➢ Features

- Size 0.18*0.12 inch /4.5*3.2 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}	$P_{d\ typ}$	Time to trip		R_{min}	R_{1max}
	(A)	(A)	(V_{dc})	(A)	(W)	(A)	(Sec)	(Ω)	(Ω)
BSMD1812-010-30V	0.10	0.30	30	40	0.8	0.50	1.50	0.750	15.00
BSMD1812-010-60V	0.10	0.30	60	40	0.8	0.50	1.50	0.750	15.00
BSMD1812-014-60V	0.14	0.34	60	40	0.8	1.50	0.15	0.650	6.000
BSMD1812-020-30V	0.20	0.40	30	40	0.8	8.00	0.04	0.350	5.000
BSMD1812-020-60V	0.20	0.40	60	40	0.8	8.00	0.04	0.350	5.000
BSMD1812-030-30V	0.30	0.60	30	40	0.8	8.00	0.10	0.250	3.000
BSMD1812-030-60V	0.30	0.60	60	40	0.8	8.00	0.10	0.250	3.000
BSMD1812-050-15V	0.50	1.00	15	40	0.8	8.00	0.15	0.150	1.400
BSMD1812-050-24V	0.50	1.00	24	40	0.8	8.00	0.15	0.150	1.400
BSMD1812-050-30V	0.50	1.00	30	40	0.8	8.00	0.15	0.150	1.400
BSMD1812-050-60V	0.50	1.00	60	40	1.0	8.00	0.15	0.150	1.400
BSMD1812-075-13.2V	0.75	1.50	13.2	40	0.8	8.00	0.20	0.090	0.450
BSMD1812-075-16V	0.75	1.50	16	40	0.8	8.00	0.20	0.090	0.450
BSMD1812-075-24V	0.75	1.50	24	40	0.8	8.00	0.20	0.090	0.450
BSMD1812-075-33V	0.75	1.50	33	40	1.0	8.00	0.20	0.090	0.450
BSMD1812-110-8V	1.10	2.20	8	100	0.8	8.00	0.30	0.045	0.250
BSMD1812-110-16V	1.10	2.20	16	100	0.8	8.00	0.30	0.045	0.250
BSMD1812-110-24V	1.10	2.20	24	40	1.0	8.00	0.30	0.045	0.250
BSMD1812-110-33V	1.10	2.20	33	40	1.0	8.00	0.30	0.045	0.250

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)
BSMD1812-125-16V	1.25	2.50	16	100	1.0	8.00	0.40	0.050	0.180
BSMD1812-125-24V	1.25	2.50	24	40	1.0	8.00	0.40	0.050	0.180
BSMD1812-150-8V	1.50	3.00	8	100	1.0	8.00	0.50	0.040	0.160
BSMD1812-150-16V	1.50	3.00	16	100	1.0	8.00	0.50	0.040	0.160
BSMD1812-150-24V	1.50	3.00	24	40	1.0	8.00	0.50	0.040	0.160
BSMD1812-150-33V	1.50	3.00	33	40	1.0	8.00	0.50	0.040	0.160
BSMD1812-160-8V	1.60	3.20	8	100	1.0	8.00	1.00	0.030	0.130
BSMD1812-160-16V	1.60	3.20	16	100	1.0	8.00	1.00	0.030	0.130
BSMD1812-160-24V	1.60	3.20	24	40	1.0	8.00	1.00	0.030	0.130
BSMD1812-200-8V	2.00	4.00	8	100	1.0	8.00	2.00	0.020	0.100
BSMD1812-200-12V	2.00	4.00	12	100	1.0	8.00	2.00	0.020	0.100
BSMD1812-200-16V	2.00	4.00	16	100	1.0	8.00	2.00	0.020	0.100
BSMD1812-200-24V	2.00	4.00	24	40	1.0	8.00	2.00	0.020	0.100
BSMD1812-200-30V	2.00	4.00	30	40	1.0	8.00	2.00	0.020	0.100
BSMD1812-200-33V	2.00	4.00	33	40	1.0	8.00	2.00	0.020	0.100
BSMD1812-250-8V	2.50	5.00	8	40	1.0	8.00	2.50	0.015	0.090
BSMD1812-260-8V	2.60	5.20	8	100	1.0	8.00	2.50	0.010	0.070
BSMD1812-260-13.2V	2.60	5.20	13.2	40	1.0	8.00	2.50	0.010	0.070
BSMD1812-260-16V	2.60	5.20	16	40	1.2	8.00	2.50	0.010	0.070
BSMD1812-260-24V	2.60	5.20	24	40	1.2	8.00	2.50	0.010	0.070
BSMD1812-300-8V	3.00	6.00	8	100	1.2	8.00	4.00	0.010	0.050
BSMD1812-300-12V	3.00	6.00	12	100	1.2	8.00	4.00	0.010	0.050
BSMD1812-300-16V	3.00	6.00	16	40	1.4	8.00	4.00	0.010	0.050
BSMD1812-300-24V	3.00	6.00	24	40	1.4	8.00	4.00	0.012	0.060
BSMD1812-350-6V	3.50	7.00	6	100	2.0	10.00	4.00	0.008	0.035
BSMD1812-350-16V	3.50	7.00	16	40	2.0	10.00	4.00	0.008	0.035
BSMD1812-400-6V	4.00	8.00	6	40	2.0	10.00	4.00	0.005	0.025
BSMD1812-400-12V	4.00	8.00	12	40	2.0	10.00	4.00	0.005	0.025

