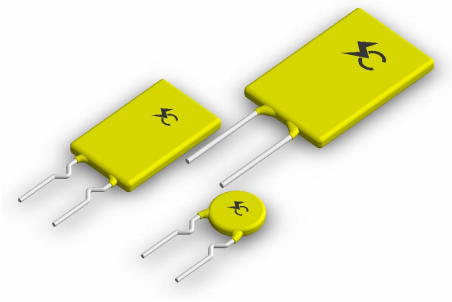
Radial Lead Resettable Polymer PTCs

SC16 Series

Description

SC16 series radial leaded PTCs are designed to provide resettable over-current protection serving a wide range of electronics applications. With maximum 16 volts and maximum 100-ampere short circuit rating.



Features

- RoHS compliant, Lead-Free and Halogen-Free
- Max 100 A short current rating
- 16V operating voltage
- Fast time-to-trip

Applicable

- Computers and peripherals
- Power ports
- General electronics

Electrical Parameters

Part Number	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	$P_{dtyp.}$ (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec.)	R_{min} (mΩ)	R_{max} (mΩ)	R_{1max} (mΩ)
SC16-050	0.50	1.0	16	40	0.45	2.50	3.8	200	450	675
SC16-065	0.65	1.3	16	40	0.50	3.25	4.5	120	270	400
SC16-075	0.75	1.5	16	40	0.55	3.75	5.2	110	230	345
SC16-090	0.90	1.8	16	40	0.60	4.50	5.9	90	180	270
SC16-110	1.10	2.2	16	40	0.70	5.50	6.6	70	140	210
SC16-120	1.20	2.4	16	40	0.75	6.00	7.0	70	140	210
SC16-135	1.35	2.7	16	40	0.80	6.75	7.3	55	110	150
SC16-160	1.60	3.2	16	40	0.90	8.00	8.0	45	90	115
SC16-185	1.85	3.7	16	40	1.0	9.25	8.7	40	80	100
SC16-250	2.50	5.0	16	40	1.2	12.5	10.3	27	55	70
SC16-200	2.00	3.4	16	40	2.0	10.0	1.0	45	110	150
SC16-300	3.00	5.1	16	100	2.3	15.0	1.0	27	64.5	97.5
SC16-400	4.00	6.8	16	100	2.4	20.0	1.7	20	44.0	60.0
SC16-500	5.00	8.5	16	100	2.6	25.0	2.0	14	28.0	34.0
SC16-600	6.00	10.2	16	100	2.8	30.0	3.3	10	22.0	28.0
SC16-700	7.00	11.9	16	100	3.0	35.0	3.5	7.7	17.0	20.0
SC16-800	8.00	13.6	16	100	3.3	40.0	5.0	5.6	14.5	17.5
SC16-900	9.00	15.3	16	100	3.3	45.0	5.5	4.7	11.0	13.5
SC16-1000	10.0	17.0	16	100	3.6	50.0	6.0	4.0	10.0	12.5
SC16-1100	11.0	18.7	16	100	3.7	55.0	7.0	3.7	9.0	11.0
SC16-1200	12.0	20.4	16	100	4.2	60.0	7.5	3.3	8.0	10.0
SC16-1400	14.0	23.8	16	100	4.6	70.0	9.0	2.6	6.0	7.5

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_{max}= Maximum voltage device can withstand without damage at rated current (I_{max})
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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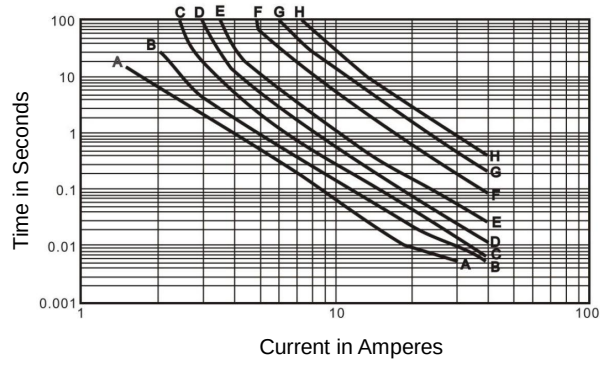
SC16 Series

Temperature Rerating Chart – I_{hold} (A)

