

➤ Features

- Size 0.08*0.05 inch /2.0*1.2 mm
- RoHS compliant, lead-free and halogen-free
- Fast response to fault current
- Low resistance
- Low-profile
- Compatible with high temperature solders

➤ Applications

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

➤ Electrical Characteristics (25°C)

| Part Number | I_{hold} | I_{trip} | V_{max} | I_{max} | P_d | Time to trip | | R_{min} | $R_{I_{max}}$ |
|------------------|------------|------------|-----------|-----------|-------|--------------|------|--------------|---------------|
| | (A) | (A) | (V) | (A) | (W) | (A) | (S) | (Ω) | (Ω) |
| BSMD0805-002-60V | 0.02 | 0.06 | 60 | 40 | 0.5 | 0.1 | 1.50 | 12.00 | 70.00 |
| BSMD0805-005-15V | 0.05 | 0.15 | 15 | 40 | 0.5 | 0.5 | 1.50 | 1.500 | 20.00 |
| BSMD0805-005-24V | 0.05 | 0.15 | 24 | 40 | 0.5 | 0.5 | 1.50 | 1.500 | 20.00 |
| BSMD0805-005-33V | 0.05 | 0.15 | 33 | 40 | 0.5 | 0.5 | 1.50 | 1.500 | 20.00 |
| BSMD0805-005-60V | 0.05 | 0.15 | 60 | 40 | 0.5 | 0.5 | 1.50 | 1.500 | 20.00 |
| BSMD0805-010-12V | 0.10 | 0.30 | 12 | 40 | 0.5 | 0.5 | 1.50 | 0.750 | 6.000 |
| BSMD0805-010-15V | 0.10 | 0.30 | 15 | 40 | 0.5 | 0.5 | 1.50 | 0.750 | 6.000 |
| BSMD0805-010-24V | 0.10 | 0.30 | 24 | 40 | 0.5 | 0.5 | 1.50 | 0.750 | 6.000 |
| BSMD0805-010-33V | 0.10 | 0.30 | 33 | 40 | 0.5 | 0.5 | 1.50 | 0.750 | 6.000 |
| BSMD0805-020-9V | 0.20 | 0.50 | 9 | 40 | 0.5 | 8 | 0.02 | 0.500 | 3.500 |
| BSMD0805-020-15V | 0.20 | 0.50 | 15 | 40 | 0.5 | 8 | 0.02 | 0.500 | 3.500 |
| BSMD0805-020-24V | 0.20 | 0.50 | 24 | 40 | 0.5 | 8 | 0.02 | 0.500 | 3.500 |
| BSMD0805-020-30V | 0.20 | 0.50 | 30 | 40 | 0.5 | 8 | 0.02 | 0.500 | 3.500 |
| BSMD0805-035-6V | 0.35 | 0.75 | 6 | 40 | 0.5 | 8 | 0.10 | 0.200 | 1.200 |
| BSMD0805-035-12V | 0.35 | 0.75 | 12 | 40 | 0.5 | 8 | 0.10 | 0.200 | 1.200 |
| BSMD0805-035-16V | 0.35 | 0.75 | 16 | 40 | 0.5 | 8 | 0.10 | 0.200 | 1.200 |
| BSMD0805-035-24V | 0.35 | 0.75 | 24 | 40 | 0.5 | 8 | 0.10 | 0.200 | 1.200 |
| BSMD0805-050-6V | 0.50 | 1.00 | 6 | 40 | 0.5 | 8 | 0.10 | 0.100 | 0.850 |
| BSMD0805-050-12V | 0.50 | 1.00 | 12 | 40 | 0.5 | 8 | 0.10 | 0.100 | 0.850 |
| BSMD0805-050-15V | 0.50 | 1.00 | 15 | 40 | 0.5 | 8 | 0.10 | 0.100 | 0.850 |
| BSMD0805-050-24V | 0.50 | 1.00 | 24 | 40 | 0.5 | 8 | 0.10 | 0.100 | 0.850 |

| Part Number | I_{hold} | I_{trip} | V_{max} | I_{max} | P_d | Time to trip | | R_{min} | $R_{I_{max}}$ |
|------------------|------------|------------|-----------|-----------|-------|--------------|------|--------------|---------------|
| | (A) | (A) | (V) | (A) | (W) | (A) | (S) | (Ω) | (Ω) |
| BSMD0805-075-6V | 0.75 | 1.50 | 6 | 40 | 0.5 | 8 | 0.20 | 0.070 | 0.385 |
| BSMD0805-075-12V | 0.75 | 1.50 | 12 | 40 | 0.5 | 8 | 0.20 | 0.070 | 0.385 |
| BSMD0805-075-16V | 0.75 | 1.50 | 16 | 40 | 0.5 | 8 | 0.20 | 0.070 | 0.385 |
| BSMD0805-100-6V | 1.00 | 2.00 | 6 | 40 | 0.5 | 8 | 0.30 | 0.040 | 0.270 |
| BSMD0805-100-12V | 1.00 | 2.00 | 12 | 40 | 0.5 | 8 | 0.30 | 0.040 | 0.270 |
| BSMD0805-110-6V | 1.10 | 2.20 | 6 | 40 | 0.5 | 8 | 0.30 | 0.035 | 0.230 |
| BSMD0805-110-12V | 1.10 | 2.20 | 12 | 40 | 0.5 | 8 | 0.30 | 0.035 | 0.230 |
| BSMD0805-125-6V | 1.25 | 2.50 | 6 | 40 | 1.0 | 8 | 1.00 | 0.007 | 0.060 |

