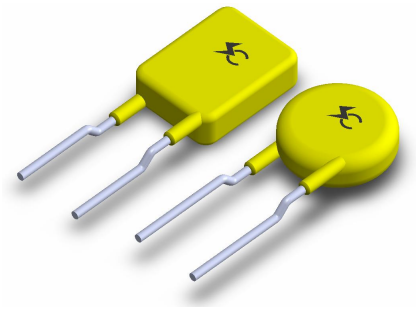
Radial Lead Resettable Polymer PTCs

SC250 Series

Description

The SC250 Series is designed to protect against short duration high voltage fault currents (power cross or power induction surge) typically found in telecom applications (250Vrms). The series can be used to help telecom networking equipment meet the protection requirements specified in ITU K.20 and K.21.



Features

- 0.08-0.18A hold current range
- 250VAC interrupt rating
- Fast time-to-trip
- Binned and shorted narrow resistance ranges available
- RoHS compliant, Lead-Free and Halogen-Free

Applicable

- Customer Premises Equipment (CPE)
- Central Office (CO) / telecom centers
- Power ports
- LAN / WAN equipment
- Access equipment

Electrical Parameters

Part Number	I_{hold} (A)	I_{trip} (A)	V_{maxi} (Vac)	I_{max} (A)	$P_{dtyp.}$ (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec.)	R_{min} (mΩ)	R_{max} (mΩ)	R_{1max} (mΩ)
SC250-080	0.08	0.16	250	3.0	0.8	0.35	4.0	11.0	22.0	33.0
SC250-090	0.09	0.18	250	3.0	0.8	0.35	5.0	9.0	18.0	27.0
SC250-110	0.11	0.22	250	3.0	1.0	1.00	0.75	6.0	12.0	16.0
SC250-120	0.12	0.24	250	3.0	1.0	1.00	1.50	4.0	8.0	16.0
SC250-120T	0.12	0.24	250	3.0	1.0	1.00	0.75	6.0	12.0	16.0
SC250-145	0.145	0.29	250	3.0	1.0	1.00	2.50	3.0	6.0	14.0
SC250-145T	0.145	0.29	250	3.0	1.0	1.00	1.50	4.5	9.0	14.0
SC250-180C	0.18	0.65	250	10.0	1.5	3.00	0.50	1.6	3.2	4.0
SC250-180S	0.18	0.65	250	10.0	1.5	3.00	0.50	1.6	3.2	4.0

I_{hold}= Hold current: maximum current device will pass without tripping in 25°C still air.

I_{trip}= Trip current: minimum current at which the device will trip in 25°C still air.

V_{maxi}= Maximum voltage that can be safely placed across a device in its tripped state under specified fault conditions.

I_{max}= Maximum fault current device can withstand without damage at rated voltage (V_{max})

$P_{dtyp.}$= Power dissipated from device when in the tripped state at 25°C still air.

R_{min}= Minimum resistance of device in initial (un-soldered) state.

R_{max}= Maximum resistance of device in initial (un-soldered) state.

R_{1max}= Maximum resistance of device at 25°C measured one hour after tripping.

Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

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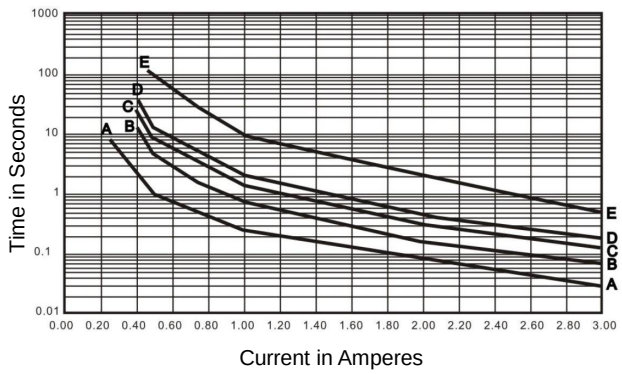
Temperature Rerating Chart – I_{hold} (A)

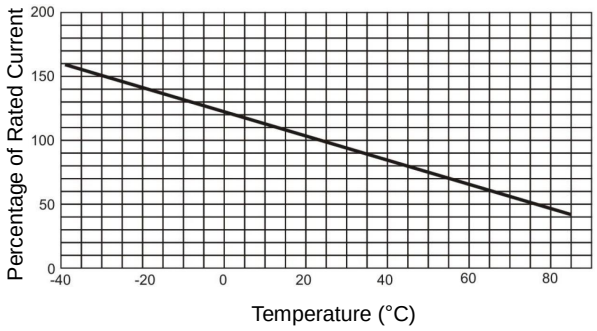
Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
SC250-080	0.124	0.110	0.095	0.080	0.066	0.059	0.051	0.044	0.033
SC250-090	0.140	0.124	0.107	0.090	0.074	0.066	0.058	0.050	0.037
SC250-110	0.171	0.151	0.131	0.110	0.091	0.081	0.071	0.061	0.046
SC250-120	0.186	0.165	0.143	0.120	0.099	0.088	0.077	0.066	0.050
SC250-120T	0.186	0.165	0.143	0.120	0.099	0.088	0.077	0.066	0.050
SC250-145	0.225	0.199	0.172	0.145	0.119	0.106	0.093	0.080	0.060
SC250-145T	0.225	0.199	0.172	0.145	0.119	0.106	0.093	0.080	0.060
SC250-180C	0.279	0.247	0.213	0.180	0.147	0.131	0.115	0.099	0.074
SC250-180S	0.279	0.247	0.213	0.180	0.147	0.131	0.115	0.099	0.074

