

**➤ Features**

- Size 0.20\*0.18 inch /5.0\*4.5 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 <sub>dc</sub> )	(A)	(W)	(A)	(Sec)	(Ω)	(Ω)
BSMD2018-030-60V	0.30	0.60	60	10	0.9	1.50	3.00	0.50	2.30
BSMD2018-050-60V	0.55	1.20	60	10	1.0	2.50	3.00	0.20	1.00
BSMD2018-075-60V	0.75	1.50	60	10	1.1	8.00	0.30	0.11	0.63
BSMD2018-100-15V	1.10	2.20	15	35	1.1	8.00	0.40	0.06	0.36
BSMD2018-100-33V	1.10	2.20	33	35	1.1	8.00	0.40	0.06	0.36
BSMD2018-150-15V	1.50	3.00	15	35	1.1	8.00	0.80	0.05	0.17
BSMD2018-200-10V	2.00	4.00	10	35	1.1	8.00	2.40	0.03	0.10

$I_{hold}$  = 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.

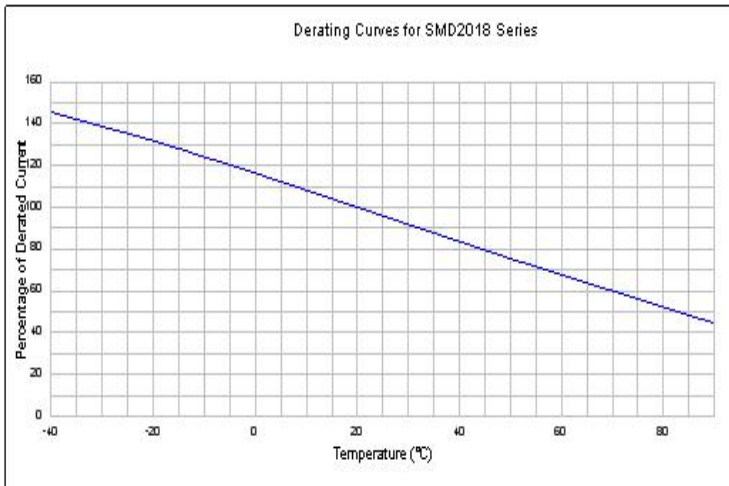
$R_{1max}$  = Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

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

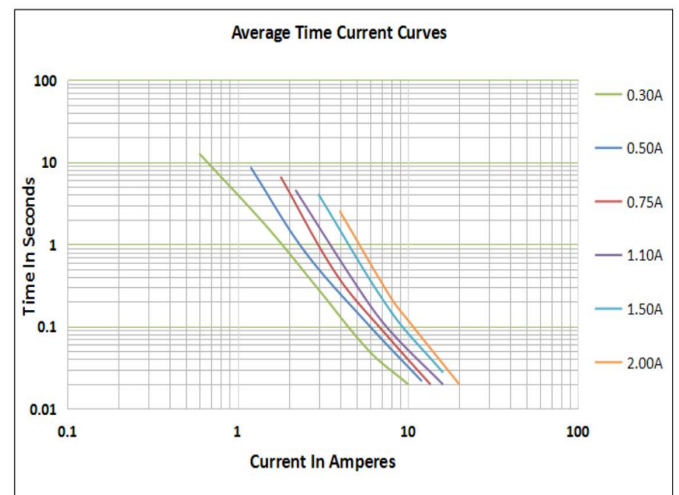
➤ **WARNING**

- 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**



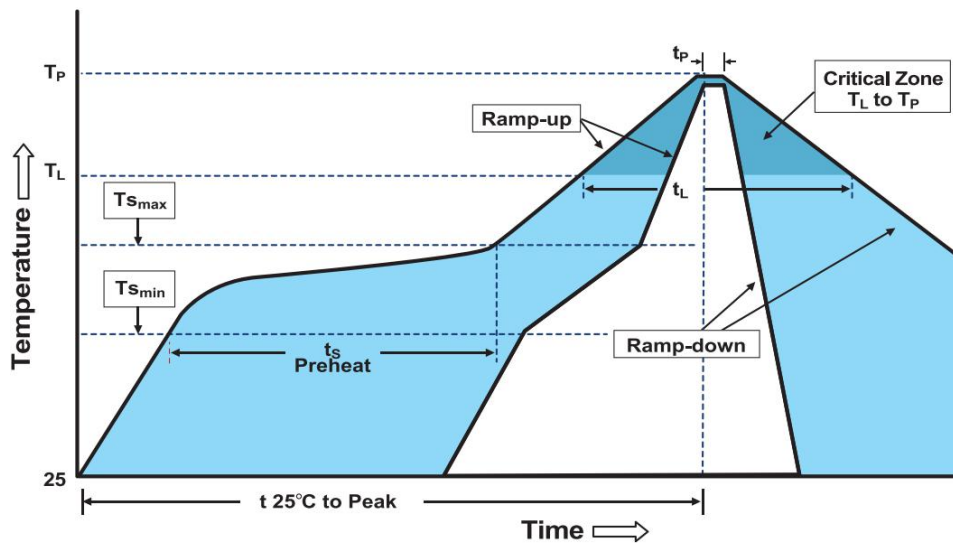
➤ **Typical Time-to-Trip At 25°C**



➤ **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
BSMD2018-030	0.48	0.42	0.35	0.30	0.24	0.21	0.17	0.15	0.10
BSMD2018-050	0.87	0.77	0.67	0.55	0.46	0.41	0.36	0.31	0.23
BSMD2018-075	1.19	1.05	0.91	0.75	0.61	0.54	0.47	0.41	0.32
BSMD2018-100	1.71	1.52	1.32	1.00	0.94	0.84	0.74	0.64	0.50
BSMD2018-150	2.38	2.10	1.82	1.50	1.27	1.13	0.99	0.85	0.64
BSMD2018-200	2.95	2.65	2.35	2.00	1.74	1.59	1.44	1.29	1.06

