

Surface Mount Type

# SP-Cap

Series: **S**

## Large Cap



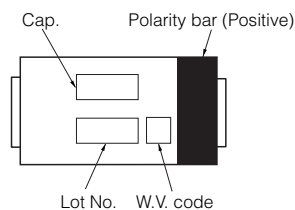
### ■ Features

- 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

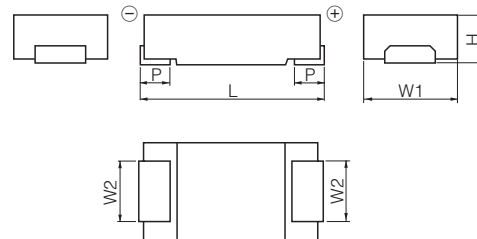
### ■ Specifications

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 560 μF	
Capacitance Tolerance	±20 %			
DC Leakage Current	Reflow 240 °C : $I \leq 0.06 CV (\mu A)$ 2 minutes (2 V.DC to 4 V.DC) $I \leq 0.04 CV (\mu A)$ 2 minutes (6.3 V.DC) Reflow 260 °C : $I \leq 0.1 CV (\mu A)$ 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

\* Externals of figure are the reference.

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00 Sep. 2010

### Low ESR Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20%) (μF)	Case Size			Specification		Part number		Min. Packaging Qty (pcs)	
			L (mm)	W (mm)	H (mm)	Ripple current <sup>*1</sup> (Ar.m.s.)	ESR <sup>*2</sup> (mΩ max.)	<sup>*3</sup> Reflow condition : 240 °C	<sup>*3</sup> Reflow condition : 260 °C [Proposal]		
SL	2	100	7.3	4.3	1.8	3.0	9	EEFSL0D101R	EEFSL0D101ER	3500	
		120	7.3	4.3	1.8	3.0	9	EEFSL0D121R	EEFSL0D121ER	3500	
		150	7.3	4.3	1.8	3.0	9	EEFSL0D151R	EEFSL0D151ER	3500	
		180	7.3	4.3	1.8	3.0	9	EEFSL0D181R	EEFSL0D181ER	3500	
		220	7.3	4.3	1.8	3.0	9	EEFSL0D221R	EEFSL0D221ER	3500	
	2.5	100	7.3	4.3	1.8	3.0	9	EEFSL0E101R	EEFSL0E101ER	3500	
		120	7.3	4.3	1.8	3.0	9	EEFSL0E121R	EEFSL0E121ER	3500	
		150	7.3	4.3	1.8	3.0	9	EEFSL0E151R	EEFSL0E151ER	3500	
	4	82	7.3	4.3	1.8	3.0	9	EEFSL0G820R	EEFSL0G820ER	3500	
	6.3	56	7.3	4.3	1.8	3.0	9	EEFSL0J560R	—	3500	
SX	2	180	7.3	4.3	1.9	3.0	9	EEFSX0D181R	EEFSX0D181ER	3500	
		220	7.3	4.3	1.9	3.0	9	EEFSX0D221R	EEFSX0D221ER	3500	
		270	7.3	4.3	1.9	3.0	9	EEFSX0D271R	EEFSX0D271ER	3500	
			7.3	4.3	1.9	3.5	6	EEFSX0D271XR	EEFSX0D271XE	3500	
		7.3	4.3	1.9	3.8	4.5	—	EEFSX0D271E4	3500		
			330	7.3	4.3	1.9	3.0	9	EEFSX0D331R	EEFSX0D331ER	3500
				7.3	4.3	1.9	3.5	6	EEFSX0D331XR	EEFSX0D331XE	3500
		7.3	4.3	1.9	3.8	4.5	—	EEFSX0D331E4	3500		
			390	7.3	4.3	1.9	3.0	9	EEFSX0D391R	EEFSX0D391ER	3500
				7.3	4.3	1.9	3.5	6	EEFSX0D391XR	EEFSX0D391XE	3500
		7.3	4.3	1.9	3.8	4.5	—	EEFSX0D391E4	3500		
			470	7.3	4.3	1.9	3.0	9	EEFSX0D471R	EEFSX0D471ER	3500
				7.3	4.3	1.9	3.5	6	EEFSX0D471XR	EEFSX0D471XE	3500
		7.3	4.3	1.9	3.8	4.5	—	EEFSX0D471E4	3500		
			560	7.3	4.3	1.9	3.8	4.5	—	EEFSX0D561E4	3500
	2.5		150	7.3	4.3	1.9	3.0	9	EEFSX0E151R	EEFSX0E151ER	3500
		180	7.3	4.3	1.9	3.0	9	EEFSX0E181R	EEFSX0E181ER	3500	
		220	7.3	4.3	1.9	3.0	9	EEFSX0E221R	EEFSX0E221ER	3500	
			7.3	4.3	1.9	3.5	7	—	EEFSX0E221E7	3500	
		270	7.3	4.3	1.9	3.5	7	—	EEFSX0E271E7	3500	
			7.3	4.3	1.9	3.0	9	EEFSX0E331R	EEFSX0E331ER	3500	
		330	7.3	4.3	1.9	3.5	6	EEFSX0E331XR	EEFSX0E331XE	3500	
			7.3	4.3	1.9	3.8	4.5	—	EEFSX0E331E4	3500	
			7.3	4.3	1.9	3.0	9	EEFSX0E391R	EEFSX0E391ER	3500	
		390	7.3	4.3	1.9	3.5	6	EEFSX0E391XR	EEFSX0E391XE	3500	
			7.3	4.3	1.9	3.8	4.5	—	EEFSX0E391E4	3500	
			7.3	4.3	1.9	3.0	9	—	EEFSX0E471ER	3500	
		470	7.3	4.3	1.9	3.5	6	—	EEFSX0E471XE	3500	
			7.3	4.3	1.9	3.8	4.5	—	EEFSX0E471E4	3500	
			4	82	7.3	4.3	1.9	3.0	9	EEFSX0G820R	EEFSX0G820ER
		100		7.3	4.3	1.9	3.0	9	EEFSX0G101R	EEFSX0G101ER	3500
				7.3	4.3	1.9	3.0	9	—	EEFSX0G151ER	3500
		150		7.3	4.3	1.9	3.5	7	—	EEFSX0G151E7	3500
7.3	4.3			1.9	3.0	9	—	EEFSX0G181ER	3500		
220	7.3	4.3		1.9	3.0	9	—	EEFSX0G221ER	3500		
6.3	120	7.3	4.3	1.9	3.5	7	—	EEFSX0J121E7	3500		
	150	7.3	4.3	1.9	3.0	9	—	EEFSX0J151ER	3500		

\*1: Ripple current (100 kHz/ +20 to +105 °C), \*2: ESR (100 kHz/+20 °C)

\*3: Please confirm EE25 in detail of the Mounting Specifications.

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01 Mar. 2011