➢ Vocabulary

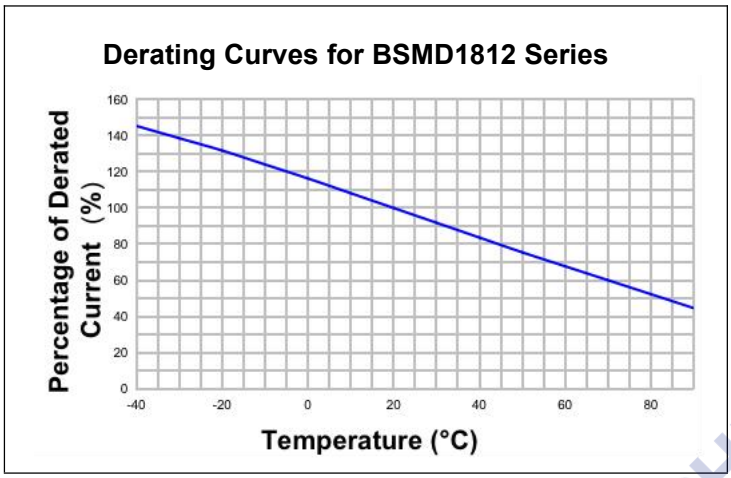
I_{hold} = Hold current: maximum current device will pass without tripping in 25°C still air.
I_{trip} = Trip current: minimum current at which the device will trip in 25°C still air.
V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max}).
I_{max} = Maximum fault current 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.

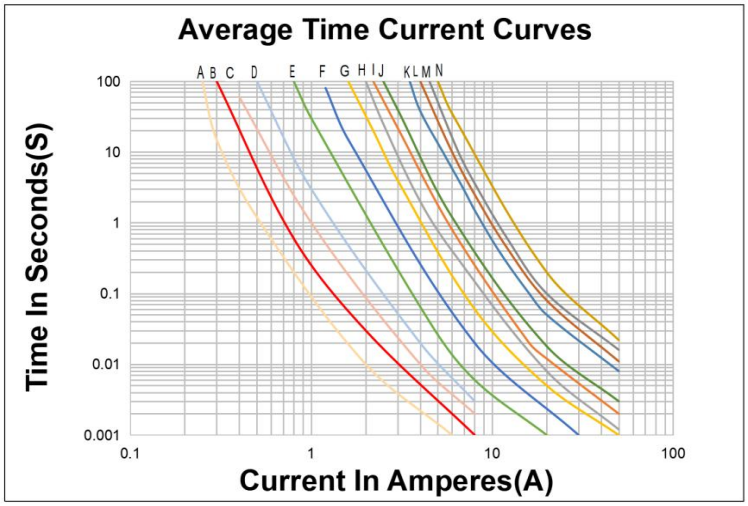
➢ Warning

- 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



➢ Average Time-Current Curve



A=BSMD1812-010
B=BSMD1812-014
C=BSMD1812-020
D=BSMD1812-030
E=BSMD1812-050
F=BSMD1812-075
G=BSMD1812-110
H=BSMD1812-125
I=BSMD1812-150
J=BSMD1812-160
K=BSMD1812-200
L=BSMD1812-260
M=BSMD1812-300
N=BSMD1812-350

