

# SMD0805-050

## Performance Specification

| Model       | Marking | V <sub>max</sub><br>(Vdc) | I <sub>max</sub><br>(A) | I <sub>hold</sub><br>@25°C<br>(A) | I <sub>trip</sub><br>@25°C<br>(A) | P <sub>d</sub><br>Typ.<br>(W) | Maximum Time To Trip |               | Resistance                |                           | Agency Approval |     |
|-------------|---------|---------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------------|----------------------|---------------|---------------------------|---------------------------|-----------------|-----|
|             |         |                           |                         |                                   |                                   |                               | Current<br>(A)       | Time<br>(Sec) | R <sub>i min</sub><br>(Ω) | R <sub>1 max</sub><br>(Ω) | UL              | TUV |
| SMD0805-050 | 5       | 6.0                       | 100                     | 0.50                              | 1.00                              | 0.5                           | 8.0                  | 0.10          | 0.150                     | 0.850                     | ✓               |     |

**I<sub>hold</sub>** = Hold Current. Maximum current device will not trip in 25°C still air.  
**I<sub>trip</sub>** = Trip Current. Minimum current at which the device will always trip in 25°C still air.  
**V<sub>max</sub>** = Maximum operating voltage device can withstand without damage at rated current (I<sub>max</sub>).  
**I<sub>max</sub>** = Maximum fault current device can withstand without damage at rated voltage (V<sub>max</sub>).  
**P<sub>d</sub>** = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.  
**R<sub>imin/max</sub>** = Minimum/Maximum device resistance prior to tripping at 25°C.  
**R<sub>1max</sub>** = Maximum device resistance is measured one hour post reflow.  
**CAUTION** : Operation beyond the specified ratings may result in damage and possible arcing and flame.

## Environmental Specifications

| Test   | Conditions                  | Resistance change |
|--|-----------------------------|-------------------|
| Passive aging  | +85°C, 1000 hrs.            | ±5% typical       |
| Humidity aging   | +85°C, 85% R.H. , 168 hours | ±5% typical       |
| Thermal shock  | +85°C to -40°C, 20 times    | ±33% typical      |
| Resistance to solvent  | MIL-STD-202,Method 215      | No change         |
| Vibration  | MIL-STD-202,Method 201      | No change         |
| Ambient operating conditions : - 40 °C to +85 °C                         |                             |                   |
| Maximum surface temperature of the device in the tripped state is 125 °C |                             |                   |

### Agency Approvals :



E201504(Alpha-Top)/E319079

### Regulation/Standard:



2002/95/EC



EN14582

## I<sub>hold</sub> Versus Temperature

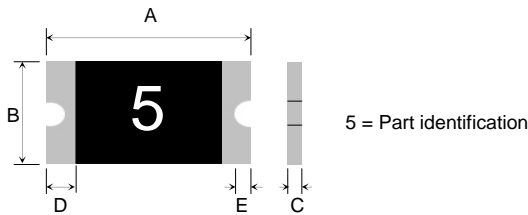
| Model       | Maximum ambient operating temperature (T <sub>mao</sub> ) vs. hold current (I <sub>hold</sub> ) |       |      |      |      |      |      |      |      |
|-------------|---|-------|------|------|------|------|------|------|------|
|             | -40°C   | -20°C | 0°C  | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| SMD0805-050 | 0.68  | 0.62  | 0.55 | 0.50 | 0.40 | 0.37 | 0.33 | 0.29 | 0.23 |

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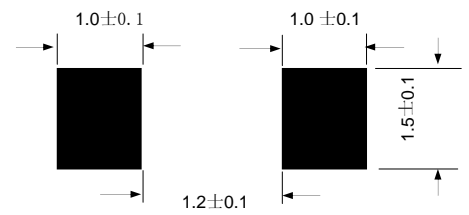
## Construction And Dimension (Unit:mm)

| Model       | A    |      | B    |      | C    |      | D    |      | E    |
|-------------|------|------|------|------|------|------|------|------|------|
|             | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. |
| SMD0805-050 | 2.00 | 2.20 | 1.20 | 1.50 | 0.30 | 0.60 | 0.20 | 0.20 | 0.10 |

### Dimensions & Marking



### Recommended Pad Layout (mm)



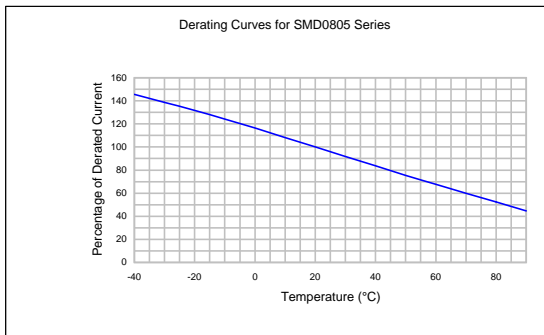
### Termination Pad Characteristics

Terminal pad materials : Tin-plated Nickel-Copper  
 Terminal pad solderability : Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3.