I_{hold} = Hold current: maximum current device will pass without tripping in 25°C still air.

I_{trip} = Trip current: minimum current at which the device will trip in 25°C still air.

V_{max} = Maximum 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})

$P_{d\ typ.}$ = Typical power dissipated from device when in the tripped state at 25°C still air.

R_{min} = Minimum resistance of device in initial (un-soldered) state.

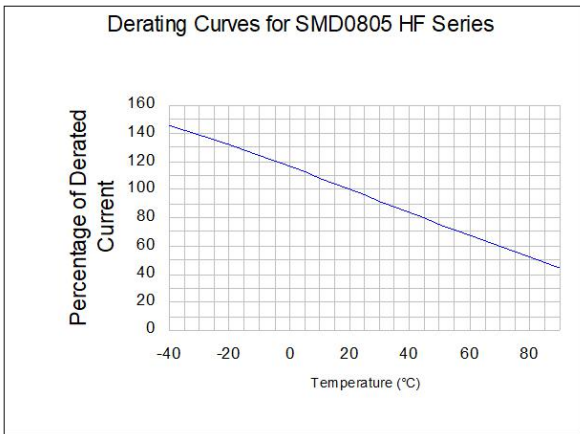
$R_{I_{max}}$ = Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

Caution: Operation beyond the specified ratings may result in damage and possible arcing and flame.

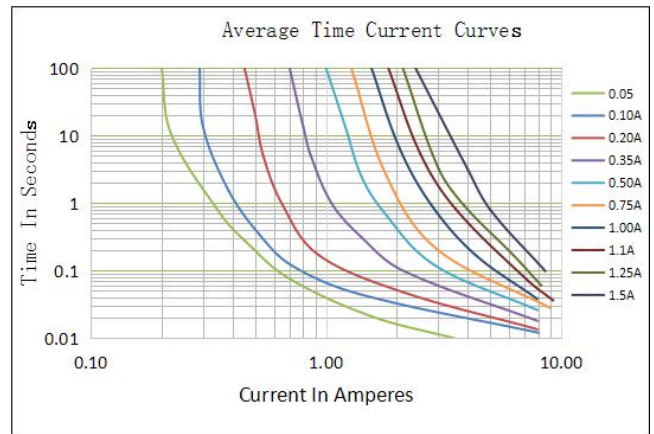
➤ WARNING

- Users shall independently assess the suitability of these devices for each of their applications.
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire.
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration.
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices.
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses.
- Circuits with inductance may generate a voltage ($L\ di/dt$) above the rated voltage of the PPTC device.