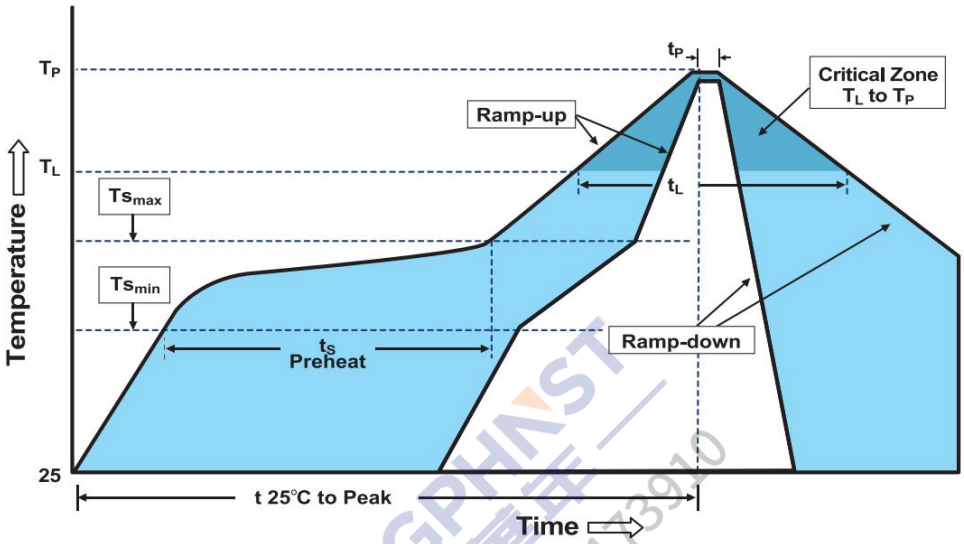
➢ Thermal Derating Chart

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
BSMD1812-010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
BSMD1812-014	0.23	0.19	0.17	0.14	0.12	0.10	0.09	0.08	0.06
BSMD1812-020	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
BSMD1812-030	0.44	0.39	0.35	0.30	0.26	0.23	0.21	0.18	0.15
BSMD1812-050	0.69	0.59	0.55	0.50	0.45	0.43	0.35	0.30	0.23
BSMD1812-075	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
BSMD1812-110	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
BSMD1812-125	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
BSMD1812-150	2.10	1.96	1.77	1.50	1.23	1.09	0.95	0.82	0.61
BSMD1812-160	2.30	2.05	1.88	1.60	1.26	1.12	0.98	0.84	0.63
BSMD1812-200	2.88	2.61	2.25	2.00	1.80	1.66	1.45	1.09	0.80
BSMD1812-260	3.90	3.42	2.96	2.60	2.22	2.07	1.94	1.35	1.00
BSMD1812-300	4.15	3.76	3.46	3.00	2.55	2.28	2.01	1.61	1.33
BSMD1812-350	4.84	4.39	4.04	3.50	2.98	2.66	2.35	1.88	1.55
BSMD1812-400	4.97	4.62	4.32	4.00	3.48	3.16	2.85	2.38	2.05

➢ Environmental Specifications

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hours	±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		

➢ Soldering Parameters



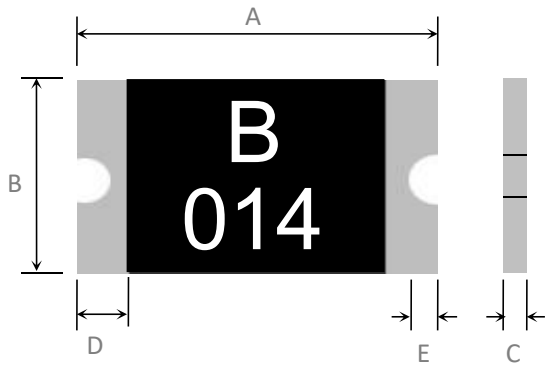
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate(Ts_{max} to T_p)	3°C/second max
Preheat -Temperature Min(Ts_{min}) -Temperature Max(Ts_{max}) -Time(Ts_{min} to Ts_{max})	 150°C 200°C 60~180 seconds
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~150 seconds
Peak Temperature(T_p)	260°C
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

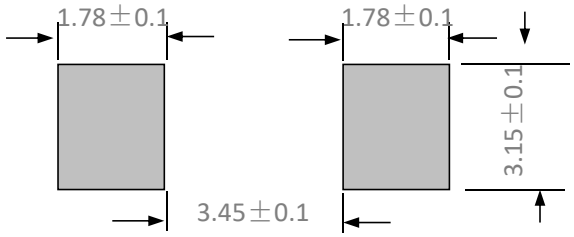
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N_2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm.
- Devices can be cleaned using standard industry methods and solvents.