Average Time Current Curves



A=SC250-080/SC250-090
B=SC250-110
C=SC250-120/SC250-120T
D=SC250-145/SC250-145T
E=SC250-180/SC250-180C

Temperature Rerating Curve



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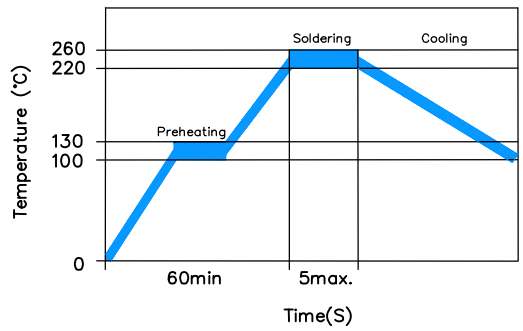
Test Procedures and Requirement

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @25±2°C	$R_{min} \leq R \leq R_{max}$
Hold Current	60 min, at I_{hold}, In still air @25±2°C	No trip
Time to Trip	Specified current, V_{max}, @25±2°C	T≤Maximum Time To Trip
Frequency Current withstand	220V / I_{max}, 20 cycle	Resistance of the variation of the poor value:⩽30%
Failure mode	V_{maxi} / 5A, 60 minute	No buming

Soldering Parameters

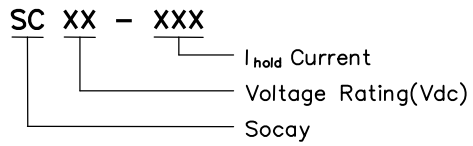


Pre-Heating Zone	Refer to the condition recommended by the manufacturer. Max. ramping rate should not exceed 4°C/Sec
Soldering Zone	Max. solder temperature should not exceed 260°C
Cooling Zone	Cooling by natural convection in air

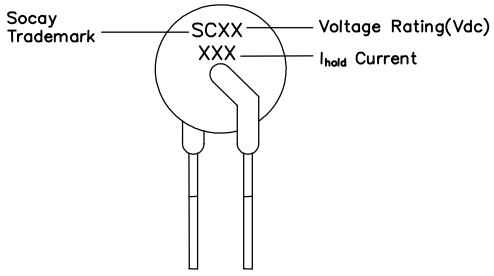
Physical Specifications

Lead Material	Tin-plated Copper
Soldering Characteristics	Solder ability per MIL-STD-202, Method 208E
Insulating Material	Cured, flame retardant epoxy polymer meets UL 94V-0 requirements.
Device Labeling	Marked with 'SC', voltage, current rating

Part Numbering



Part Marking



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Dimensions

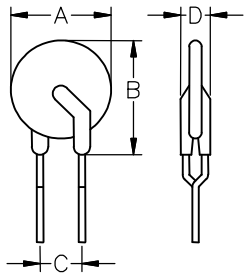

Figure1

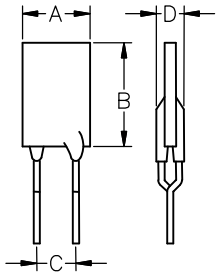

Figure2

Part Number	Figure	A		B		C		D		Lead (dia)		Packaging (Bulk Pack)
		Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	Mm	
		Max.	Max.	Max.	Max.	Typ.	Typ.	Max.	Max.			
SC250-080	Figure1	0.236	6.0	0.394	10.0	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-090	Figure1	0.236	6.0	0.394	10.0	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-110	Figure2	0.256	6.5	0.413	10.5	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-120	Figure2	0.256	6.5	0.413	10.5	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-120T	Figure2	0.256	6.5	0.413	10.5	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-145	Figure2	0.276	7.0	0.433	11.0	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-145T	Figure2	0.276	7.0	0.433	11.0	0.200	5.1	0.181	4.6	0.024	0.6	1000
SC250-180C	Figure1	0.374	9.5	0.531	13.5	0.200	5.1	0.150	3.8	0.024	0.6	1000
SC250-180S	Figure2	0.346	8.8	0.504	12.8	0.200	5.1	0.150	3.8	0.024	0.6	1000

Warning

- This product should not be used in an application where the maximum interrupt voltage or maximum interrupt current in a fault condition, Operation beyond the maximum rating or improper use may result in device damage and possible electrical arcing and flame.
- A PPTC device is not a fuse, It is a nonlinear thermistor that limits current, Because under a fault condition all PPTC devices go into a high resistance state but not open circuit hazardous voltage may be present at PPTC.
- The devices are intended for protection against occasional over-current or over-temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events.
- In most application, power must be removed and the fault condition cleared in order to reset a PPTC device.
- PPTC devices are not recommended to be installed in applications where the device is constrained such that its PPTC properties are inhibited, for example in rigid potting materials or Add devices surface coating, Bundled devices ontology, which lack adequate clearance to accommodate device expansion.
- Contamination on of the PPTC material with certain silicone-based oils or some aggressive solvents can adversely impact the performance of the devices. For example, Organic solvents to cleaning.

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