➤ Thermal Derating Curve



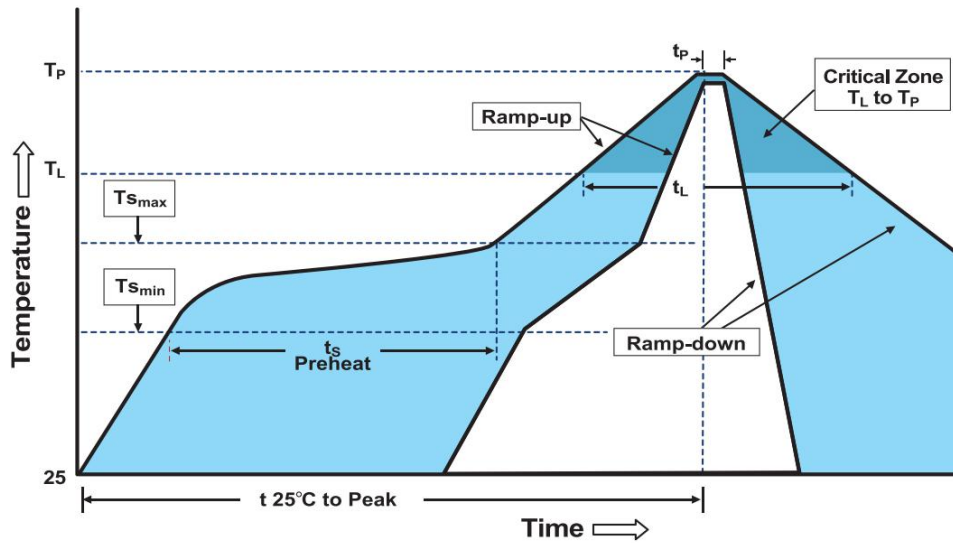
➤ Typical Time-to-Trip At 25°C



➤ Thermal Derating Chart

| Part Number | Ambient operating temperature hold current(I_{hold}) | | | | | | | | |
|--------------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| | -40°C | -20°C | 0°C | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| BSMD0805-002 | 0.030 | 0.027 | 0.024 | 0.020 | 0.017 | 0.016 | 0.014 | 0.012 | 0.010 |
| BSMD0805-005 | 0.070 | 0.060 | 0.055 | 0.050 | 0.040 | 0.035 | 0.030 | 0.025 | 0.015 |
| BSMD0805-010 | 0.14 | 0.12 | 0.11 | 0.10 | 0.08 | 0.07 | 0.06 | 0.05 | 0.03 |
| BSMD0805-020 | 0.28 | 0.25 | 0.23 | 0.20 | 0.17 | 0.14 | 0.12 | 0.10 | 0.07 |
| BSMD0805-035 | 0.47 | 0.44 | 0.39 | 0.35 | 0.30 | 0.27 | 0.24 | 0.20 | 0.14 |
| BSMD0805-050 | 0.68 | 0.62 | 0.55 | 0.50 | 0.40 | 0.37 | 0.33 | 0.29 | 0.23 |
| BSMD0805-075 | 1.00 | 0.90 | 0.79 | 0.75 | 0.63 | 0.57 | 0.53 | 0.41 | 0.34 |
| BSMD0805-100 | 1.35 | 1.25 | 1.15 | 1.00 | 0.82 | 0.74 | 0.65 | 0.55 | 0.42 |
| BSMD0805-110 | 1.45 | 1.35 | 1.20 | 1.10 | 0.92 | 0.84 | 0.75 | 0.65 | 0.52 |
| BSMD0805-125 | 1.65 | 1.53 | 1.36 | 1.25 | 1.05 | 0.95 | 0.85 | 0.74 | 0.59 |

➤ Soldering Parameters



| | |
|--|--------------------|
| Profile Feature | Pb-Free Assembly |
| Average Ramp-Up Rate(Ts_{max} to T_p) | 3°C/second max |
| Preheat | |
| -Temperature Min(Ts _{min}) | 150°C |
| -Temperature Max(Ts _{max}) | 200°C |
| -Time(Ts _{min} to Ts _{max}) | 60~180 seconds |
| Time maintained above: | |
| -Temperature(T _L) | 217°C |
| -Time(t _L) | 60~150 seconds |
| Peak Temperature(T_p) | 260°C |
| Ramp-Down Rate | 6°C/second max |
| Time 25°C to Peak Temperature | 8 minutes max |
| Storage Condition | 0°C~30°C,30%-60%RH |

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm.
- Devices can be cleaned using standard industry methods and solvents.

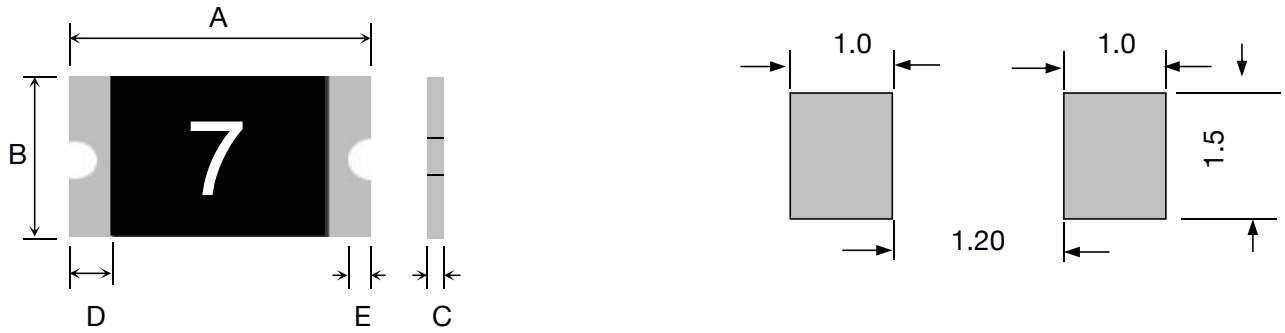
Note 1: All temperature refer to topside of the package, measured on the package body surface.

