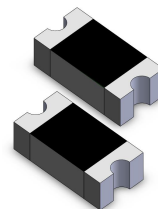


## Surface Mount Resettable PTCs

### SCF0603RZB Series

#### Features

- ◆ RoHS Compliant & Halogen Free
- ◆ Faster tripping, 0603 Dimension, Surface mountable, Solid state
- ◆ Operation Current: 0.5A ~ 3.0A
- ◆ Maximum Voltage: 6V
- ◆ Operating Temperature: -40°C ~ +85°C



#### Electrical Characteristics

| 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.) | $R_{min}$ ( $\Omega$ ) | $R_{1max}$ ( $\Omega$ ) |
| SCF050-0603RZB | 0.50           | 1.00           | 6.0             | 50.0          | 0.5             | 8.0                  | 0.6         | 0.070                  | 0.400                   |
| SCF075-0603RZB | 0.75           | 1.50           | 6.0             | 50.0          | 0.5             | 8.0                  | 1.0         | 0.055                  | 0.250                   |
| SCF100-0603RZB | 1.00           | 2.00           | 6.0             | 50.0          | 0.5             | 8.0                  | 2.0         | 0.045                  | 0.120                   |
| SCF125-0603RZB | 1.25           | 2.50           | 6.0             | 50.0          | 0.5             | 8.0                  | 3.0         | 0.035                  | 0.100                   |
| SCF150-0603RZB | 1.50           | 3.00           | 6.0             | 50.0          | 0.5             | 8.0                  | 4.0         | 0.012                  | 0.080                   |
| SCF175-0603RZB | 1.75           | 3.50           | 6.0             | 50.0          | 0.5             | 8.0                  | 5.0         | 0.012                  | 0.070                   |
| SCF200-0603RZB | 2.00           | 4.00           | 6.0             | 50.0          | 0.5             | 8.0                  | 5.0         | 0.012                  | 0.060                   |
| SCF260-0603RZB | 2.60           | 5.20           | 6.0             | 50.0          | 0.5             | 8.0                  | 5.0         | 0.008                  | 0.050                   |
| SCF300-0603RZB | 3.00           | 6.00           | 6.0             | 50.0          | 0.5             | 8.0                  | 5.0         | 0.008                  | 0.040                   |

$I_{hold}$  = Hold Current. Maximum current at which the device will not interrupt in 25°C still air.

$I_{trip}$  = Trip Current. Minimum current at which the device from low resistance to high resistance in 25°C 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.

Maximum Time-to-trip: Maximum time to trip at assigned current.

$P_{dtyp.}$  = Typical power dissipation: Typical amount of power dissipated from the device when in 25°C still air environment.

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

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

#### Test Procedures and Requirements

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

## Surface Mount Resettable PTCs

### SCF0603RZB Series

#### Physical Characteristics

|                      |                                                                  |
|----------------------|------------------------------------------------------------------|
| Terminal Materials   | Tin-Plated Nickle-copper                                         |
| Soldering Zone       | Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3. |
| Moisture Sensitivity | Level 2a, per IPC/JEDEC J-STD 020C                               |

#### Environmental Specifications

| Test Item          | Test Conditions                                   | Resistance Change |
|--------------------|---------------------------------------------------|-------------------|
| Passive Aging      | 85°C, 1000 hours                                  | ±10% typical      |
| Humidity Aging     | 85°C/85%RH. 100 hours                             | ±5% typical       |
| Thermal Shock      | MIL-STD-202, Method 107G<br>+85°C/-40°C, 20 times | -30% typical      |
| Solvent Resistance | MIL-STD-202, Method 215                           | No change         |
| Vibration          | ML-STD-883C, Test Condition A                     | No change         |

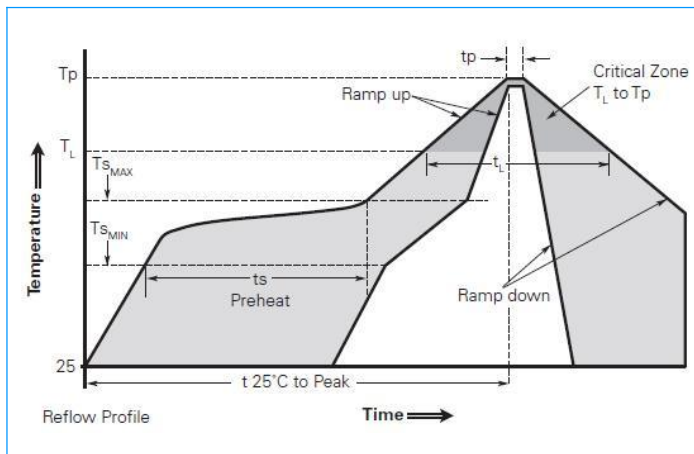
#### Thermal Derating Chart - I<sub>H</sub> (A)

