

➤ Features

- Size 0.29*0.20 inch /7.5*5.5 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 typ | Time to trip | | R_{min} | R_{1max} |
|------------------|------------|------------|--------------------|-----------|-----------|--------------|-------|-----------|------------|
| | (A) | (A) | (V _{dc}) | (A) | (W) | (A) | (Sec) | (Ω) | (Ω) |
| BSMD2920-030-60V | 0.30 | 0.60 | 60 | 40 | 1.5 | 1.5 | 3.0 | 0.600 | 4.800 |
| BSMD2920-050-60V | 0.50 | 1.00 | 60 | 40 | 1.5 | 2.5 | 4.0 | 0.180 | 1.400 |
| BSMD2920-075-33V | 0.75 | 1.50 | 33 | 40 | 1.5 | 8 | 0.3 | 0.100 | 1.000 |
| BSMD2920-075-60V | 0.75 | 1.50 | 60 | 40 | 1.5 | 8 | 0.3 | 0.100 | 1.000 |
| BSMD2920-100-33V | 1.10 | 2.20 | 33 | 40 | 1.5 | 8 | 0.5 | 0.065 | 0.410 |
| BSMD2920-100-60V | 1.10 | 2.20 | 60 | 40 | 1.5 | 8 | 0.5 | 0.065 | 0.410 |
| BSMD2920-125-33V | 1.25 | 2.50 | 33 | 40 | 1.5 | 8 | 2.0 | 0.050 | 0.250 |
| BSMD2920-150-33V | 1.50 | 3.00 | 33 | 40 | 1.5 | 8 | 2.0 | 0.035 | 0.230 |
| BSMD2920-185-33V | 1.85 | 3.70 | 33 | 40 | 1.5 | 8 | 2.5 | 0.030 | 0.150 |
| BSMD2920-200-16V | 2.00 | 4.00 | 16 | 40 | 1.5 | 8 | 4.5 | 0.020 | 0.120 |
| BSMD2920-200-24V | 2.00 | 4.00 | 24 | 40 | 1.5 | 8 | 4.5 | 0.020 | 0.120 |
| BSMD2920-200-33V | 2.00 | 4.00 | 33 | 40 | 1.5 | 8 | 4.5 | 0.020 | 0.120 |
| BSMD2920-250-16V | 2.50 | 5.00 | 16 | 40 | 1.5 | 8 | 10 | 0.020 | 0.085 |
| BSMD2920-250-24V | 2.50 | 5.00 | 24 | 40 | 1.5 | 8 | 10 | 0.020 | 0.085 |
| BSMD2920-260-6V | 2.60 | 5.20 | 6 | 40 | 1.5 | 8 | 10 | 0.014 | 0.075 |
| BSMD2920-260-16V | 2.60 | 5.20 | 16 | 40 | 1.5 | 8 | 10 | 0.014 | 0.075 |
| BSMD2920-300-6V | 3.00 | 6.00 | 6 | 40 | 1.5 | 8 | 20 | 0.012 | 0.048 |
| BSMD2920-300-16V | 3.00 | 6.00 | 16 | 40 | 1.5 | 8 | 20 | 0.012 | 0.048 |
| BSMD2920-300-24V | 3.00 | 6.00 | 24 | 40 | 1.5 | 8 | 20 | 0.012 | 0.048 |
| BSMD2920-400-6V | 4.00 | 8.00 | 6 | 40 | 1.5 | 20 | 4 | 0.008 | 0.040 |
| BSMD2920-400-16V | 4.00 | 8.00 | 16 | 40 | 1.5 | 20 | 4 | 0.008 | 0.040 |

