PROSEMI
Circuit Protection

Surface-Mount Devices | 0603 Size

Low Rho PTC Resettable Fuses

SRF0603 Series

Features

- Resettable over current and over temperature protection
- Standard 0603mils footprint
- Fast time-to-trip
- RoHS complaint
- Low resistance

HALOGEN HF FREE
Pb lead-free
RoHS 2015/863/EC

Applications

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



Electrical Characteristics

Part Number	I_H (A)	I_T (A)	V_{max} (V)	I_{max} (A)	Max Time to Trip (A)	Max Time to Trip (Sec)	Pd_{type} (W)	R_{min} (Ω)	$R1_{max}$ (Ω)
SRF0603P200LR	2.00	4.00	6	50	8.00	5.0	0.7	0.008	0.065

I_H = Hold current: maximum current at which the device will not trip at 25℃ still air.
I_T = Trip current: minimum current at which the device will always trip at 25℃ still air.
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.
Pd_{typ} =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℃ measured one hour after reflow.

Noted: All electrical function test is conducted after PCB mounted.

Thermal Derating Chart Hold Current (A)

Part Number	Ambient Operating Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
SRF0603P200LR	2.80	2.60	2.30	2.00	1.70	1.50	1.30	1.10	0.80

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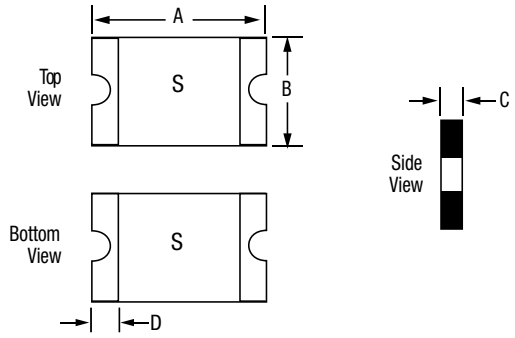
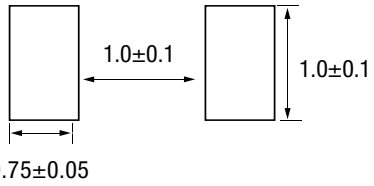
Dimensions (mm)



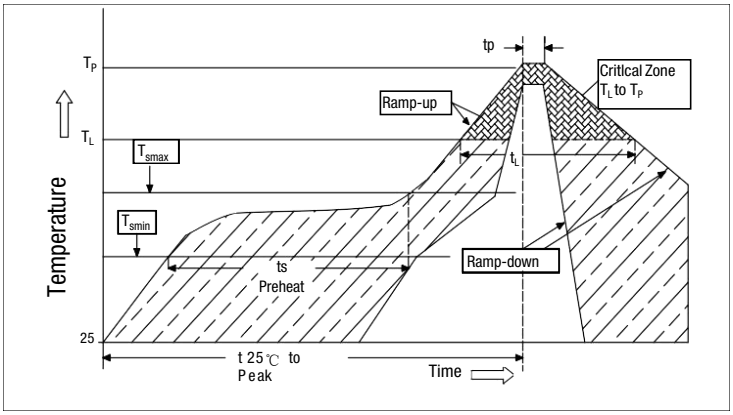
Recommended Pad Layout (mm)



P/N	A		B		C		D
	Min	Max	Min	Max	Min	Max	Min
SRF0603P200LR	1.45	2.05	0.65	1.20	0.35	0.75	0.20

Solder Reflow Recommendation

Reflow Profile	Lead free
Heating rate from Tsmax to Tp	Max.3℃/second
Pre-heat: Tsmin Tsmax Tsmin to Tsmax	 150℃ 200℃ 60~180seconds
Soldering time: Temperature（TL） Time（tL）	 >217℃ 60~150seconds
Peak temperature（Tp）	260℃
Time at Peak temperature ±5℃（tp）	20~40seconds
Cooling rate	Max.6℃/second
Time from 25℃ to Peak Temperature	8 minutes max



Cautions for Reflow:

1. Recommended reflow methods: IR, hot air oven, nitrogen oven;
2. The printed solder thickness is not over 0.25mm, Excess solder may cause a short circuit, especially during hand soldering;
3. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements;
4. Device can not be wave soldered. Please contact Prosemi for hand soldering and dip soldering recommendations;
5. Device can't contact solvent;

Note: All temperature in top chart is measured on the surface of devices.

Packaging Options

Part Number	Quantity
SRF0603P200LR	4,000pcs

Reel packaging per EIA-481-1 standard.

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Cautions for SMD PTC Use

1. PTC Device is a resettable over current circuit protection device used to protect against over current faults in electronic circuits. It cannot be used as a switch. Multiple times tripping will reduce the PTC hold current.

2. The PTC is a thermally sensitive device with a positive temperature coefficient which means that the resistance increases with increasing temperature. It is recommended to keep away from heat source devices when designing to minimize the influence of external heat sources.

3. Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing, resistance increasing and flame.

4. Hold current at all temperature specified in the specification is the conventional performance of PTC obtained by one reflow soldering. It can hold 1 hour under the current conditions corresponding to different temperatures. This current is not the condition of long-term charging or discharging current for this type of PTC.

5. The resistance and other electrical parameters indicated in the specification are all based on the test results of the manufacturer's designated test board by one reflow soldering. If there is any further heat generated process like multiple soldering, injection molding, dispensing, the product parameters will decrease at certain degree. Therefore the verification test to be conducted is necessary.

6. When mounting or using PTC, all injection molding materials, curing adhesives, UV glue, silica gel and cleaning agents or solvents must be tested in terms of application parameters e.g. temperature, time, and etc to ensure the consistency between the product and the processing before use.

7. When mounting or using PTC, it is not recommended to use circuit board washer water or other cleaning agent. If cleaning is required, it is necessary to verify the applicability of various cleaning agents, washboard water and solvents, and confirm that they will not affect the PTC performance. The known chemicals that impacts PTC include but not limited to ethers, benzene homolog, ketone, lipids and derivatives that is of strong solubleness and ruinous. Please place the product in open environment for at least 24 hours to volatilize solvents residuals.

8. Please do not smash, clamp, pull ,dent, twist and etc. to PTC during assembling process to avoid the performance degradation.

9. SMD PTC is designed for SMT technology, and its reflow soldering. Please refer to the Prosemi recommended soldering curve. If the soldering temperature exceeds the recommended value, the PTC might be damaged. Manual PTC welding is prohibited. Heat gun is not allowed to use in the rework of other components on the board.

10. If PTC applied in the charging terminal, the PP material is recommended as inner membrane, TPE or PVC materials are prohibited.

11. The MSL level of SMD PTC is 2a. If find damaged packaging in stock, please isolate the product immediately.

12. In the application, after the PTC soldered in the board, please finish the injection or glue as soon as possible. If the time lag between the injection and glue more than 1 month, PTC needs to reserve in the closed space so as to avoid PTC expose to the air too long.

13. When the product is finally discarded, it can be treated recycled in accordance with local laws and regulations, and raw material compositions of PPTC can be referred to MSDS.