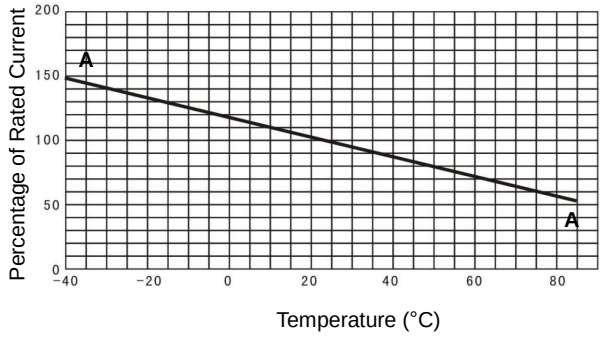
Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
SC16-050	0.73	0.65	0.58	0.50	0.42	0.39	0.34	0.31	0.26
SC16-065	0.94	0.85	0.75	0.65	0.54	0.50	0.44	0.40	0.34
SC16-075	1.09	0.98	0.86	0.75	0.62	0.58	0.51	0.46	0.39
SC16-090	1.31	1.17	1.04	0.90	0.75	0.69	0.61	0.55	0.47
SC16-110	1.60	1.43	1.27	1.10	0.91	0.85	0.75	0.67	0.57
SC16-120	1.74	1.56	1.38	1.20	1.00	0.92	0.82	0.73	0.62
SC16-135	1.96	1.76	1.55	1.35	1.12	1.04	0.92	0.82	0.70
SC16-160	2.32	2.08	1.84	1.60	1.33	1.23	1.09	0.98	0.83
SC16-185	2.68	2.41	2.13	1.85	1.54	1.42	1.26	1.13	0.96
SC16-250	3.53	3.25	2.88	2.50	2.08	1.93	1.70	1.53	1.30
SC16-200	2.94	2.66	2.40	2.00	1.74	1.60	1.40	1.26	0.94
SC16-300	4.40	4.00	3.60	3.00	2.60	2.40	2.10	1.90	1.40
SC16-400	5.90	5.30	4.80	4.00	3.50	3.20	2.80	2.50	1.90
SC16-500	7.30	6.60	6.00	5.00	4.40	4.00	3.60	3.10	2.40
SC16-600	8.80	8.00	7.20	6.00	5.20	4.80	4.20	3.80	2.80
SC16-700	10.3	9.30	8.40	7.00	6.20	5.60	5.00	4.40	3.30
SC16-800	11.7	10.7	9.60	8.00	6.90	6.40	5.60	5.10	3.70
SC16-900	13.2	11.9	10.7	9.00	7.90	7.20	6.40	5.60	4.20
SC16-1000	14.7	13.3	12.0	10.0	8.70	8.00	7.00	6.30	4.70
SC16-1100	16.1	14.6	13.1	11.0	9.70	8.80	7.80	6.90	5.20
SC16-1200	17.6	16.0	14.4	12.0	10.4	9.60	8.40	7.60	5.60
SC16-1400	20.5	18.7	16.8	14.0	12.1	11.2	9.80	8.90	6.50

Average Time Current Curves



A=SC16-075
B=SC16-090
C=SC16-110
D=SC16-120
E=SC16-135
F=SC16-160
G=SC16-185
H=SC16-250

Temperature Rerating Curve

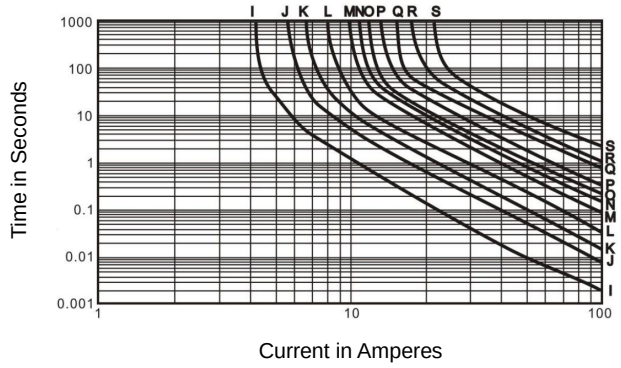


A=SC16-050~ SC16-250

Radial Lead Resettable Polymer PTCs

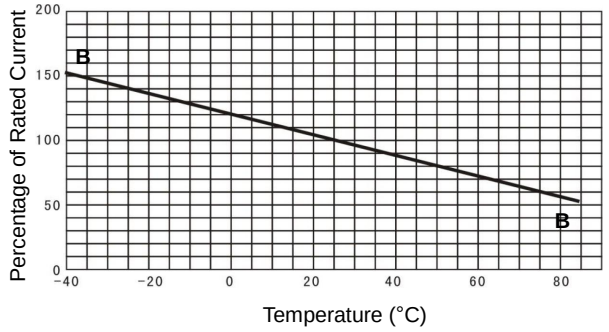
SC16 Series

Average Time Current Curves



I=SC16-300	M=SC16-700	Q=SC16-1100
J=SC16-400	N=SC16-800	R=SC16-1200
K=SC16-500	O=SC16-900	S=SC16-1400
L=SC16-600	P=SC16-1000	

