

**➤ 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	$I_{hold}$	$I_{trip}$	$V_{max}$	$I_{max}$	$P_d$	Time to trip		$R_i$	$R_{1max}$
	(A)	(A)	(V)	(A)	(W)	(A)	(Sec)	( $\Omega$ )	( $\Omega$ )
BSMD1812L-600-12V	6.00	12.00	12	50	2.0	20.00	5.00	0.0008	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.

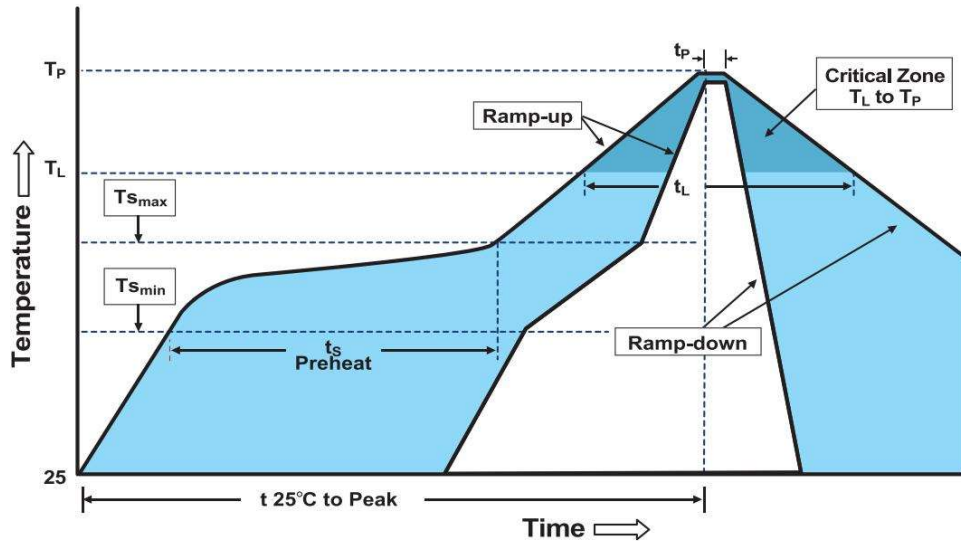
**➤ WARNING**

- 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 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
BSMD1812L-600-12V	9.0	8.0	7.0	6.0	5.2	4.6	4.2	3.7

**➤ Soldering Parameters**



<b>Profile Feature</b>	Pb-Free Assembly
<b>Average Ramp-Up Rate(T<sub>smax</sub> to T<sub>p</sub>)</b>	3°C/second max
<b>Preheat</b>	
-Temperature Min(T <sub>smin</sub> )	150°C
-Temperature Max(T <sub>smax</sub> )	200°C
-Time(T <sub>smin</sub> to T <sub>smax</sub> )	60~180 seconds
<b>Time maintained above:</b>	
-Temperature(T <sub>L</sub> )	217°C
-Time(t <sub>L</sub> )	60~150 seconds
<b>Peak Temperature(T<sub>p</sub>)</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, N2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm.
- Devices can be cleaned using standard industry methods and solvents.

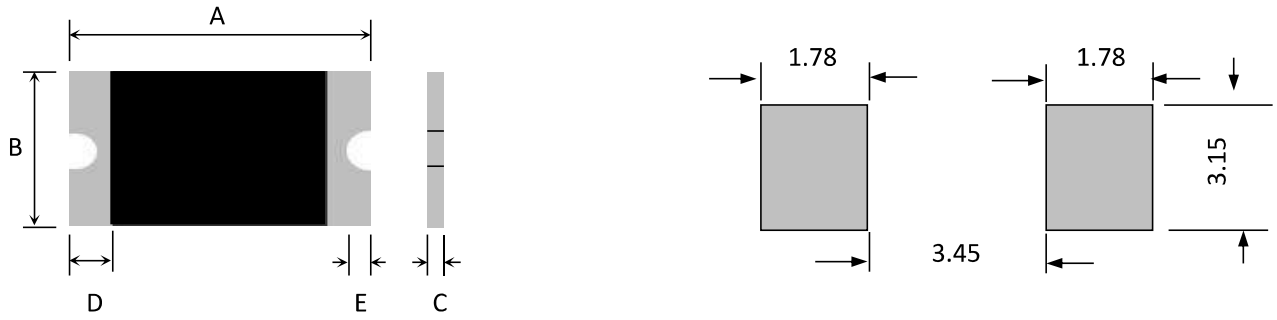
**Note 1: All temperature refer to topside of the package, measured on the package body surface.**

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

### ➤ Environmental Specifications

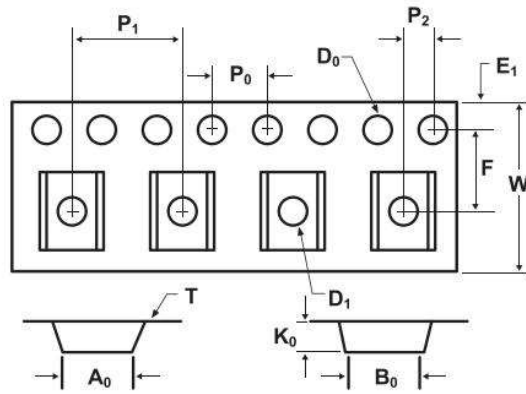
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
<b>Ambient operating 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)



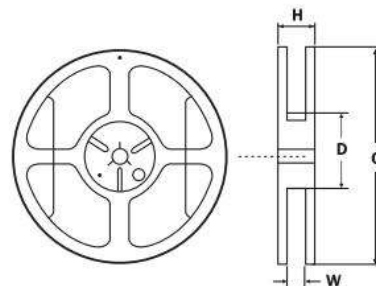
Part Number	Quantity	A		B		C		D	E
		Min	Max	Min	Max	Min	Max	Min	Min
BSMD1812L-600-12V	1500	--	4.80	--	3.50	--	1.30	0.25	0.10

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



Governing Specifications	BSMD1812L-600-12V
W	12.0 ± 0.3
F	5.5 ± 0.05
E1	1.75 ± 0.1
D0	1.55 ± 0.05
D1	1.55 <sub>min</sub>
P0	4.0 ± 0.1
P1	8.0 ± 0.1
P2	2.0 ± 0.05
A0	3.58 ± 0.1
B0	4.93 ± 0.1
T	0.2 ± 0.1
K0	0.74 ± 0.1
Leader <sub>min</sub>	390
Trailer <sub>min</sub>	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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