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.

➢ Physical Dimensions & Recommended Pad Layout (mm)

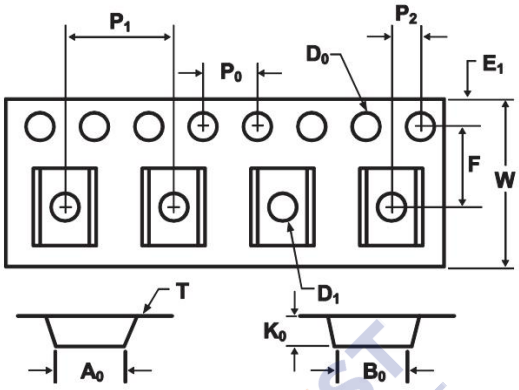




Part Number	Marking	Quantity	A		B		C		D	E
			Min	Max	Min	Max	Min	Max	Min	Min
BSMD1812-010-30V	B010	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-010-60V	B010	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-014-60V	B014	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-020-30V	B020	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-020-60V	B020	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-030-30V	B030	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-030-60V	B030	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-050-15V	B050	1500	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.25
BSMD1812-050-24V	B050	1500	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.25
BSMD1812-050-30V	B050	1500	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.25
BSMD1812-050-60V	B050	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-075-13.2V	B075	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-075-16V	B075	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-075-24V	B075	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-075-33V	B075	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-110-8V	B110	1500	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.25
BSMD1812-110-16V	B110	1500	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.25
BSMD1812-110-24V	B110	1500	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.25
BSMD1812-110-33V	B110	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-125-16V	B125	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-125-24V	B125	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-150-8V	B150	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-150-16V	B150	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-150-24V	B150	1500	4.37	4.73	3.07	3.41	0.80	1.50	0.30	0.25
BSMD1812-150-33V	B150	1500	4.37	4.73	3.07	3.41	0.80	1.50	0.30	0.25
BSMD1812-160-8V	B160	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-160-16V	B160	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25
BSMD1812-160-24V	B160	1500	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.25

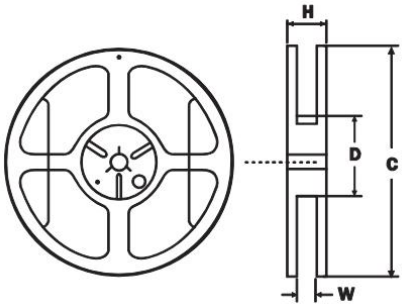
Part Number	Marking	Quantity	A		B		C		D	E
			Min	Max	Min	Max	Min	Max	Min	Min
BSMD1812-200-8V	B200	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-200-12V	B200	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-200-16V	B200	1500	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
BSMD1812-200-24V	B200	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-200-30V	B200	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-200-33V	B200	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-250-8V	B250	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-260-8V	B260	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-260-13.2V	B260	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-260-16V	B260	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-260-24V	B260	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-300-8V	B300	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-300-12V	B300	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-300-16V	B300	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-300-24V	B300	1000	4.37	4.73	3.07	3.41	1.00	1.50	0.30	0.25
BSMD1812-350-6V	B350	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-350-16V	B350	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-400-6V	B400	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25
BSMD1812-400-12V	B400	1500	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.25

➢ Tape And Reel Specifications (mm)



Governing Specifications	BSMD1812-010~BSMD1812-400
W	12.0 ± 0.3
F	5.5 ± 0.05
E_1	1.75 ± 0.1
D_0	1.55 ± 0.05
D_1	1.55_{min}
P_0	4.0 ± 0.1
P_1	8.0 ± 0.1
P_2	2.0 ± 0.05
A_0	3.58 ± 0.1
B_0	4.93 ± 0.1
T	0.2 ± 0.1
K_0	1.25 ± 0.1
$Leader_{min}$	390
$Trailer_{min}$	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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E-MAIL: sales@bhfuse.com