➤ Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate( $T_{s_{max}}$ to $T_p$ )	3°C/second max
<b>Preheat</b>	
-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
<b>Time maintained above:</b>	
-Temperature( $T_L$ )	217°C
-Time( $t_L$ )	60~150 seconds
<b>Peak Temperature(<math>T_p</math>)</b>	260°C
<b>Ramp-Down Rate</b>	6°C/second max
<b>Time 25°C to Peak Temperature</b>	8 minutes max
<b>Storage Condition</b>	0°C~30°C,30%-60%RH

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N<sub>2</sub> environment for lead-free.
- Recommended maximum paste thickness is 0.25mm.
- Devices can be cleaned using standard industry methods and solvents.

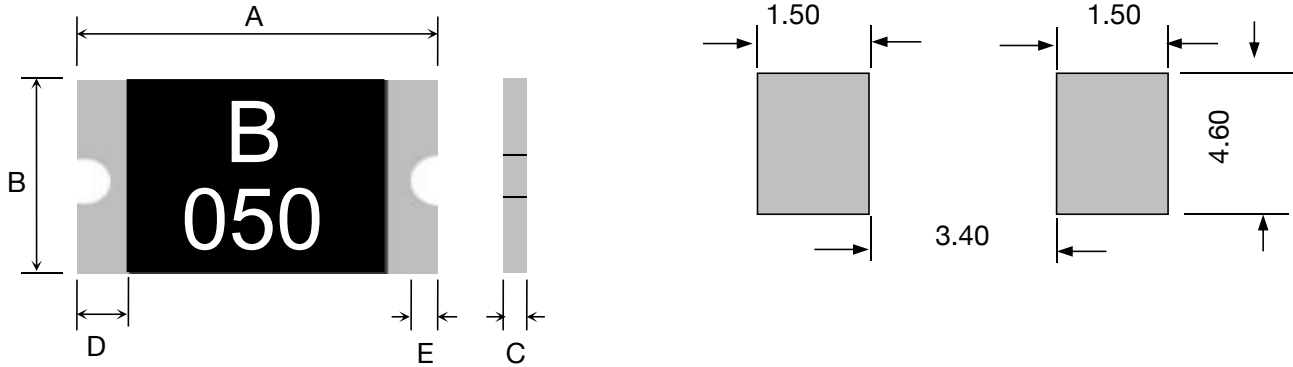
**Note 1: All temperature refer to topside of the package, measured on the package body surface.**

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

➤ Environmental Specifications

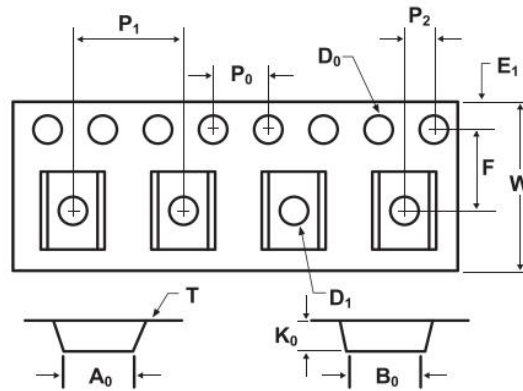
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
<b>Ambient operating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

➤ Physical Dimensions & Recommended Pad Layout (mm)



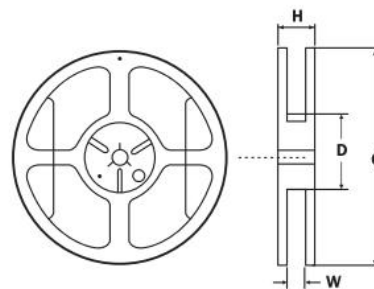
Part Number	Marking	Quantity	A		B		C		D	E
			Min	Max	Min	Max	Min	Max	Min	Min
BSMD2018-030-60V	B030	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25
BSMD2018-050-60V	B050	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25
BSMD2018-075-60V	B075	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25
BSMD2018-100-15V	B100	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25
BSMD2018-100-33V	B100	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25
BSMD2018-150-15V	B150	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25
BSMD2018-200-10V	B200	1500	4.72	5.44	4.22	4.93	0.50	1.20	0.30	0.25

➤ Tape And Reel Specifications (mm)



Governing Specifications	BSMD2018-030-60V~ BSMD2018-075-60V	BSMD2018-100-15V~ BSMD2018-150-15V	BSMD2018-200-10V
W	12.0 ± 0.3	12.0 ± 0.3	12.0 ± 0.3
F	5.5 ± 0.05	5.5 ± 0.05	5.5 ± 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	1.55 <sub>min</sub>	1.55 <sub>min</sub>	1.55 <sub>min</sub>
P0	4.0 ± 0.1	4.0 ± 0.1	4.0 ± 0.1
P1	8.0 ± 0.1	8.0 ± 0.1	8.0 ± 0.1
P2	2.0 ± 0.05	2.0 ± 0.05	2.0 ± 0.05
A0	3.58 ± 0.1	3.58 ± 0.1	3.58 ± 0.1
B0	4.93 ± 0.1	4.93 ± 0.1	4.93 ± 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 <sub>min</sub>	390	390	390
Trailer <sub>min</sub>	160	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

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