| Model          | Maximum ambient operating temperature (°C) |      |      |      |      |      |      |      |      |
|----------------|--------------------------------------------|------|------|------|------|------|------|------|------|
|                | -40                                        | -20  | 0    | 25   | 40   | 50   | 60   | 70   | 85   |
| SCF050-0603RZB | 0.66                                       | 0.57 | 0.53 | 0.50 | 0.41 | 0.36 | 0.34 | 0.29 | 0.20 |
| SCF075-0603RZB | 0.99                                       | 0.86 | 0.79 | 0.75 | 0.62 | 0.54 | 0.51 | 0.43 | 0.30 |
| SCF100-0603RZB | 1.31                                       | 1.14 | 1.06 | 1.00 | 0.83 | 0.71 | 0.69 | 0.57 | 0.40 |
| SCF125-0603RZB | 1.64                                       | 1.43 | 1.32 | 1.25 | 1.04 | 0.89 | 0.86 | 0.71 | 0.50 |
| SCF150-0603RZB | 1.97                                       | 1.71 | 1.59 | 1.50 | 1.24 | 1.07 | 1.03 | 0.86 | 0.60 |
| SCF175-0603RZB | 2.30                                       | 2.00 | 1.85 | 1.75 | 1.45 | 1.25 | 1.20 | 1.00 | 0.70 |
| SCF200-0603RZB | 2.63                                       | 2.29 | 2.11 | 2.00 | 1.66 | 1.43 | 1.37 | 1.14 | 0.80 |
| SCF260-0603RZB | 3.42                                       | 2.97 | 2.75 | 2.60 | 2.15 | 1.86 | 1.78 | 1.49 | 1.04 |
| SCF300-0603RZB | 3.94                                       | 3.43 | 3.17 | 3.00 | 2.49 | 2.14 | 2.06 | 1.71 | 1.20 |

# Surface Mount Resettable PTCs

## SCF0603RZB Series

### Soldering Parameters



| Profile Feature                                                                                                    | Pb-Free Assembly                 |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Average Ramp-Up Rate ( $T_s$ max to $T_P$ )                                                                        | 3°C/second max.                  |
| Preheat :<br>Temperature Min ( $T_{smin}$ )<br>Temperature Max ( $T_{smax}$ )<br>Time ( $T_{smin}$ to $T_{smax}$ ) | 150°C<br>200°C<br>60-120 seconds |
| Time maintained above:<br>Temperature( $T_L$ )<br>Time ( $T_L$ )                                                   | 217°C<br>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.

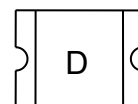
Note 1: All temperature refer to topside of the package, measured on the package body surface.

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

### Part Numbering

**SCF XXX - 0603 RZB**

Internal Code  
Device Size Code  
Hold Current  
Socay Product Code

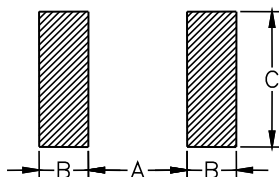


Example

D= SCF050-0603RZB  
D= SCF075-0603RZB  
B= SCF100-0603RZB  
B= SCF125-0603RZB  
C= SCF150-0603RZB  
C= SCF175-0603RZB  
C= SCF200-0603RZB  
E= SCF260-0603RZB  
E= SCF300-0603RZB

### Recommended Solder Pad Layout Dimensions (Unit: mm)

The dimension in the table below provide the recommended pad layout for each SCF0603RZB device

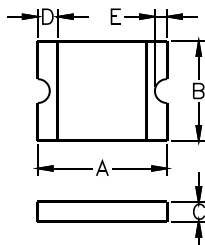


| Device      | A       | B       | C       |
|-------------|---------|---------|---------|
|             | Nominal | Nominal | Nominal |
| 0603 Series | 0.80    | 1.00    | 1.00    |

# Surface Mount Resettable PTCs

## SCF0603RZB Series

### Product Dimensions (Unit: mm)



| Part Number    | A    |      | B    |      | C    |      | D    | E    |
|----------------|------|------|------|------|------|------|------|------|
|                | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Min. |
| SCF050-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.3  | 0.7  | 0.15 | 0.1  |
| SCF075-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.3  | 0.7  | 0.15 | 0.1  |
| SCF100-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.4  | 1.0  | 0.15 | 0.1  |
| SCF125-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.4  | 1.0  | 0.15 | 0.1  |
| SCF150-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.5  | 1.2  | 0.15 | 0.1  |
| SCF175-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.5  | 1.2  | 0.15 | 0.1  |
| SCF200-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.7  | 1.4  | 0.15 | 0.1  |
| SCF260-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.7  | 1.4  | 0.15 | 0.1  |
| SCF300-0603RZB | 1.45 | 1.85 | 0.65 | 1.05 | 0.7  | 1.4  | 0.15 | 0.1  |

