

➤ Features

- Size 0.06*0.03 inch /1.5*0.8 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_{1max} |
|---------------|------------|------------|-----------|-----------|-------|--------------|-------|--------------|--------------|
| | (A) | (A) | (V) | (A) | (W) | (A) | (Sec) | (Ω) | (Ω) |
| BSMD0603L-050 | 0.50 | 1.0 | 6.0 | 50 | 1.0 | 5.0 | 0.5 | 0.020 | 0.150 |
| BSMD0603L-100 | 1.00 | 2.0 | 6.0 | 50 | 1.0 | 8.0 | 0.5 | 0.009 | 0.080 |
| BSMD0603L-110 | 1.10 | 2.2 | 6.0 | 50 | 1.0 | 8.0 | 0.5 | 0.008 | 0.075 |
| BSMD0603L-150 | 1.50 | 3.0 | 6.0 | 50 | 1.0 | 8.0 | 0.5 | 0.005 | 0.055 |
| BSMD0603L-200 | 2.00 | 4.0 | 6.0 | 50 | 1.0 | 8.0 | 5.0 | 0.004 | 0.045 |
| BSMD0603L-250 | 2.50 | 5.0 | 6.0 | 50 | 1.0 | 8.0 | 5.0 | 0.003 | 0.035 |
| BSMD0603L-300 | 3.00 | 6.0 | 6.0 | 50 | 1.2 | 12.0 | 5.0 | 0.002 | 0.030 |

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_{1max} = 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.

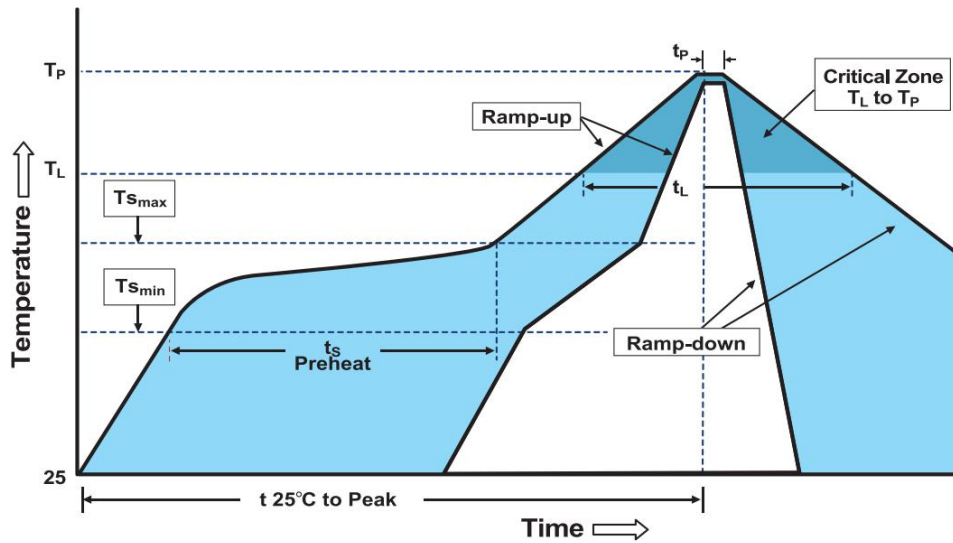
➤ WARNING

- 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 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 |
| BSMD0603L-050 | 1.0 | 0.8 | 0.6 | 0.5 | 0.45 | 0.4 | 0.3 | 0.2 |
| BSMD0603L-100 | 1.6 | 1.3 | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 |
| BSMD0603L-110 | 1.7 | 1.4 | 1.2 | 1.1 | 0.9 | 0.8 | 0.7 | 0.6 |
| BSMD0603L-150 | 2.3 | 2.0 | 1.7 | 1.5 | 1.4 | 1.1 | 1.0 | 0.9 |
| BSMD0603L-200 | 3.0 | 2.6 | 2.2 | 2.0 | 1.8 | 1.4 | 1.3 | 1.2 |
| BSMD0603L-250 | 3.9 | 3.4 | 2.9 | 2.6 | 2.3 | 1.8 | 1.7 | 1.6 |
| BSMD0603L-300 | 4.5 | 3.9 | 3.3 | 3.0 | 2.7 | 2.1 | 2.0 | 1.8 |

➤ 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.

