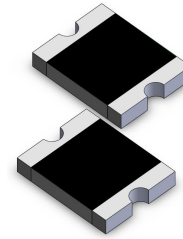


Surface Mount Resettable PTCs

SCF1210RB Series

Features

- ◆ RoHS Compliant & Halogen Free
- ◆ Faster tripping, 1210 Dimension, Surface mountable, Solid state
- ◆ Operation Current: 0.05A ~ 2.00A
- ◆ Maximum Voltage: 6V ~ 60Vdc
- ◆ 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) |
| SCF005-1210RB | 0.05 | 0.15 | 60.0 | 100 | 0.6 | 0.25 | 1.50 | 2.800 | 50.00 |
| SCF010-1210RB | 0.10 | 0.30 | 60.0 | 100 | 0.6 | 0.50 | 0.60 | 0.800 | 15.00 |
| SCF020-1210RB | 0.20 | 0.40 | 30.0 | 100 | 0.6 | 8.0 | 0.02 | 0.400 | 5.000 |
| SCF035-1210RB | 0.35 | 0.75 | 16.0 | 100 | 0.6 | 8.0 | 0.20 | 0.200 | 1.300 |
| SCF035-30-1210RB | 0.35 | 0.75 | 30.0 | 100 | 0.6 | 8.0 | 0.20 | 0.200 | 1.300 |
| SCF050-1210RB | 0.50 | 1.00 | 16.0 | 100 | 0.6 | 8.0 | 0.10 | 0.180 | 0.900 |
| SCF075-1210RB | 0.75 | 1.50 | 6.0 | 100 | 0.6 | 8.0 | 0.10 | 0.070 | 0.400 |
| SCF075-24-1210RB | 0.75 | 1.50 | 24.0 | 100 | 0.6 | 8.0 | 0.10 | 0.070 | 0.450 |
| SCF110-1210RB | 1.10 | 2.20 | 6.0 | 100 | 0.6 | 8.0 | 0.30 | 0.050 | 0.210 |
| SCF110-16-1210RB | 1.10 | 2.20 | 16.0 | 100 | 0.8 | 8.0 | 0.30 | 0.050 | 0.250 |
| SCF150-1210RB | 1.50 | 3.00 | 6.0 | 100 | 0.8 | 8.0 | 0.50 | 0.030 | 0.110 |
| SCF150-16-1210RB | 1.50 | 3.00 | 16.0 | 100 | 0.6 | 8.0 | 0.50 | 0.030 | 0.160 |
| SCF175-1210RB | 1.75 | 3.50 | 6.0 | 100 | 0.8 | 8.0 | 0.60 | 0.020 | 0.080 |
| SCF200-1210RB | 2.00 | 4.00 | 6.0 | 100 | 0.8 | 8.0 | 1.00 | 0.015 | 0.070 |

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.

Surface Mount Resettable PTCs

SCF1210RB Series

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 |

Physical Characteristics

| | |
|--------------------|--|
| Terminal Materials | Tin-Plated Nickel-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. 168 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 |

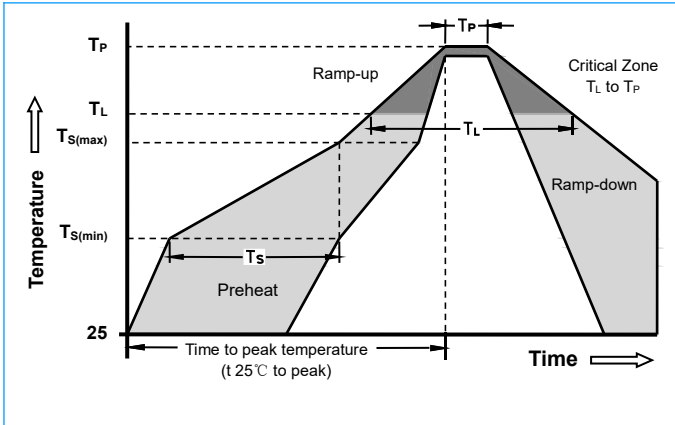
Thermal Derating Chart - I_H (A)

