

Radial Lead Resettable Polymer PTCs

SC30 Series

Description

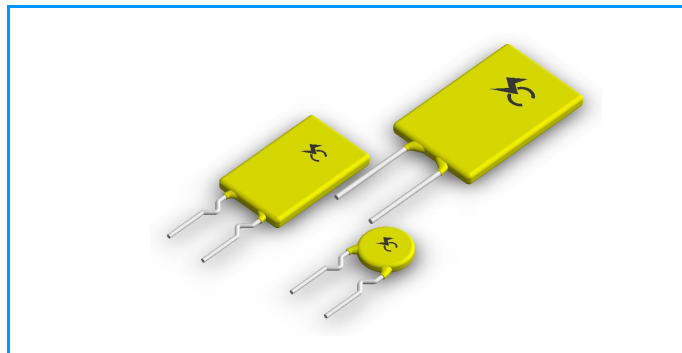
SC30 series radial leaded PTCs are designed to provide over-current protection for low voltage ($\leq 30V$) applications where space is not a concern and resettable protection is preferred.

Features

- u Cured, flame retardant epoxy polymer meets UL 94V-0 requirements
- u 30V operating voltage
- u Fast time-to-trip
- u RoHS compliant, Lead-Free and Halogen-Free

Applicable

- u Computers and peripherals
- u Power ports
- u Motor protection
- u Automotive application
- u USB hubs ,ports and peripherals
- u 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)
SC30-040	0.40	0.8	30	40	0.45	2.00	3.10	360	800	1200
SC30-050	0.50	1.0	30	40	0.50	2.50	3.80	270	600	900
SC30-065	0.65	1.3	30	40	0.50	3.25	4.50	160	360	540
SC30-075	0.75	1.5	30	40	0.55	3.75	5.20	135	300	450
SC30-090	0.90	1.8	30	40	0.60	4.50	5.90	110	220	330
SC30-110	1.10	2.2	30	40	0.70	5.50	6.60	85	170	230
SC30-135	1.35	2.7	30	40	0.80	6.75	7.30	65	130	165
SC30-160	1.60	3.2	30	40	0.90	8.00	8.00	55	110	140
SC30-185	1.85	3.7	30	40	1.00	9.25	8.70	45	90	115
SC30-250	2.5	5.0	30	40	1.20	12.5	10.3	35	70	90
SC30-300	3.0	6.0	30	100	2.0	15.0	10.8	30	60	80
SC30-400	4.0	8.0	30	100	2.5	20.0	12.7	20	40	50
SC30-500	5.0	10.0	30	100	3.0	25.0	14.5	15	30	40
SC30-600	6.0	12.0	30	100	3.5	30.0	16.0	12	24	30
SC30-700	7.0	14.0	30	100	3.8	35.0	17.5	10	20	25
SC30-800	8.0	16.0	30	100	4.0	40.0	18.8	8.5	17	22
SC30-900	9.0	18.0	30	100	4.2	45.0	20.0	7.0	14	18

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.

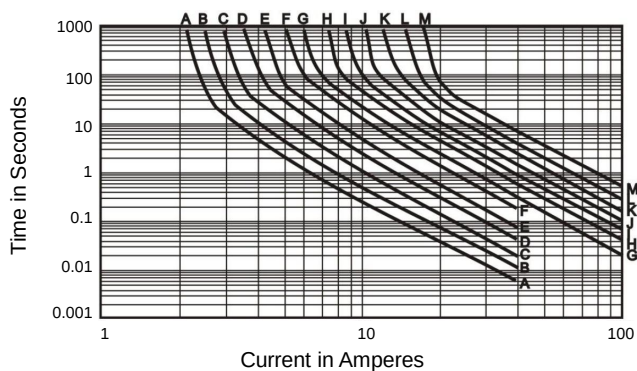
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Temperature Derating Chart – I_{hold} (A)

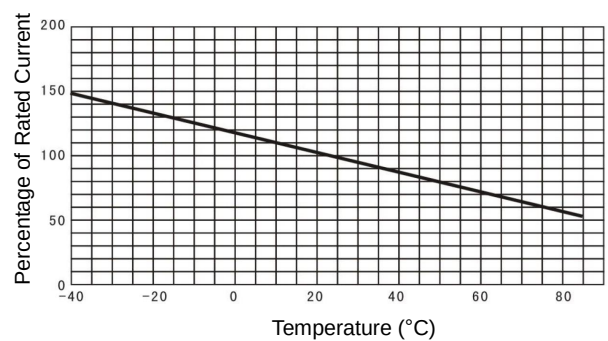
Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
SC30-040	0.58	0.52	0.46	0.40	0.33	0.31	0.27	0.24	0.21
SC30-050	0.73	0.65	0.58	0.50	0.42	0.39	0.34	0.31	0.26
SC30-065	0.94	0.85	0.75	0.65	0.54	0.50	0.44	0.40	0.34
SC30-075	1.09	0.98	0.86	0.75	0.62	0.58	0.51	0.46	0.39
SC30-090	1.31	1.17	1.04	0.90	0.75	0.69	0.61	0.55	0.47
SC30-110	1.60	1.43	1.27	1.10	0.91	0.85	0.75	0.67	0.57
SC30-135	1.96	1.76	1.55	1.35	1.12	1.04	0.92	0.82	0.70
SC30-160	2.32	2.08	1.84	1.60	1.33	1.23	1.09	0.98	0.83
SC30-185	2.68	2.41	2.13	1.85	1.54	1.42	1.26	1.13	0.96
SC30-250	3.63	3.25	2.88	2.50	2.08	1.93	1.70	1.53	1.30
SC30-300	4.35	3.90	3.45	3.00	2.49	2.31	2.04	1.83	1.56
SC30-400	5.80	5.20	4.60	4.00	3.32	3.08	2.72	2.44	2.08
SC30-500	7.25	6.50	5.75	5.00	4.15	3.85	3.40	3.05	2.60
SC30-600	8.70	7.80	6.90	6.00	4.98	4.62	4.08	3.66	3.12
SC30-700	10.15	9.10	8.05	7.00	5.81	5.39	4.76	4.27	3.64
SC30-800	11.60	10.40	9.20	8.00	6.64	6.16	5.44	4.88	4.16
SC30-900	13.05	11.70	10.35	9.00	7.47	6.93	6.12	5.49	4.68