Temperature Rerating Curve

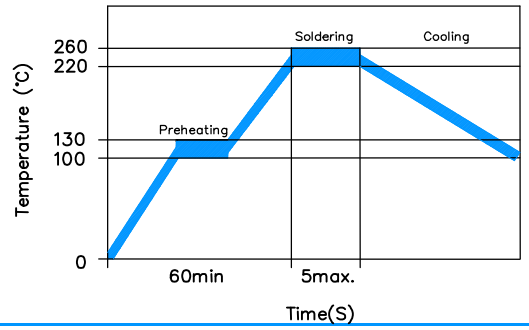


B=SC16-200~ SC16-1400

Test Procedures and Requirement

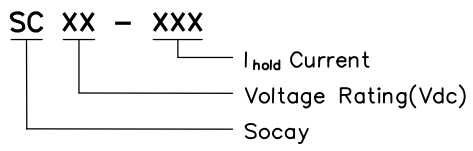
Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @25±2°C	$R_{min} \le R \le R_{max}$
Hold Current	60 min, at I_{hold}, In still air @25±2°C	No trip
Time to Trip	Specified current, V_{max}, @25±2°C	T≤Maximum Time To Trip
Trip Cycle Life	V_{max}, I_{max},100 cycles	No arcing or burning
Trip Endurance	Vmax,24hours	No arcing or burning

Soldering Parameters

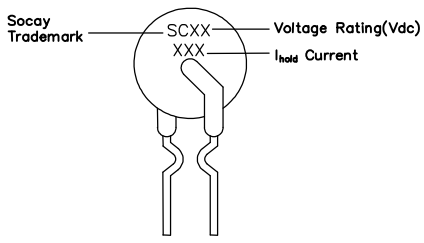


Pre-Heating Zone	Refer to the condition recommended by the manufacturer. Max. ramping rate should not exceed 4°C/Sec
Soldering Zone	Max. solder temperature should not exceed 260°C
Cooling Zone	Cooling by natural convection in air

Part Numbering



Part Marking



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Physical Specifications

Lead Material	0.5-1.85A and 2.5ATin-plated Copper clad steel 2.0A and 3-14A 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

Dimensions

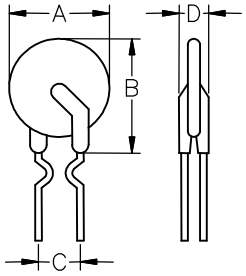

Figure1

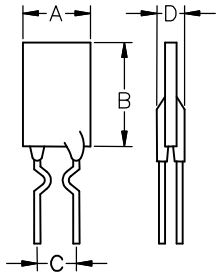

Figure2

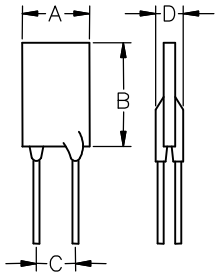

Figure3

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.			
SC16-050	Figure1	0.236	6.0	0.445	11.3	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-065	Figure1	0.236	6.0	0.472	12.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-075	Figure1	0.276	7.0	0.472	12.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-090	Figure1	0.256	6.5	0.453	11.5	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-110	Figure2	0.276	7.0	0.472	12.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-120	Figure2	0.283	7.2	0.480	12.2	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-135	Figure2	0.256	6.5	0.570	14.5	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-160	Figure2	0.346	8.8	0.543	13.8	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-185	Figure2	0.346	8.8	0.610	15.5	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-250	Figure2	0.394	10.0	0.630	16.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC16-200	Figure3	0.256	6.5	0.492	12.5	0.200	5.1	0.118	3.0	0.024	0.6	1000
SC16-300	Figure3	0.346	8.8	0.465	11.8	0.200	5.1	0.118	3.0	0.031	0.8	1000
SC16-400	Figure3	0.346	8.8	0.531	13.5	0.200	5.1	0.118	3.0	0.031	0.8	1000
SC16-500	Figure3	0.394	10.0	0.630	16.0	0.200	5.1	0.118	3.0	0.031	0.8	1000
SC16-600	Figure3	0.445	11.3	0.669	17.0	0.200	5.1	0.118	3.0	0.031	0.8	1000
SC16-700	Figure3	0.472	12.0	0.787	20.0	0.200	5.1	0.118	3.0	0.031	0.8	500
SC16-800	Figure3	0.551	14.0	0.835	21.2	0.200	5.1	0.118	3.0	0.031	0.8	500
SC16-900	Figure3	0.618	15.7	0.815	20.7	0.200	5.1	0.118	3.0	0.031	0.8	500
SC16-1000	Figure3	0.728	18.5	0.965	24.5	0.400	10.2	0.118	3.0	0.031	0.8	200
SC16-1100	Figure3	0.728	18.5	0.966	24.5	0.400	10.2	0.118	3.0	0.031	0.8	200
SC16-1200	Figure3	0.728	18.5	1.102	28.0	0.400	10.2	0.118	3.0	0.031	0.8	200
SC16-1400	Figure3	0.965	24.5	1.102	28.0	0.400	10.2	0.118	3.0	0.031	0.8	200

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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.