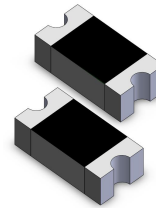


Surface Mount Resettable PTCs

SCF0603RB Series

Features

- ◆ RoHS Compliant & Halogen Free
- ◆ Faster tripping, 0603 Dimension, Surface mountable, Solid state
- ◆ Operation Current: 0.01A ~ 0.50A
- ◆ Maximum Voltage: 6V ~ 30Vdc
- ◆ Operating Temperature: -40°C ~ + 85°C



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)
SCF001-0603RB	0.01	0.03	30.0	20.0	0.50	0.20	1.00	15.00	100.0
SCF002-0603RB	0.02	0.06	30.0	20.0	0.50	0.20	1.00	12.00	70.00
SCF003-0603RB	0.03	0.09	30.0	20.0	0.50	0.15	1.00	6.000	65.00
SCF004-0603RB	0.04	0.12	24.0	20.0	0.50	0.20	1.00	4.000	45.00
SCF005-0603RB	0.05	0.15	24.0	20.0	0.50	0.25	1.00	3.000	35.00
SCF010-0603RB	0.10	0.30	15.0	40.0	0.50	0.50	1.00	0.900	8.000
SCF020-0603RB	0.20	0.50	9.0	40.0	0.50	1.00	0.60	0.550	3.500
SCF025-0603RB	0.25	0.55	9.0	40.0	0.50	8.00	0.08	0.500	3.000
SCF030-0603RB	0.30	0.70	6.0	40.0	0.50	8.00	0.10	0.300	2.000
SCF035-0603RB	0.35	0.75	6.0	40.0	0.50	8.00	0.10	0.200	1.400
SCF040-0603RB	0.40	0.80	6.0	40.0	0.50	8.00	0.10	0.150	0.900
SCF050-0603RB	0.50	1.00	6.0	40.0	0.50	8.00	0.10	0.100	0.800

I_{hold} = Hold Current. Maximum current device will not trip in 25°C still air.

I_{trip} = Trip Current. Minimum current at which the device will always trip in 25°C still air.

V_{max} = Maximum operating 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}).

$P_{dtyp.}$ = Maximum power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

R_{min} = Minimum device resistance prior to tripping at 25°C.

R_{1max} = Maximum device resistance is measured one hour post reflow.

Test Procedures and Requirements

Test Item	Test Conditions	Accept / Reject Criteria
Resistance	In still air @ 25°C	$R_{min} \leq R \leq R_{1max}$
Time to Trip	Specified current, V_{max} , 25°C	$T \leq$ Maximum Time to Trip
Holding Current	30min, at I_H	No trip
Trip Cycle Life	V_{max} , I_{max} , 100cycles	No arcing or burning
Trip Endurance	V_{max} , 1 hour	No arcing or burning

Surface Mount Resettable PTCs

SCF0603RB Series

Physical Characteristics

Terminal Materials	Tin-Plated Nickle-copper
Soldering Zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

Environmental Specifications

Test Item	Test Conditions	Resistance Change
Passive Aging	85°C, 1000 hours	±10%
Humidity Aging	85°C/85%RH. 100 hours	±5%
Thermal Shock	MIL-STD-202, Method 107G +85°C/-40°C, 20 times	±33% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change
Vibration	ML-STD-883C, Test Condition A	No change

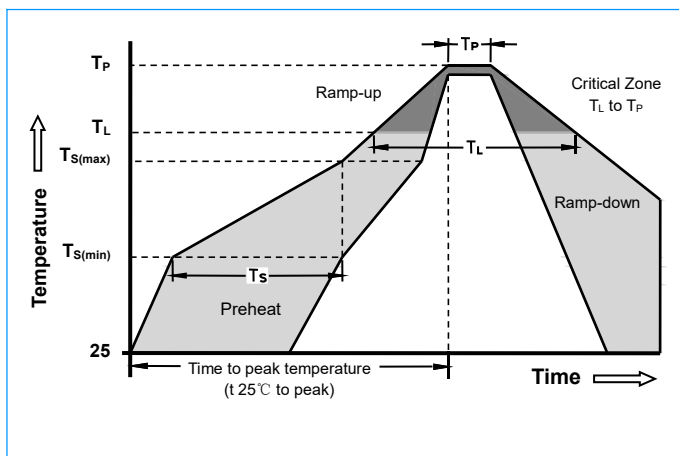
Thermal Derating Chart - I_H (A)