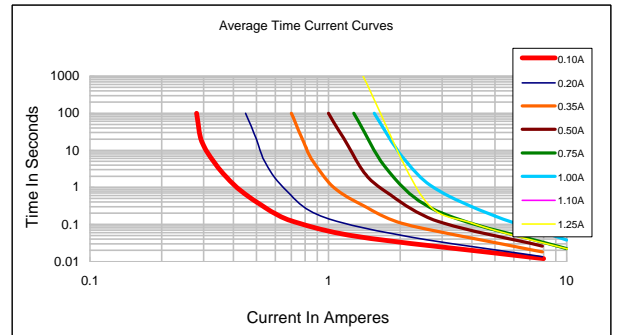
### Rework

Use standard industry practices, the removal device must be replaced with a fresh one.

### Thermal Derating Curve



### Typical Time-To-Trip At 25°C

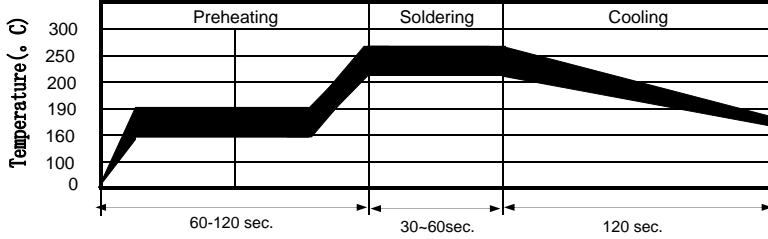


## WARNING:

- Use PPTC beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- PPTC are intended for protection against occasional over current or over temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- Use PPTC with a large inductance in circuit will generate a circuit voltage (L di/dt) above the rated voltage of the PPTC.
- Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices. PPTC SMD can be cleaned by standard methods.
- Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profile could negatively impact solderability performance of our devices.

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## Recommended Solder Reflow Conditions

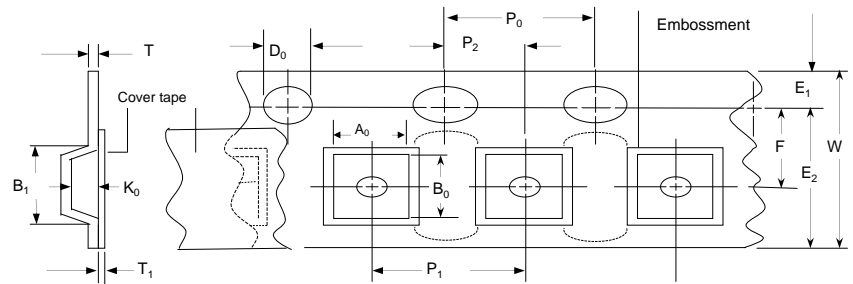


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
  - Devices are not designed to be wave soldered to the bottom side of the board.
  - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
  - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

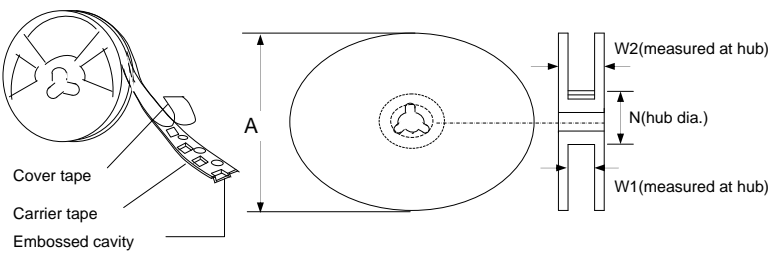
## Tape And Reel Specifications (mm)

| Governing Specifications | EIA 481-1      |
|--------------------------|----------------|
| W                        | 8.0 ± 0.3      |
| P0                       | 4.0 ± 0.10     |
| P1                       | 4.0 ± 0.10     |
| P2                       | 2.0 ± 0.05     |
| A0                       | 1.45 ± 0.10    |
| B0                       | 2.30 ± 0.10    |
| B1max.                   | 4.35           |
| D0                       | 1.55 + 0.1, -0 |
| F                        | 3.5 ± 0.05     |
| E1                       | 1.75 ± 0.10    |
| E2min.                   | 6.25           |
| T                        | 0.25           |
| T1max.                   | 0.1            |
| K0                       | 0.74 ± 0.1     |
| Leader min.              | 390            |
| Trailer min.             | 160            |
| <b>Reel Dimensions</b>   |                |
| A max.                   | 178            |
| N min.                   | 60             |
| W1                       | 9.0 ± 0.5      |
| W2                       | 12.0 ± 0.05    |

## EIA Tape Component Dimensions



## EIA Reel Dimensions



## Storage And Handling

- Storage conditions : 40°C max, 70% R.H.
- Devices may not meet specified performance if storage conditions are exceeded.

## Order Information

## Packaging

| SMD0805                   | 050          | Tape & Reel Quantity |
|---------------------------|--------------|----------------------|
| Product name              | Hold Current | 5,000 pcs/reel       |
| Size 2012 mm / 0805 inch  | 0.50A        |                      |
| SMD: surface mount device |              |                      |