEFSX0D331ER	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0D331XE	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0D331E4	3500		
		390	7.3	4.3	1.9	6.3	9	EEFSX0D391ER	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0D391XE	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0D391E4	3500		
	2.5	470	7.3	4.3	1.9	6.3	9	EEFSX0D471ER	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0D471XE	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0D471E4	3500		
		390	7.3	4.3	1.9	6.3	9	EEFSX0D561E4	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0E151ER	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0E181ER	3500		
			7.3	4.3	1.9	6.3	9	EEFSX0E221ER	3500		
			7.3	4.3	1.9	7.0	7	EEFSX0E221E7	3500		
		470	7.3	4.3	1.9	7.0	7	EEFSX0E271E7	3500		
			7.3	4.3	1.9	6.3	9	EEFSX0E331ER	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0E331XE	3500		
		4	7.3	4.3	1.9	8.5	4.5	EEFSX0E331E4	3500		
			7.3	4.3	1.9	6.3	9	EEFSX0E391ER	3500		
			7.3	4.3	1.9	7.5	6	EEFSX0E391XE	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0E391E4	3500		
			7.3	4.3	1.9	6.3	9	EEFSX0E471ER	3500		
		6.3	7.3	4.3	1.9	7.5	6	EEFSX0E471XE	3500		
			7.3	4.3	1.9	8.5	4.5	EEFSX0E471E4	3500		
			82	7.3	4.3	1.9	6.3	9	EEFSX0G820ER	3500	
		4	100	7.3	4.3	1.9	6.3	9	EEFSX0G101ER	3500	
			150	7.3	4.3	1.9	6.3	9	EEFSX0G151ER	3500	
			180	7.3	4.3	1.9	7.0	7	EEFSX0G151E7	3500	
		220	220	7.3	4.3	1.9	6.3	9	EEFSX0G181ER	3500	
			270	7.3	4.3	1.9	6.3	9	EEFSX0G221ER	3500	
			270	7.3	4.3	1.9	6.3	9	EEFSX0G271ER	3500	
		6.3	120	7.3	4.3	1.9	7.0	7	EEFSX0J121E7	3500	
			150	7.3	4.3	1.9	6.3	9	EEFSX0J151ER	3500	
			180	7.3	4.3	1.9	6.3	9	EEFSX0J181ER	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

T ≤ 45 °C	45 °C < T ≤ 85 °C	85 °C < T ≤ 105 °C
1.0	0.7	0.25

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