| Model | Maximum ambient operating temperature (°C) | | | | | | | | |
|------------------|--|------|------|------|------|------|------|------|------|
| | -40 | -20 | 0 | 25 | 40 | 50 | 60 | 70 | 85 |
| SCF005-1210RB | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.02 |
| SCF010-1210RB | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.07 | 0.06 | 0.05 | 0.05 |
| SCF020-1210RB | 0.29 | 0.26 | 0.22 | 0.20 | 0.16 | 0.14 | 0.13 | 0.11 | 0.08 |
| SCF035-1210RB | 0.47 | 0.45 | 0.40 | 0.35 | 0.33 | 0.28 | 0.24 | 0.21 | 0.18 |
| SCF035-30-1210RB | 0.47 | 0.45 | 0.40 | 0.35 | 0.33 | 0.28 | 0.24 | 0.21 | 0.18 |
| SCF050-1210RB | 0.76 | 0.67 | 0.58 | 0.50 | 0.43 | 0.40 | 0.36 | 0.32 | 0.28 |
| SCF075-1210RB | 1.00 | 0.97 | 0.86 | 0.75 | 0.64 | 0.59 | 0.54 | 0.48 | 0.40 |
| SCF075-24-1210RB | 1.00 | 0.97 | 0.86 | 0.75 | 0.64 | 0.59 | 0.54 | 0.48 | 0.40 |
| SCF110-1210RB | 1.60 | 1.42 | 1.26 | 1.10 | 0.94 | 0.86 | 0.80 | 0.70 | 0.58 |
| SCF110-16-1210RB | 1.60 | 1.42 | 1.26 | 1.10 | 0.94 | 0.86 | 0.80 | 0.70 | 0.58 |
| SCF150-1210RB | 2.30 | 2.02 | 1.76 | 1.50 | 1.24 | 1.11 | 1.00 | 0.85 | 0.65 |
| SCF150-16-1210RB | 2.30 | 2.02 | 1.76 | 1.50 | 1.24 | 1.11 | 1.00 | 0.85 | 0.65 |
| SCF175-1210RB | 2.45 | 2.22 | 2.01 | 1.75 | 1.45 | 1.26 | 1.10 | 0.98 | 0.80 |
| SCF200-1210RB | 2.60 | 2.44 | 2.35 | 2.00 | 1.78 | 1.67 | 1.50 | 1.45 | 1.10 |

Surface Mount Resettable PTCs

SCF1210RB Series

Soldering Parameters



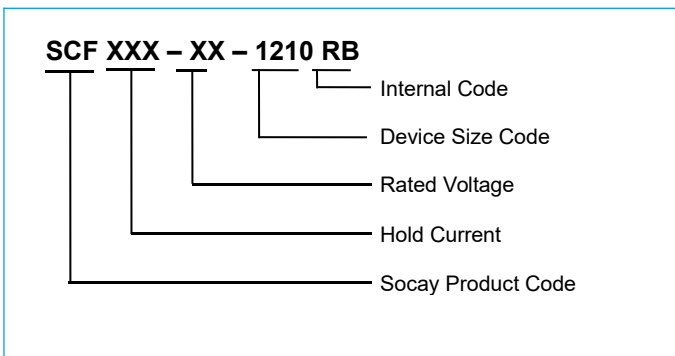
| Profile Feature | Pb-Free Assembly |
|--|----------------------------------|
| Average Ramp-Up Rate (T_S max to T_P) | 3°C/second max. |
| Preheat : Temperature Min (T_{Smin}) Temperature Max (T_{Smax}) Time (T_{Smin} to T_{Smax}) | 150°C 200°C 60-120 seconds |
| Time maintained above: Temperature(T_L) 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



Example

| | |
|----------------------|-----------------------|
| SZ= SCF005-1210RB | SA = SCF075-24-1210RB |
| SN=SCF010-1210RB | SK= SCF110-1210RB |
| SF= SCF020-1210RB | SK= SCF110-16-1210RB |
| SB= SCF035-1210RB | SK= SCF150-1210RB |
| SB= SCF035-30-1210RB | SK= SCF150-16-1210RB |
| SG= SCF050-1210RB | SK= SCF175-1210RB |
| SA= SCF075-1210RB | SK= SCF200-1210RB |

Recommended Solder Pad Layout Dimensions (Unit: mm)

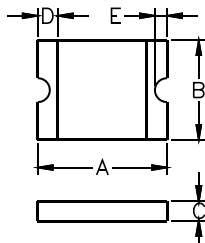
The dimension in the table below provide the recommended pad layout for each SCF1210RB Series device

| Device | A | B | C |
|-------------|---------|---------|---------|
| 1210 Series | 2.0±0.1 | 1.0±0.1 | 2.5±0.1 |

