

Surface Mount Type

# SP-Cap

Series: **S**



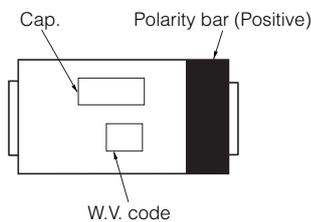
### ■ Features

- Super Low-ESR (4.5 mΩ to 9 mΩ)
- Lower ESR and Higher Capacitance at the same case size as conventional products.
- Excellent Noise-absorbent Characteristics
- High Ripple Current
- RoHS directive compliant

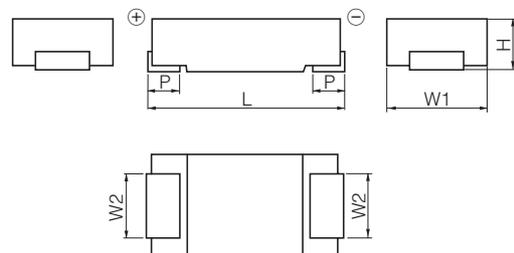
### ■ Specifications

Series & Size Code	SL		SX	
Category Temp. Range	-40 °C to +105 °C			
Rated W.V.Range	2 V.DC to 6.3 V.DC			
Nominal Cap.Range	56 μF to 220 μF		82 μF to 470 μF	
Capacitance Tolerance	±20 %			
DC Leakage Current	Reflow 240 °C : I ≤ 0.06 CV 2 minutes (2 V.DC to 4 V.DC) I ≤ 0.04 CV 2 minutes (6.3 V.DC)  Reflow 260 °C : I ≤ 0.1 CV 2 minutes			
tan δ	≤ 0.06 (120 Hz/+20 °C)			
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)			
Endurance	After applying rated working voltage for 1000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.			
	Capacitance change	±10% of initial measured value		
	tan δ	≤ Initial specified value		
	DC leakage current	≤ Initial specified value		
Moisture resistance	After storing for 500 hours at 60 °C, 90 %			
	Capacitance change of initial measured value	2, 2.5 V.DC	4 V.DC	6.3 V.DC
		+70, -20 %	+60, -20 %	+50, -20 %
	tan δ	≤ 200 % of initial specified value		
	DC leakage current	≤ Initial specified value		

### ■ Marking



### ■ Dimensions in mm(not to scale)



Series & Size Code	L±0.2	W1±0.2	W2±0.1	H	P±0.3
SL	7.3	4.3	2.4	1.8±0.1	1.3
SX	7.3	4.3	2.4	1.9±0.2	1.3