Average Time Current Curves



A=SC30-090 G=SC30-300 M=SC30-900
 B=SC30-110 H=SC30-400
 C=SC30-135 I=SC30-500
 D=SC30-160 J=SC30-600
 E=SC30-185 K=SC30-700
 F=SC30-250 L=SC30-800

Temperature Derating Curve



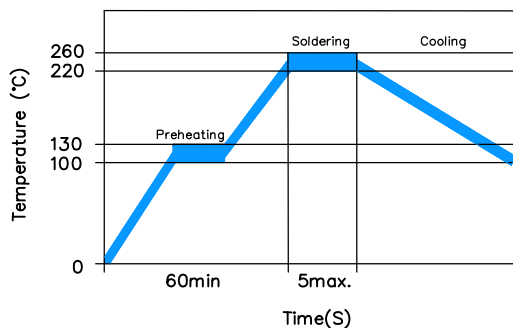
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Test Procedures and Requirement

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	$T \leq \text{Maximum Time To Trip}$
Trip Cycle Life	V_{max} , I_{max} , 100 cycles	No arcing or burning
Trip Endurance	V_{max} , 24 hours	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

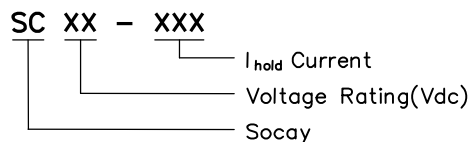
Cooling Zone

Cooling by natural convection in air

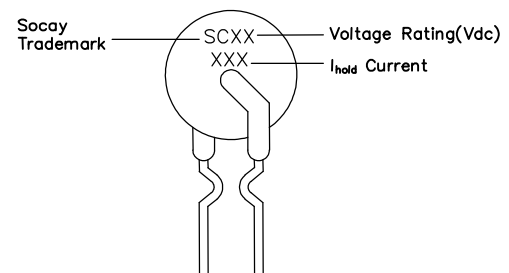
Physical Specifications

Lead Material	0.4-1.85A Tin-plated Copper clad steel 2.5-9.0A 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

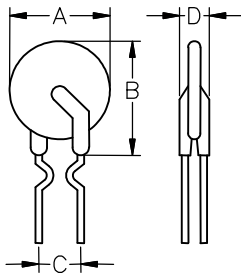


Figure1

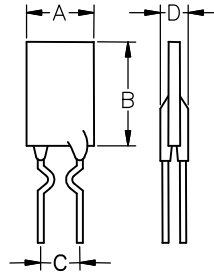


Figure2

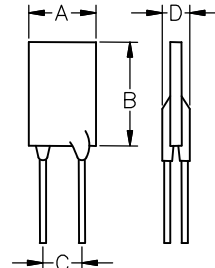


Figure3

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.			
SC30-040	Figure1	0.236	6.0	0.445	11.3	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-050	Figure1	0.236	6.0	0.472	12.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-065	Figure1	0.276	7.0	0.472	12.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-075	Figure1	0.283	7.2	0.480	12.2	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-090	Figure2	0.276	7.0	0.472	12.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-110	Figure2	0.256	6.5	0.571	14.5	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-135	Figure2	0.346	8.8	0.543	13.8	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-160	Figure2	0.346	8.8	0.610	15.5	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-185	Figure2	0.394	10.0	0.630	16.0	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-250	Figure2	0.445	11.3	0.728	18.5	0.200	5.1	0.118	3.0	0.020	0.5	1000
SC30-300	Figure3	0.445	11.3	0.669	17.0	0.200	5.1	0.118	3.0	0.031	0.8	1000
SC30-400	Figure3	0.531	13.5	0.700	17.8	0.200	5.1	0.118	3.0	0.031	0.8	500
SC30-500	Figure3	0.570	14.5	0.925	23.5	0.400	10.2	0.118	3.0	0.031	0.8	500
SC30-600	Figure3	0.630	16.0	0.925	23.5	0.400	10.2	0.118	3.0	0.031	0.8	500
SC30-700	Figure3	0.728	18.5	0.965	24.5	0.400	10.2	0.118	3.0	0.031	0.8	200
SC30-800	Figure3	0.827	21.0	1.102	28.0	0.400	10.2	0.118	3.0	0.031	0.8	200
SC30-900	Figure3	0.965	24.5	1.102	28.0	0.400	10.2	0.118	3.0	0.031	0.8	200

Warning



- u 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.
- u 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.
- u 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.
- u In most application, power must be removed and the fault condition cleared in order to reset a PPTC device.
- u 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.
- u 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.