

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

Series : **SR, LR, SS, LS, ST, LT**



### Features

- Low profile (Height 1.0 mm max.)
- Low ESR (4.5 mΩ to 9 mΩ)
- Low ESL (3-terminals : 50% less than 2-terminals) [LR, LS, LT series]
- High ripple current (8500 mAr.m.s. max.)
- RoHS compliance, Halogen free

### Specifications

Series	SR	LR	SS	LS	ST	LT	
Category temp. Range	-55 °C to +105 °C						
Rated voltage range	2 V.DC to 6.3 V.DC		2 V.DC to 2.5 V.DC				
Nominal cap.Range	68 µF to 220µF		180 µF to 220µF		270 µF to 330 µF		
Capacitance tolerance	±20 % (120 Hz / + 20 °C)						
DC leakage current	$I \leq 0.1 CV (\mu A)$ 2 minutes						
Dissipation factor (tan δ)	$\leq 0.06$ (120 Hz/+20 °C)						
Surge voltage (V.DC)	Rated voltage × 1.25 (15 °C to 35 °C)						
Endurance	+105 °C, 2000 h, rated voltage applied						
	Capacitance change	Within ±20 % of the initial value					
	tan δ	$\leq 2$ 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 V.DC to 2.5 V.DC +70 %, -20 %		4 V.DC +60 %, -20 %		6.3 V.DC +50 %, -20 %	
	tan δ	$\leq 2$ times of the initial limit					
	DC leakage current	Within the initial limit					

### Marking

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

### Dimensions (not to scale)

SR, SS, ST series

Unit : mm

Series	L±0.2	W1±0.2	W2±0.1	H±0.1	P±0.3
SR	7.3	4.3	2.4	1.0*1	1.3
SS	7.3	4.3	2.4	1.1	1.3
ST	7.3	4.3	2.4	1.4	1.3

\* Externals of figure are the reference.      \*1 : Maximum

LR, LS, LT series

Unit : mm

Series	L±0.2	W1±0.2	W2±0.1	H±0.1	P1±0.3	P2±0.1	P3±0.2	P4±0.2
LR	7.3	4.3	2.4	1.0*1	1.3	1.1	0.7	1.4
LS	7.3	4.3	2.4	1.1	1.3	1.1	0.7	1.4
LT	7.3	4.3	2.4	1.4	1.3	1.1	0.7	1.4

\* Externals of figure are the reference.      \*1 : Maximum

## Characteristics list

											Reflow *3	<Standard>
Series	Rated voltage (V.DC)	Capacitance (±20%) (μF)	Case size (mm)			Specification		The number of terminals		Part number	Min.*4 Packaging Q'ty (pcs)	
			L	W	H	*1	*2	2	3			
						Ripple current (mA r.m.s.)	ESR (mΩ max.)					
SR	2	220	7.3	4.3	1.0 max.	7500	6	○		EEFSR0D221R	3500	
			7.3	4.3	1.0 max.	8500	4.5	○		EEFSR0D221R4	3500	
	2.5	180	7.3	4.3	1.0 max.	7500	6	○		EEFSR0E181R	3500	
			7.3	4.3	1.0 max.	8500	4.5	○		EEFSR0E181R4	3500	
	4	120	7.3	4.3	1.0 max.	6300	9	○		EEFSR0G121R	3500	
			7.3	4.3	1.0 max.	6300	9	○		EEFSR0J680R	3500	
LR	2	220	7.3	4.3	1.0 max.	7500	6		○	EEFLR0D221R	3500	
			7.3	4.3	1.0 max.	8500	4.5		○	EEFLR0D221R4	3500	
	2.5	180	7.3	4.3	1.0 max.	7500	6		○	EEFLR0E181R	3500	
			7.3	4.3	1.0 max.	8500	4.5		○	EEFLR0E181R4	3500	
	4	120	7.3	4.3	1.0 max.	6300	9		○	EEFLR0G121R	3500	
			7.3	4.3	1.0 max.	6300	9		○	EEFLR0J680R	3500	
SS	2	220	7.3	4.3	1.1	7500	6	○		EEFSS0D221R	3500	
	2.5	180	7.3	4.3	1.1	7500	6	○		EEFSS0E181R	3500	
LS	2	220	7.3	4.3	1.1	7500	6		○	EEFLS0D221R	3500	
	2.5	180	7.3	4.3	1.1	7500	6		○	EEFLS0E181R	3500	
ST	2	330	7.3	4.3	1.4	7500	6	○		EEFST0D331R	3500	
	2.5	270	7.3	4.3	1.4	7500	6	○		EEFST0E271R	3500	
LT	2	330	7.3	4.3	1.4	7500	6		○	EEFLT0D331R	3500	
	2.5	270	7.3	4.3	1.4	7500	6		○	EEFLT0E271R	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.	$T \leq 45\text{ }^{\circ}\text{C}$	$45\text{ }^{\circ}\text{C} < T \leq 85\text{ }^{\circ}\text{C}$	$85\text{ }^{\circ}\text{C} < T \leq 105\text{ }^{\circ}\text{C}$
Coefficient	1.0	0.7	0.25

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