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

➤ Environmental Specifications

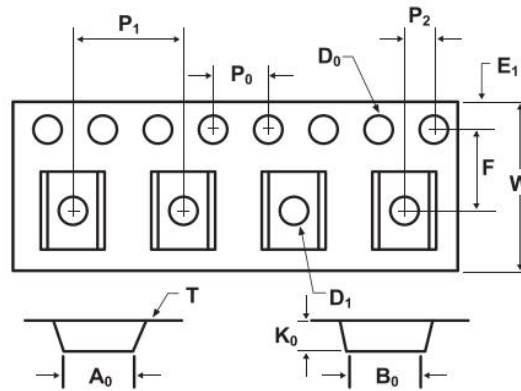
| Test | Conditions | Resistance change |
|---|-----------------------------|-------------------|
| Passive aging | +85°C, 1000 hrs. | ±5% typical |
| Humidity aging | +85°C, 85% R.H. , 168 hours | ±5% typical |
| Thermal shock | +85°C to -40°C, 20 times | ±33% typical |
| Resistance to solvent | MIL-STD-202,Method 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 | | |

➤ Physical Dimensions & Recommended Pad Layout (mm)



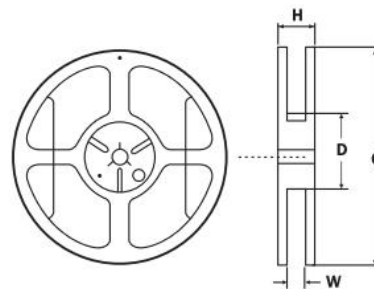
| Part Number | Marking | Quantity | A | | B | | C | | D | E |
|------------------|---------|----------|------|------|------|------|------|------|------|------|
| | | | Min | Max | Min | Max | Min | Max | Min | Min |
| BSMD0805-002-60V | Y | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-005-15V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-005-24V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-005-33V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-005-60V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-010-12V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-010-15V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-010-24V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-010-33V | 1 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-020-9V | 2 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-020-15V | 2 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-020-24V | 2 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-020-30V | 2 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.40 | 0.90 | 0.20 | 0.10 |
| BSMD0805-035-6V | 3 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-035-12V | 3 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-035-16V | 3 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-035-24V | 3 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-050-6V | 5 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-050-12V | 5 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-050-15V | 5 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-050-24V | 5 | 5000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-075-6V | 7 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-075-12V | 7 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-075-16V | 7 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.50 | 1.10 | 0.20 | 0.10 |
| BSMD0805-100-6V | 0 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.70 | 1.20 | 0.20 | 0.10 |
| BSMD0805-100-12V | 0 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.70 | 1.20 | 0.20 | 0.10 |
| BSMD0805-110-6V | 0 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.70 | 1.20 | 0.20 | 0.10 |
| BSMD0805-110-12V | 0 | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 0.70 | 1.20 | 0.20 | 0.10 |
| BSMD0805-125-6V | | 4000 | 2.00 | 2.20 | 1.20 | 1.50 | 1.00 | 1.50 | 0.20 | 0.10 |

➤ Tape And Reel Specifications (mm)



| Governing Specifications | BSMD0805-005-33V~ BSMD0805-020-33V | BSMD0805-035-33V~ BSMD0805-075-12V | BSMD0805-100-12V~ BSMD0805-150-6V |
|--------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
| W | 8.0 ± 0.3 | 8.0 ± 0.3 | 8.0 ± 0.3 |
| F | 3.5 ± 0.05 | 3.5 ± 0.05 | 3.5 ± 0.05 |
| E1 | 1.75 ± 0.1 | 1.75 ± 0.1 | 1.75 ± 0.1 |
| D0 | 1.55 ± 0.05 | 1.55 ± 0.05 | 1.55 ± 0.05 |
| D1 | 1.0 ± 0.1 | 1.0 ± 0.1 | 1.0 ± 0.1 |
| P0 | 4.0 ± 0.1 | 4.0 ± 0.1 | 4.0 ± 0.1 |
| P1 | 4.0 ± 0.1 | 4.0 ± 0.1 | 4.0 ± 0.1 |
| P2 | 2.0 ± 0.05 | 2.0 ± 0.05 | 2.0 ± 0.05 |
| A0 | 1.6 ± 0.1 | 1.6 ± 0.1 | 1.6 ± 0.1 |
| B0 | 2.3 ± 0.1 | 2.3 ± 0.1 | 2.3 ± 0.1 |
| T | 0.2 ± 0.1 | 0.2 ± 0.1 | 0.2 ± 0.1 |
| K0 | 0.74 ± 0.1 | 1.04 ± 0.1 | 1.35 ± 0.1 |
| Leader _{min} | 390 | 390 | 390 |
| Trailer _{min} | 160 | 160 | 160 |

| Reel Dimensions | |
|-----------------|-------------|
| C | φ178 ± 1.0 |
| D | φ60.2 ± 0.5 |
| H | 11.0 ± 0.5 |
| W | 9.0 ± 1.5 |



➤ Contact information

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