| Part Number | I_{hold} | I_{trip} | V_{max} | I_{max} | P_d | Time to trip | | R_{min} | R_{1max} |
|------------------|------------|------------|--------------------|-----------|-------|--------------|-------|-----------|------------|
| | (A) | (A) | (V _{dc}) | (A) | (W) | (A) | (Sec) | (Ω) | (Ω) |
| BSMD2920-400-24V | 4.00 | 8.00 | 24 | 40 | 1.5 | 20 | 4 | 0.008 | 0.040 |
| BSMD2920-500-6V | 5.00 | 10.00 | 6 | 40 | 1.5 | 25 | 5 | 0.005 | 0.031 |
| BSMD2920-500-12V | 5.00 | 10.00 | 12 | 40 | 1.5 | 25 | 5 | 0.005 | 0.031 |
| BSMD2920-500-16V | 5.00 | 10.00 | 16 | 40 | 1.5 | 25 | 5 | 0.005 | 0.031 |
| BSMD2920-600-6V | 6.00 | 12.00 | 6 | 40 | 1.5 | 25 | 6 | 0.004 | 0.020 |
| BSMD2920-600-12V | 6.00 | 12.00 | 12 | 40 | 1.5 | 25 | 6 | 0.004 | 0.020 |
| BSMD2920-600-16V | 6.00 | 12.00 | 16 | 40 | 1.5 | 25 | 6 | 0.004 | 0.020 |
| BSMD2920-700-6V | 7.00 | 14.00 | 6 | 40 | 1.5 | 25 | 6 | 0.0025 | 0.010 |
| BSMD2920-700-12V | 7.00 | 14.00 | 12 | 40 | 1.5 | 25 | 6 | 0.0025 | 0.010 |

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.

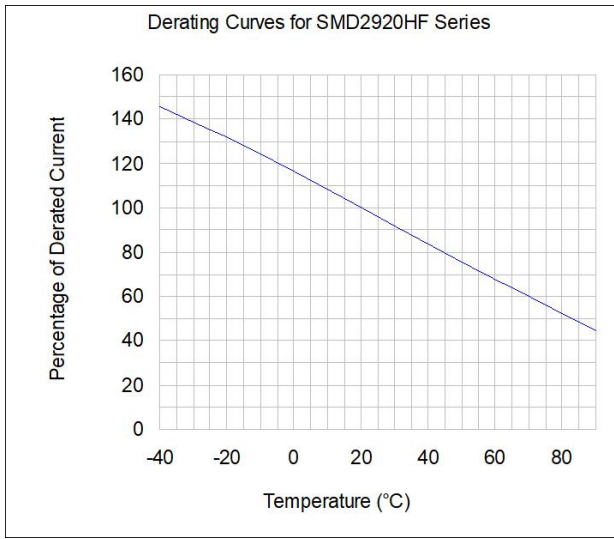
R_{1max} = Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