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

00 Sep. 2008

Low ESR Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20%) (μF)	Case Size			Specification		Part number		Min. Packaging Q'ty (pcs)	
			L (mm)	W (mm)	H (mm)	Ripple current* <sup>1</sup> (Ar.m.s.)	ESR* <sup>2</sup> (Ω)	Reflow condition : 240 °C	Reflow condition : 260 °C [Proposal]		
SL	2	100	7.3	4.3	1.8	3.0	0.009	EEFSL0D101R	EEFSL0D101ER	3500	
		120	7.3	4.3	1.8	3.0	0.009	EEFSL0D121R	EEFSL0D121ER	3500	
		150	7.3	4.3	1.8	3.0	0.009	EEFSL0D151R	EEFSL0D151ER	3500	
		180	7.3	4.3	1.8	3.0	0.009	EEFSL0D181R	EEFSL0D181ER	3500	
		220	7.3	4.3	1.8	3.0	0.009	EEFSL0D221R	EEFSL0D221ER	3500	
	2.5	100	7.3	4.3	1.8	3.0	0.009	EEFSL0E101R	EEFSL0E101ER	3500	
		120	7.3	4.3	1.8	3.0	0.009	EEFSL0E121R	EEFSL0E121ER	3500	
		150	7.3	4.3	1.8	3.0	0.009	EEFSL0E151R	EEFSL0E151ER	3500	
	4	82	7.3	4.3	1.8	3.0	0.009	EEFSL0G820R	EEFSL0G820ER	3500	
	6.3	56	7.3	4.3	1.8	3.0	0.009	EEFSL0J560R	—	3500	
SX	2	180	7.3	4.3	1.9	3.0	0.009	EEFSX0D181R	EEFSX0D181ER	3500	
		220	7.3	4.3	1.9	3.0	0.009	EEFSX0D221R	EEFSX0D221ER	3500	
		270	7.3	4.3	1.9	3.0	0.009	EEFSX0D271R	EEFSX0D271ER	3500	
			7.3	4.3	1.9	3.5	0.006	EEFSX0D271XR	EEFSX0D271XE	3500	
		330	7.3	4.3	1.9	3.8	0.0045	—	EEFSX0D271E4	3500	
			7.3	4.3	1.9	3.0	0.009	EEFSX0D331R	EEFSX0D331ER	3500	
			7.3	4.3	1.9	3.5	0.006	EEFSX0D331XR	EEFSX0D331XE	3500	
		390	7.3	4.3	1.9	3.5	0.0045	—	EEFSX0D331E4	3500	
			7.3	4.3	1.9	3.0	0.009	EEFSX0D391R	EEFSX0D391ER	3500	
			7.3	4.3	1.9	3.5	0.006	EEFSX0D391XR	EEFSX0D391XE	3500	
		470	7.3	4.3	1.9	3.8	0.0045	—	EEFSX0D391E4	3500	
			7.3	4.3	1.9	3.0	0.009	EEFSX0D471R	EEFSX0D471ER	3500	
			7.3	4.3	1.9	3.5	0.006	EEFSX0D471XR	EEFSX0D471XE	3500	
		2.5	7.3	4.3	1.9	3.8	0.0045	—	EEFSX0D471E4	3500	
			150	7.3	4.3	1.9	3.0	0.009	EEFSX0E151R	EEFSX0E151ER	3500
	180		7.3	4.3	1.9	3.0	0.009	EEFSX0E181R	EEFSX0E181ER	3500	
	220		7.3	4.3	1.9	3.0	0.009	EEFSX0E221R	EEFSX0E221ER	3500	
			7.3	4.3	1.9	3.5	0.007	—	EEFSX0E221E7	3500	
	270		7.3	4.3	1.9	3.5	0.007	—	EEFSX0E271E7	3500	
	330		7.3	4.3	1.9	3.0	0.009	EEFSX0E331R	EEFSX0E331ER	3500	
			7.3	4.3	1.9	3.5	0.006	EEFSX0E331XR	EEFSX0E331XE	3500	
	390		7.3	4.3	1.9	3.0	0.009	EEFSX0E391R	EEFSX0E391ER	3500	
			7.3	4.3	1.9	3.5	0.006	EEFSX0E391XR	EEFSX0E391XE	3500	
	4		82	7.3	4.3	1.9	3.0	0.009	EEFSX0G820R	EEFSX0G820ER	3500
			100	7.3	4.3	1.9	3.0	0.009	EEFSX0G101R	EEFSX0G101ER	3500
				7.3	4.3	1.9	3.0	0.009	—	EEFSX0G151ER	3500
			150	7.3	4.3	1.9	3.5	0.007	—	EEFSX0G151E7	3500
			180	7.3	4.3	1.9	3.0	0.009	—	EEFSX0G181ER	3500
	6.3	220	7.3	4.3	1.9	3.0	0.009	—	EEFSX0G221ER	3500	
		120	7.3	4.3	1.9	3.5	0.007	—	EEFSX0J121E7	3500	
150		7.3	4.3	1.9	3.0	0.009	—	EEFSX0J151ER	3500		

\*1: Ripple current (100 kHz/ +20 to +105 °C), \*2: ESR (100 kHz/+20 °C)  
 \*3: Please confirm EE23 in detail of the Mounting Specifications.