### Packaging Quantity

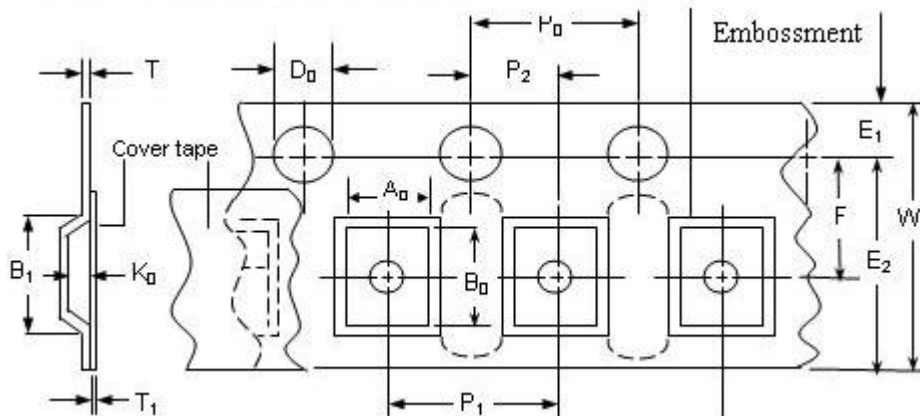
| Part Number    | Quantity | Part Number    | Quantity |
|----------------|----------|----------------|----------|
| SCF050-0603RZB | 5000 PCS | SCF175-0603RZB | 4000 PCS |
| SCF075-0603RZB | 5000 PCS | SCF200-0603RZB | 4000 PCS |
| SCF100-0603RZB | 5000 PCS | SCF260-0603RZB | 4000 PCS |
| SCF125-0603RZB | 5000 PCS | SCF300-0603RZB | 4000 PCS |
| SCF150-0603RZB | 4000 PCS | --             | --       |

## Surface Mount Resettable PTCs

### SCF0603RZB Series

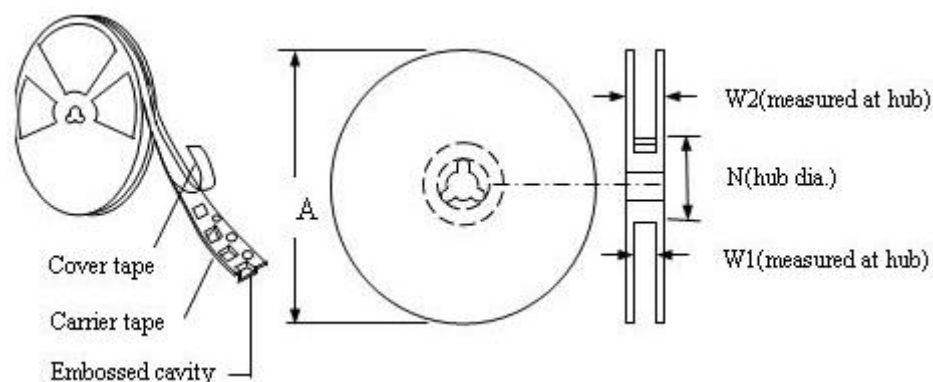
#### Tape Specifications and Reel Specifications (Unit: mm)

##### EIA Tape Component Dimensions



| Symbol               | Dimensions |
|----------------------|------------|
| <b>W</b>             | 8.00± 0.10 |
| <b>P<sub>0</sub></b> | 4.0±0.10   |
| <b>P<sub>1</sub></b> | 4.0±0.10   |
| <b>P<sub>2</sub></b> | 2.0±0.05   |
| <b>A<sub>0</sub></b> | 0.95±0.10  |
| <b>B<sub>0</sub></b> | 1.85±0.05  |
| <b>D<sub>0</sub></b> | 1.55±0.05  |
| <b>F</b>             | 3.50±0.05  |
| <b>E<sub>1</sub></b> | 1.75±0.10  |
| <b>T</b>             | 0.20±0.02  |
| <b>Leader min.</b>   | 390        |
| <b>Trailer min.</b>  | 160        |

##### EIA Reel Dimensions



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

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