Model	Maximum ambient operating temperature (°C)								
	-40	-20	0	25	40	50	60	70	85
SCF001-0603RB	0.014	0.0125	0.0115	0.010	0.0085	0.007	0.006	0.005	0.0035
SCF002-0603RB	0.028	0.025	0.023	0.020	0.017	0.014	0.012	0.010	0.007
SCF003-0603RB	0.042	0.038	0.035	0.030	0.026	0.021	0.018	0.015	0.011
SCF004-0603RB	0.056	0.050	0.046	0.040	0.034	0.028	0.024	0.020	0.014
SCF005-0603RB	0.070	0.063	0.058	0.050	0.043	0.035	0.030	0.025	0.018
SCF010-0603RB	0.140	0.125	0.115	0.100	0.085	0.070	0.060	0.050	0.035
SCF020-0603RB	0.280	0.250	0.230	0.200	0.170	0.140	0.120	0.100	0.070
SCF025-0603RB	0.350	0.310	0.290	0.250	0.210	0.180	0.150	0.130	0.090
SCF030-0603RB	0.420	0.380	0.350	0.300	0.260	0.210	0.180	0.150	0.110
SCF035-0603RB	0.470	0.440	0.390	0.350	0.300	0.270	0.240	0.200	0.140
SCF040-0603RB	0.540	0.500	0.450	0.400	0.340	0.310	0.270	0.230	0.160
SCF050-0603RB	0.670	0.630	0.560	0.500	0.430	0.390	0.340	0.290	0.200

Surface Mount Resettable PTCs

SCF0603RB Series

Soldering Parameters



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 60-120 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: Time (T_P)	30 seconds max.
Ramp-down Rate	3°C/ second max.
Time 25°C to Peak Temperature	8 minutes max.

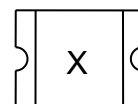
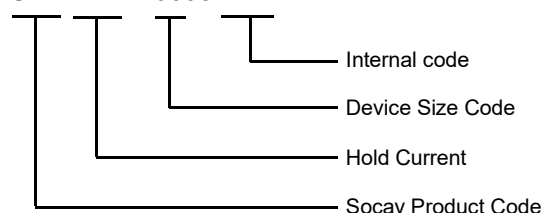
- Recommended reflow methods: I_R , vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.
- Soldering temperature profile meets RoHS leadfree process.

Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperature exceed the recommended profile, devices may not meet the performance requirements.

Part Numbering

SCF XXX – 0603 RB

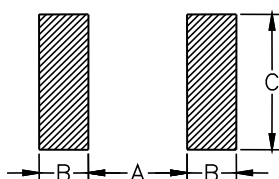


Example

X= SCF001-0603RB
 X= SCF002-0603RB
 - = SCF003-0603RB
 - = SCF004-0603RB
 1= SCF005-0603RB
 1= SCF010-0603RB
 2= SCF020-0603RB
 2= SCF025-0603RB
 3= SCF030-0603RB
 3= SCF035-0603RB
 4= SCF040-0603RB
 5= SCF050-0603RB

Recommended Solder Pad Layout Dimensions (Unit: mm)

The dimension in the table below provide the recommended pad layout for each SCF0603RB Series device.

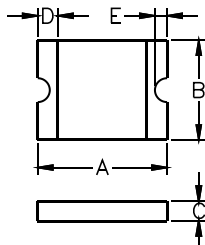


Device	A	B	C
0603 Series	0.8 ± 0.1	1.0 ± 0.1	1.0 ± 0.1

Surface Mount Resettable PTCs

SCF0603RB Series

Product Dimensions (Unit: mm)



Part Number	A		B		C		D		E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Max.
SCF001-0603RB	1.45	1.85	0.65	1.05	0.40	0.90	0.15	0.50	0.40
SCF002-0603RB	1.45	1.85	0.65	1.05	0.40	0.90	0.15	0.50	0.40
SCF003-0603RB	1.45	1.85	0.65	1.05	0.40	0.90	0.15	0.50	0.40
SCF004-0603RB	1.45	1.85	0.65	1.05	0.40	0.90	0.15	0.50	0.40
SCF005-0603RB	1.45	1.85	0.65	1.05	0.40	0.75	0.15	0.50	0.40
SCF010-0603RB	1.45	1.85	0.65	1.05	0.40	0.75	0.15	0.50	0.40
SCF020-0603RB	1.45	1.85	0.65	1.05	0.40	0.75	0.15	0.50	0.40
SCF025-0603RB	1.45	1.85	0.65	1.05	0.40	0.75	0.15	0.50	0.40
SCF030-0603RB	1.45	1.85	0.65	1.05	0.40	0.75	0.15	0.50	0.40
SCF035-0603RB	1.45	1.85	0.65	1.05	0.40	0.75	0.15	0.50	0.40
SCF040-0603RB	1.45	1.85	0.65	1.05	0.50	1.20	0.15	0.50	0.40
SCF050-0603RB	1.45	1.85	0.65	1.05	0.50	1.20	0.15	0.50	0.40