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

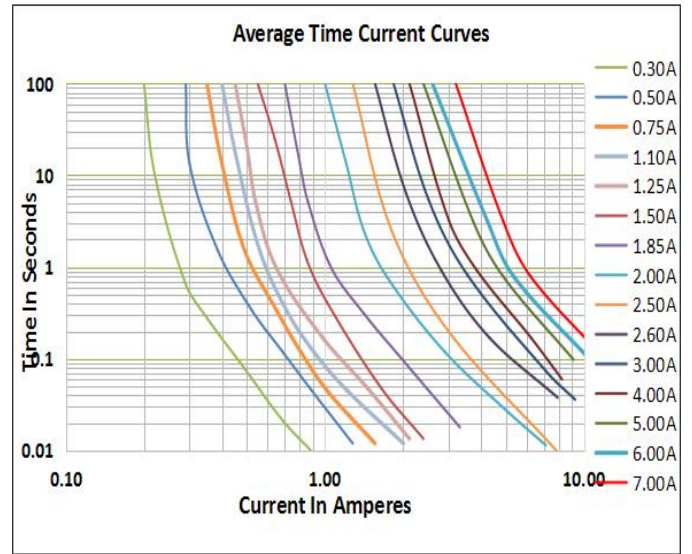
➤ WARNING

- 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 prolonged 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 |
| BSMD2920-030 | 0.45 | 0.40 | 0.35 | 0.30 | 0.25 | 0.23 | 0.20 | 0.17 | 0.14 |
| BSMD2920-050 | 0.76 | 0.67 | 0.59 | 0.50 | 0.42 | 0.38 | 0.33 | 0.29 | 0.23 |
| BSMD2920-075 | 1.13 | 1.01 | 0.88 | 0.75 | 0.62 | 0.56 | 0.50 | 0.44 | 0.34 |
| BSMD2920-100 | 1.66 | 1.47 | 1.29 | 1.10 | 0.91 | 0.83 | 0.73 | 0.64 | 0.50 |
| BSMD2920-125 | 1.89 | 1.68 | 1.46 | 1.25 | 1.04 | 0.94 | 0.83 | 0.73 | 0.56 |
| BSMD2920-150 | 2.27 | 2.01 | 1.76 | 1.50 | 1.25 | 1.13 | 1.00 | 0.87 | 0.74 |
| BSMD2920-185 | 2.80 | 2.47 | 2.17 | 1.85 | 1.54 | 1.39 | 1.22 | 1.07 | 0.85 |
| BSMD2920-200 | 3.02 | 2.68 | 2.34 | 2.00 | 1.66 | 1.50 | 1.32 | 1.16 | 0.90 |
| BSMD2920-250 | 3.64 | 3.25 | 2.91 | 2.50 | 2.08 | 1.88 | 1.65 | 1.45 | 1.13 |
| BSMD2920-260 | 3.78 | 3.35 | 2.93 | 2.60 | 2.26 | 2.08 | 1.95 | 1.74 | 1.18 |
| BSMD2920-300 | 4.53 | 4.02 | 3.51 | 3.00 | 2.52 | 2.26 | 1.99 | 1.79 | 1.34 |
| BSMD2920-400 | 6.04 | 5.36 | 4.68 | 4.00 | 3.36 | 3.01 | 2.65 | 2.33 | 1.79 |
| BSMD2920-500 | 7.55 | 6.70 | 5.85 | 5.00 | 4.20 | 3.77 | 3.32 | 2.92 | 2.23 |
| BSMD2920-600 | 8.60 | 7.70 | 6.80 | 6.00 | 4.95 | 4.60 | 4.06 | 3.65 | 3.15 |
| BSMD2920-700 | 10.03 | 8.98 | 7.93 | 7.00 | 5.77 | 5.36 | 4.73 | 4.26 | 3.68 |

➤ Soldering Parameters



| Profile Feature | Pb-Free Assembly |
|--|----------------------|
| Average Ramp-Up Rate($T_{s_{max}}$ to T_p) | 3°C/second max |
| Preheat | |
| -Temperature Min($T_{s_{min}}$) | 150°C |
| -Temperature Max($T_{s_{max}}$) | 200°C |
| -Time($T_{s_{min}}$ to $T_{s_{max}}$) | 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.

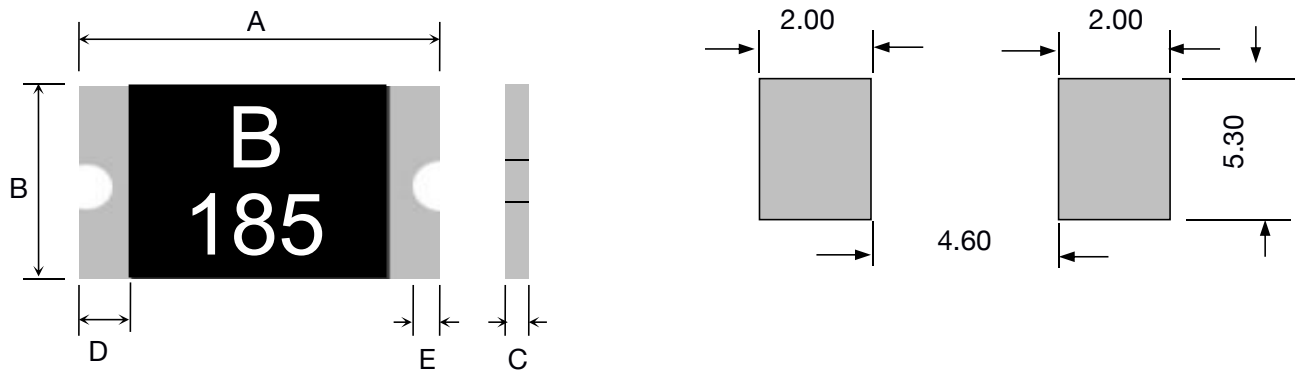
Note 1: All temperature refer to topside of the package, measured on the package body surface.

