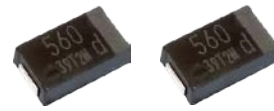


Surface Mount Type

SX series

[Low ESR products]



SP-Cap

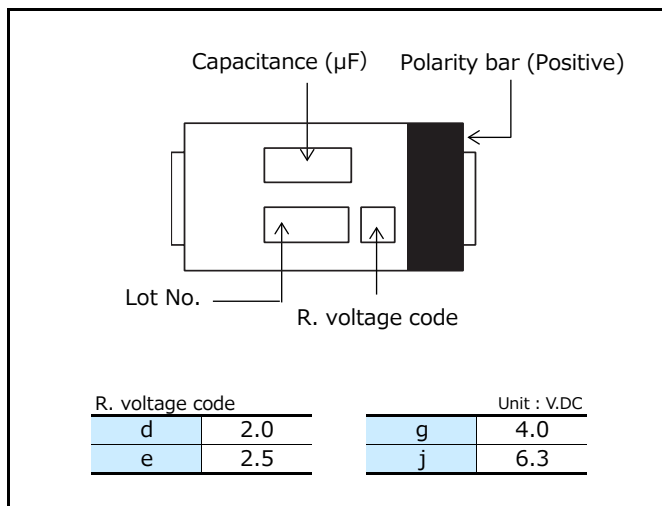
Features

- Large capacitance (560 μF max.)
- Low ESR (4.5 m Ω to 9 m Ω max.)
- High ripple current (8500 mA r.m.s. max.)
- RoHS compliance, Halogen free

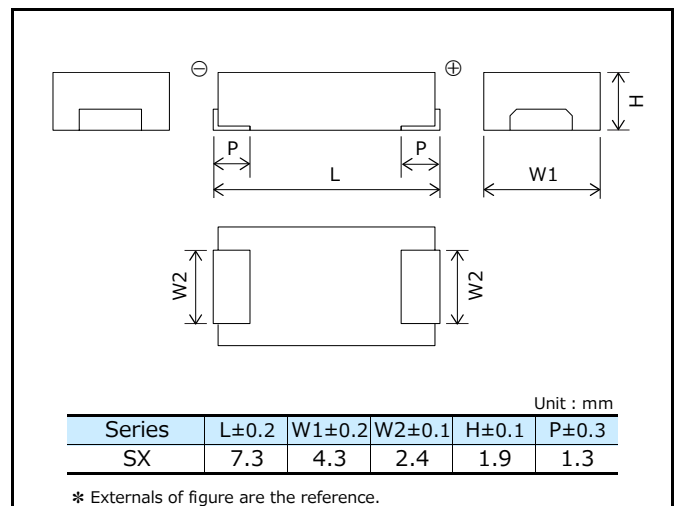
Specifications

Series	SX			
Category temp. range	-55 °C to +105 °C			
Rated voltage range	2.0 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	$I \leq 0.1 \text{ CV}$ (μA) 2 minutes			
Dissipation factor (tan δ)	≤ 0.06 (120 Hz / +20 °C)			
Surge voltage (V.DC)	Rated voltage $\times 1.25$ (15 °C to 35 °C)			
Endurance	+105 °C ± 2 °C, 2000 h, rated voltage applied			
	Capacitance change	Within $\pm 20\%$ of the initial value		
	Dissipation factor (tan δ)	≤ 2 times of the initial limit		
	DC leakage current	≤ 3 times of the initial limit		
Damp heat (Steady state)	+60 °C, 90 %, 500 h, No-applied voltage			
	Capacitance change of initial measured value	2.0 V.DC to 2.5 V.DC	4.0 V.DC	6.3 V.DC
		+70 %, -20 %	+60 %, -20 %	+50 %, -20 %
	Dissipation factor (tan δ)	≤ 2 times of the initial limit		
DC leakage current	Within the initial limit			

Marking



Dimensions (not to scale)



Characteristics list

Series	Rated voltage (V.DC)	Capacitance (μF)	Case size (mm)			Specification		Part number	Min. Packaging Qty ^{*3} (pcs)	
			L	W	H	Ripple current ^{*1} (mA r.m.s.)	ESR ^{*2} (mΩ max.)			
SX	2.0	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	
	4.0		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 contact us when 500 pcs packing is necessary.

◆ Please refer to each page in this catalog for "Reflow conditions" and "Taping specifications".

Temperature coefficient of ripple current

Temperature		T ≤ 45 °C	45 °C < T ≤ 85 °C	85 °C < T ≤ 105 °C
2.0 V.DC to 6.3 V.DC	Coefficient	1.0	0.7	0.25

◆ Ripple current should be controlled so that surface temperature of capacitor does not exceed the category temperature.

Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

<Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.