Packaging Quantity

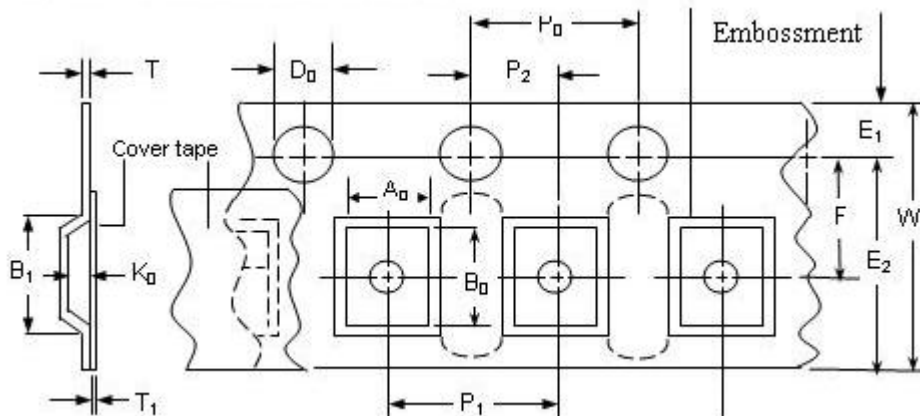
Part Number	Quantity	Part Number	Quantity
SCF001-0603RB	4000 PCS	SCF020-0603RB	5000 PCS
SCF002-0603RB	4000 PCS	SCF025-0603RB	5000 PCS
SCF003-0603RB	5000 PCS	SCF030-0603RB	5000 PCS
SCF004-0603RB	5000 PCS	SCF035-0603RB	5000 PCS
SCF005-0603RB	5000 PCS	SCF040-0603RB	4000 PCS
SCF010-0603RB	5000 PCS	SCF050-0603RB	4000 PCS

Surface Mount Resettable PTCs

SCF0603RB Series

Tape Specifications (Unit: mm)

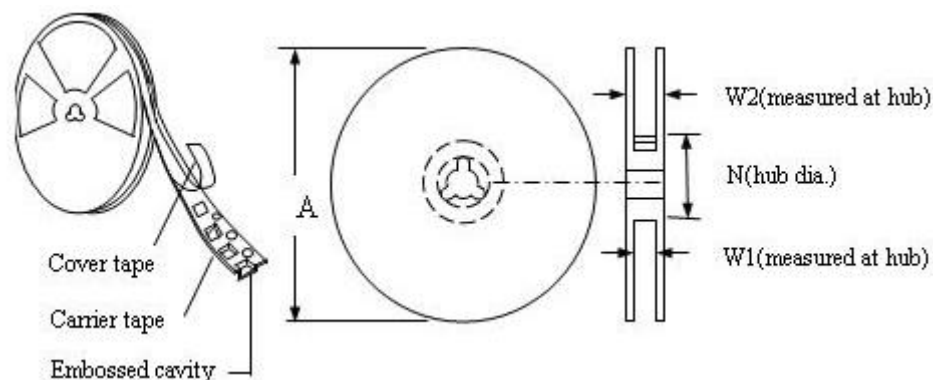
Tape Component Dimensions



Symbol	Dimensions
W	8.00±0.10
P₀	4.00±0.10
P₁	4.00±0.10
P₂	2.00±0.05
A₀	0.95±0.10
B₀	1.85±0.05
D₀	1.55±0.05
F	3.50±0.05
E₁	1.75±0.10
T	0.20±0.02
Leader min.	390
Trailer min.	160

Reel Specifications (Unit: mm)

Reel Dimensions



Symbol	Dimensions
A	178±1.0
N	59±1.0
W1	8.5+1.0/-0.2
W2	12.0±1.0

Warning



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