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 | | |

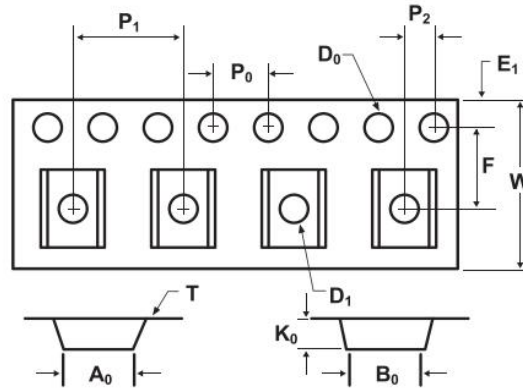
➤ Physical Dimensions & Recommended Pad Layout (mm)



| Part Number | Marking | Quantity | A | | B | | C | | D | E |
|------------------|---------|----------|------|------|------|------|------|------|------|------|
| | | | Min | Max | Min | Max | Min | Max | Min | Min |
| BSMD2920-030-60V | B030 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.20 | 0.30 | 0.25 |
| BSMD2920-050-60V | B050 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.20 | 0.30 | 0.25 |
| BSMD2920-075-33V | B075 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.30 | 0.30 | 0.25 |
| BSMD2920-075-60V | B075 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.30 | 0.30 | 0.25 |
| BSMD2920-100-33V | B100 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.00 | 0.30 | 0.25 |
| BSMD2920-100-60V | B100 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.20 | 0.30 | 0.25 |
| BSMD2920-125-33V | B125 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.00 | 0.30 | 0.25 |
| BSMD2920-150-33V | B150 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.50 | 1.30 | 0.30 | 0.25 |
| BSMD2920-185-33V | B185 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-200-16V | B200 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-200-24V | B200 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-200-33V | B200 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-250-16V | B250 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-250-24V | B250 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-260-6V | B260 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-260-16V | B260 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.70 | 1.40 | 0.30 | 0.25 |
| BSMD2920-300-6V | B300 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.20 | 0.30 | 0.25 |
| BSMD2920-300-16V | B300 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.20 | 0.30 | 0.25 |
| BSMD2920-300-24V | B300 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.60 | 0.30 | 0.25 |
| BSMD2920-400-6V | B400 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-400-16V | B400 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-400-24V | B400 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-500-6V | B500 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-500-12V | B500 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-500-16V | B500 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-600-6V | B600 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-600-12V | B600 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-600-16V | B600 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
| BSMD2920-700-6V | B700 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |

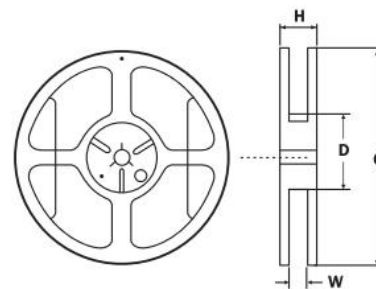
| | | | | | | | | | | |
|------------------|------|------|------|------|------|------|------|------|------|------|
| BSMD2920-700-12V | B700 | 1500 | 6.73 | 7.98 | 4.80 | 5.44 | 1.00 | 1.60 | 0.30 | 0.25 |
|------------------|------|------|------|------|------|------|------|------|------|------|

➤ **Tape And Reel Specifications (mm)**



| Governing Specifications | BSMD2920-030-60V~ BSMD2920-185-33V | BSMD2920-200-16V~ BSMD2920-700-12V |
|------------------------------|---------------------------------------|---------------------------------------|
| W | 16.0 ± 0.3 | 16.0 ± 0.3 |
| F | 7.5 ± 0.05 | 7.5 ± 0.05 |
| E1 | 1.75 ± 0.1 | 1.75 ± 0.1 |
| D0 | 1.55 ± 0.05 | 1.55 ± 0.05 |
| D1 | 1.55 _{min} | 1.55 _{min} |
| P0 | 4.0 ± 0.1 | 4.0 ± 0.1 |
| P1 | 8.0 ± 0.1 | 8.0 ± 0.1 |
| P2 | 2.0 ± 0.05 | 2.0 ± 0.05 |
| A0 | 5.74 ± 0.1 | 5.74 ± 0.1 |
| B0 | 8.02 ± 0.1 | 8.02 ± 0.1 |
| T | 0.3 ± 0.1 | 0.3 ± 0.1 |
| K0 | 1.04 ± 0.1 | 1.35 ± 0.1 |
| Leader_{min} | 390 | 390 |
| Trailer_{min} | 160 | 160 |

| Reel Dimensions | |
|-----------------|-------------|
| C | φ178 ± 1.0 |
| D | φ60.2 ± 0.5 |
| H | 16.0 ± 0.5 |
| W | 13.2 ± 1.5 |



➤ **Contact information**

SHENZHEN BHFUSE INDUSTRIAL CO., LTD

TEL: 0755-85259917 FAX: 0755-28704432

E-MAIL: sales@bhfuse.com

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