Surface Mount Resettable PTCs

SCF1210RB Series

Product Dimensions (Unit: mm)



| Part Number | A | | B | | C | | D | E |
|------------------|------|------|------|------|------|------|------|------|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Min. |
| SCF005-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.60 | 1.25 | 0.15 | 0.10 |
| SCF010-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.60 | 1.25 | 0.15 | 0.10 |
| SCF020-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.50 | 1.00 | 0.15 | 0.10 |
| SCF035-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.35 | 0.90 | 0.15 | 0.10 |
| SCF035-30-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.35 | 1.00 | 0.15 | 0.10 |
| SCF050-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.35 | 0.90 | 0.15 | 0.10 |
| SCF075-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.35 | 0.85 | 0.15 | 0.10 |
| SCF075-24-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.50 | 1.10 | 0.15 | 0.10 |
| SCF110-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.40 | 1.00 | 0.15 | 0.10 |
| SCF110-16-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.50 | 1.10 | 0.15 | 0.10 |
| SCF150-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.60 | 1.40 | 0.15 | 0.10 |
| SCF150-16-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.70 | 1.50 | 0.25 | 0.10 |
| SCF175-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.60 | 1.40 | 0.15 | 0.10 |
| SCF200-1210RB | 3.00 | 3.43 | 2.35 | 2.80 | 0.60 | 1.50 | 0.15 | 0.10 |

Packaging Quantity

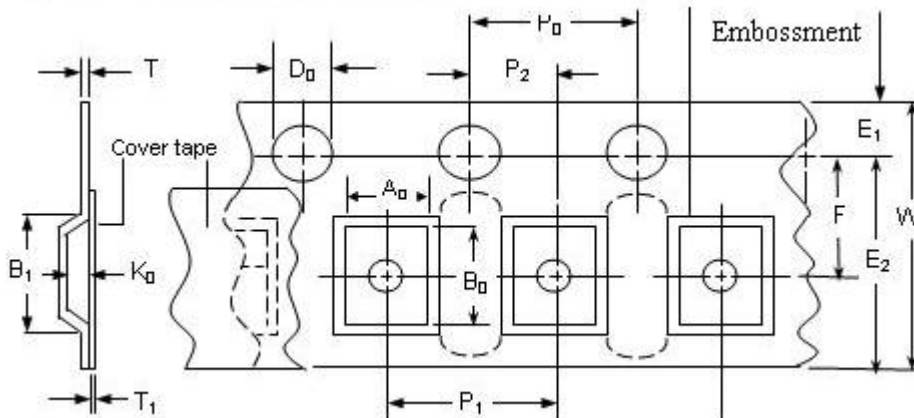
| Part Number | Quantity | Part Number | Quantity |
|------------------|----------|------------------|----------|
| SCF005-1210RB | 4000 PCS | SCF075-24-1210RB | 4000 PCS |
| SCF010-1210RB | 4000 PCS | SCF110-1210RB | 4000 PCS |
| SCF020-1210RB | 4000 PCS | SCF110-16-1210RB | 4000 PCS |
| SCF035-1210RB | 4000 PCS | SCF150-1210RB | 4000 PCS |
| SCF035-30-1210RB | 4000 PCS | SCF150-16-1210RB | 4000 PCS |
| SCF050-1210RB | 4000 PCS | SCF175-1210RB | 4000 PCS |
| SCF075-1210RB | 4000 PCS | SCF200-1210RB | 4000 PCS |

Surface Mount Resettable PTCs

SCF1210RB Series

Tape Specifications (Unit: mm)

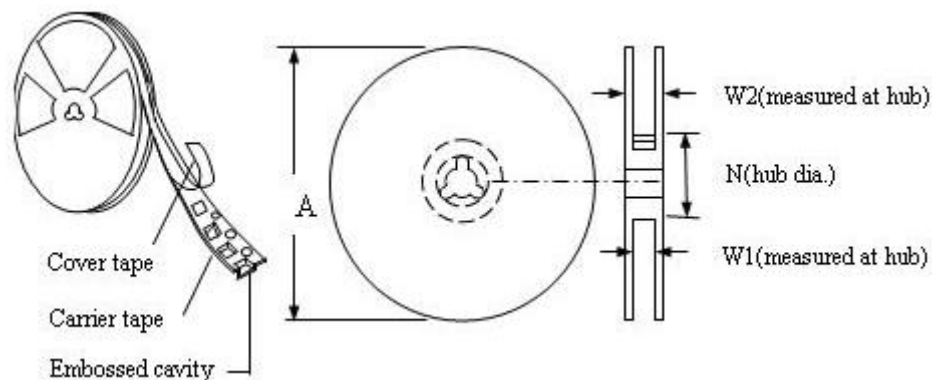
Tape Component Dimensions



| Symbol | Dimensions |
|----------------------|------------|
| W | 8.00±0.30 |
| P₀ | 4.00±0.10 |
| P₁ | 4.00±0.10 |
| P₂ | 2.00±0.05 |
| A₀ | 2.87±0.10 |
| B₀ | 3.56±0.10 |
| D₀ | 1.55±0.05 |
| F | 3.50±0.05 |
| E₁ | 1.75±0.10 |
| T | 0.25±0.10 |
| 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.