

Surface Mount Resettable PTCs

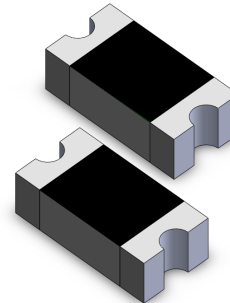
SCF050-6-0603RC

Features

- u Resettable over current and over temperature protection
- u Low resistance
- u Small size of 0603
- u Fast time-to-trip
- u Small footprint
- u RoHS complaint

Applications

- u Computer
- u Industrial controls
- u Multimedia
- u Battery
- u Automotive
- u Game machines
- u Mobile phones
- u Portable electronics
- u Telephony and broadband



Electrical Parameters

Part Number	Hold Current	Trip Current	Rated Voltage	Max Current	Typical Power	Maximum Time To Trip		Resistance	
	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	$P_{dtyp.}$ (W)	Current (A)	Time (Sec.)	R_{min} (Ω)	R_{1max} (Ω)
SCF050-6-0603RC	0.50	1.00	6	40	0.5	8.00	0.10	0.10	0.80

I_{hold} = Hold current: maximum current at which the device will not trip at 25°C still air reflow soldering of 260°C for 20 sec.

I_{trip} = Trip current: minimum current at which the device will always trip at 25°C still air reflow soldering of 260°C for 20 sec.

V_{max} = Maximum continuous voltage device can withstand without damage at rated current.

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

T_{trip} =Maximum time to trip(s) at assigned current reflow soldering of 260°C for 20 sec.

$P_{dtyp.}$ = Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

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

R_{1max} = Maximum resistance of device at 25°C measured one hour after reflow soldering of 260°C for 20 sec.

Value specified is determined by using the PWB with 0.030 " *1.5oz copper traces.

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

Thermal Derating (Hold Current (A) at Ambient Temperature (°C))

Model	Maximum Ambient Operating Temperature (°C)								
	-40	-20	0	25	40	50	60	70	85
SCF050-6-0603RC	0.67	0.59	0.51	0.50	0.41	0.37	0.34	0.29	0.20

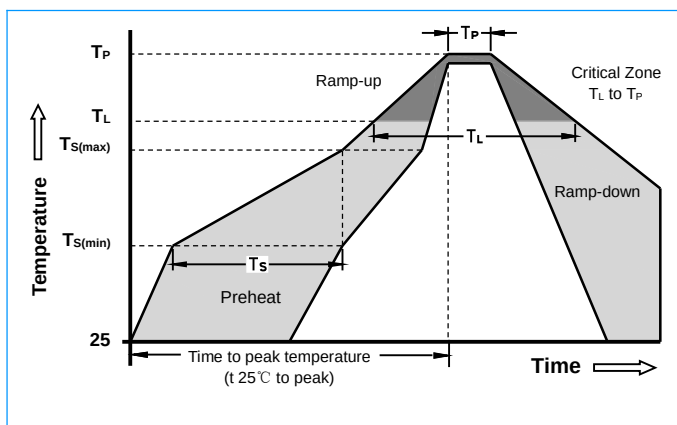
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Environmental Specifications

Test Item	Test Conditions	Accept /Reject Criteria
Recommended Storage Conditions	40°C max, 70% R.H. max	No Change
Passive Aging	85°C, 1000 hours	$\leq R_{1max}$
Moisture Resistance	85% RH, 85°C, 1000hrs	$\leq R_{1max}$
Thermal Shock	MIL-STD-202 Method 107G +85°C / -40°C 20 times	$\leq R_{1max}$
Vibration	MIL-STD-883C, Method 2007.1, Condition A	No Change
Solvent Resistance	MIL-STD-202, Method 215	No Change
Moisture Level Sensitivity	Level 1, J-STD-020C	No Change

Solder Reflow Recommendation



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T_S max to T_P)	3°C/second max.
Preheat : Temperature Min (T_{Smin}) Temperature Max (T_{Smax}) Time (T_{Smin} to T_{Smax})	150°C 200°C 60-180 seconds
Time maintained above: Temperature(T_L) Time (T_L)	217°C 60-150 seconds
Peak/Classification Temperature(T_P):	260°C
Time within 5°C of actual peak: Temperature	20-40 seconds
Ramp-down Rate:	6°C/ second max.
Time 25°C to Peak Temperature	8 minutes max.

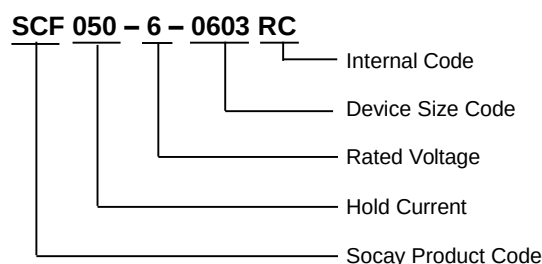
Recommended reflow methods: IR, hot air oven, nitrogen oven. Devices can be cleaned using standard industry methods and solvents.

Note:

If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Caution: Operation beyond the rated voltage or current may result in rupture electrical arcing or flame.

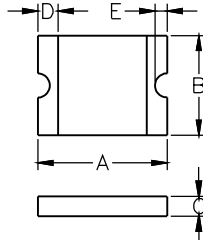
Part Numbering



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Product Dimensions (Unit: mm)



Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SCF050-6-0603RC	1.45	1.85	0.65	1.05	0.55	1.15	0.15	0.10

Packaging Quantity

Part Number	Packaging Option	Quantity
SCF050-6-0603RC	Tape & Reel	4000 PCS

Warning



- u Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- u PPTC device are intended for occasional over-current protection. Application for repeated over-current condition and/or prolonged trip are not anticipated.
- u Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.