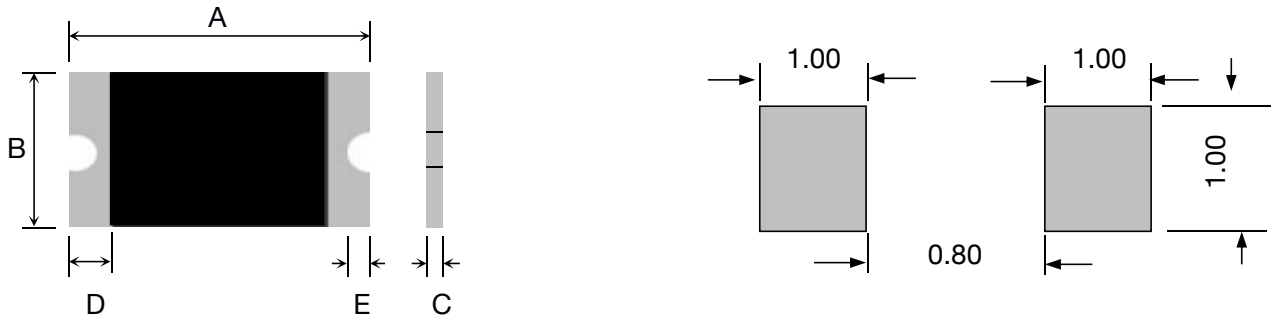
Note 1: All temperature refer to topside of the package, measured on the package body surface.

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

➤ Environmental Specifications

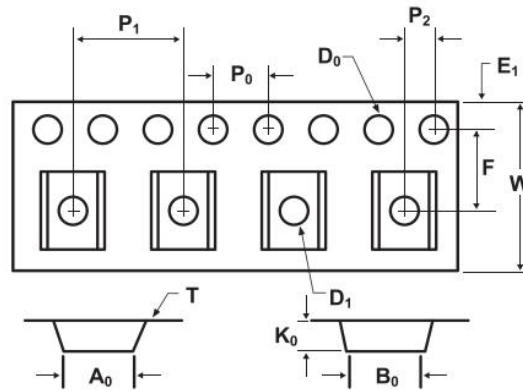
| Test | Conditions | Resistance change |
|---|-----------------------------|-------------------|
| Passive aging | +85°C, 1000 hrs. | ±5% typical |
| Humidity aging | +85°C, 85% R.H. , 168 hours | ±5% typical |
| Thermal shock | +85°C to -40°C, 20 times | ±33% typical |
| Resistance to solvent | MIL-STD-202,Method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



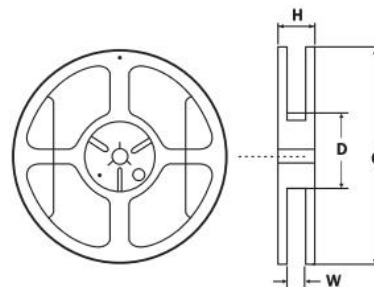
| Part Number | Quantity | A | | B | | C | | D | E |
|---------------|----------|-----|------|-----|------|-----|-----|------|------|
| | | Min | Max | Min | Max | Min | Max | Min | Min |
| BSMD0603L-050 | 4000 | -- | 1.90 | -- | 1.00 | -- | 0.8 | 0.20 | 0.10 |
| BSMD0603L-100 | 4000 | -- | 1.90 | -- | 1.00 | -- | 0.8 | 0.20 | 0.10 |
| BSMD0603L-110 | 4000 | -- | 1.90 | -- | 1.00 | -- | 0.8 | 0.20 | 0.10 |
| BSMD0603L-150 | 4000 | -- | 1.90 | -- | 1.00 | -- | 0.8 | 0.20 | 0.10 |
| BSMD0603L-200 | 4000 | -- | 1.90 | -- | 1.00 | -- | 1.0 | 0.20 | 0.10 |
| BSMD0603L-250 | 4000 | -- | 1.90 | -- | 1.00 | -- | 1.0 | 0.20 | 0.10 |
| BSMD0603L-300 | 4000 | -- | 1.90 | -- | 1.00 | -- | 1.2 | 0.20 | 0.10 |

➤ Tape And Reel Specifications (mm)



| Governing Specifications | BSMD0603L-050~ BSMD0603L-150 | BSMD0603L-200~ BSMD0603L-300 | BSMD0603L-350~ BSMD0603L-600 |
|--------------------------|---------------------------------|---------------------------------|---------------------------------|
| 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 | 1.10 ± 0.1 | 1.10 ± 0.1 | 1.10 ± 0.1 |
| B0 | 1.95 ± 0.1 | 1.95 ± 0.1 | 1.95 ± 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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