

## ➤ Features

- Size 0.12\*0.06 inch /3.2\*1.6 mm
- RoHS compliant, lead-free and halogen-free
- Fast response to fault current
- Super 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 <sub>hold</sub>	I <sub>trip</sub>	V <sub>max</sub>	I <sub>max</sub>	P <sub>d typ</sub>	Time to trip		R <sub>min</sub>	R <sub>1max</sub>
	(A)	(A)	(V <sub>dc</sub> )	(A)	(W)	(A)	(Sec)	(Ω)	(Ω)
BSMD1206L-110	1.10	2.20	6.0	50	1.2	8.00	0.5	0.008	0.065
BSMD1206L-125	1.25	2.50	6.0	50	1.2	8.00	1.0	0.007	0.060
BSMD1206L-150	1.50	3.00	6.0	50	1.2	8.00	5.0	0.006	0.055
BSMD1206L-175	1.75	3.50	6.0	50	1.2	8.00	5.0	0.005	0.050
BSMD1206L-200	2.00	4.00	6.0	50	1.2	8.00	5.0	0.004	0.045
BSMD1206L-230	2.30	4.60	6.0	50	1.2	8.00	5.0	0.004	0.040
BSMD1206L-260	2.60	5.20	6.0	50	1.2	12.0	5.0	0.003	0.035
BSMD1206L-300	3.00	6.00	6.0	50	1.2	12.0	5.0	0.003	0.030
BSMD1206L-350	3.50	7.00	6.0	50	1.2	12.0	5.0	0.002	0.025
BSMD1206L-380	3.80	7.60	6.0	50	1.2	12.0	5.0	0.002	0.020
BSMD1206L-400	4.00	8.00	6.0	50	1.5	16.0	5.0	0.001	0.018
BSMD1206L-450	4.50	9.00	6.0	50	1.5	16.0	5.0	0.001	0.015
BSMD1206L-500	5.00	10.0	6.0	50	1.5	16.0	5.0	0.001	0.012
BSMD1206L-550	5.50	11.0	6.0	50	1.5	16.0	5.0	0.001	0.011
BSMD1206L-600	6.00	12.0	6.0	50	1.5	20.0	5.0	0.0008	0.010

## ➤ Vocabulary

- I<sub>hold</sub>** = Hold current: maximum current device will pass without tripping in 25°C still air.
- I<sub>trip</sub>** = Trip current: minimum current at which the device will trip in 25°C still air.
- V<sub>max</sub>** = Maximum voltage device can withstand without damage at rated current (**I<sub>max</sub>**).
- I<sub>max</sub>** = Maximum fault current device can withstand without damage at rated voltage (**V<sub>max</sub>**).
- P<sub>d typ.</sub>** = Typical power dissipated from device when in the tripped state at 25°C still air.
- R<sub>min</sub>** = Minimum resistance of device in initial (un-soldered) state.
- R<sub>1max</sub>** = 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.

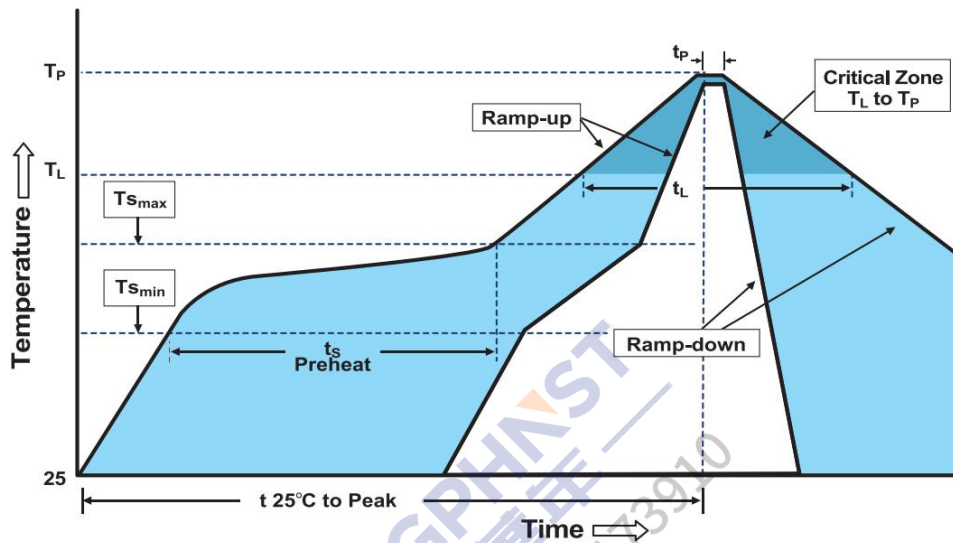
## ➤ Thermal Derating Chart

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
BSMD1206L-110	1.5	1.3	1.2	1.1	0.9	0.8	0.7	0.6	0.4
BSMD1206L-125	1.7	1.5	1.4	1.25	1.1	1.0	0.9	0.7	0.5
BSMD1206L-150	2.0	1.8	1.6	1.5	1.2	1.1	1.0	0.9	0.6
BSMD1206L-175	2.3	2.0	1.9	1.75	1.4	1.3	1.2	1.0	0.7
BSMD1206L-200	2.7	2.3	2.2	2.0	1.6	1.5	1.4	1.1	0.8
BSMD1206L-230	3.1	2.7	2.5	2.3	1.9	1.7	1.6	1.3	0.9
BSMD1206L-260	3.5	3.0	2.8	2.6	2.1	1.9	1.8	1.5	1.1
BSMD1206L-300	4.0	3.5	3.2	3.0	2.5	2.2	2.0	1.7	1.2
BSMD1206L-350	4.7	4.1	3.8	3.5	2.9	2.6	2.4	2.0	1.5
BSMD1206L-380	5.1	4.4	4.1	3.8	3.1	2.8	2.6	2.2	1.7
BSMD1206L-400	5.4	4.7	4.3	4.0	3.3	3.0	2.7	2.3	1.8
BSMD1206L-450	6.0	5.3	4.9	4.5	3.7	3.3	3.1	2.6	2.1
BSMD1206L-500	7.5	6.5	5.5	5.0	4.5	3.5	3.3	3.0	2.4
BSMD1206L-550	8.3	7.2	6.1	5.5	5.0	3.9	3.6	3.3	2.7
BSMD1206L-600	9.0	7.8	6.6	6.0	5.4	4.2	3.9	3.6	2.9

## ➤ 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**



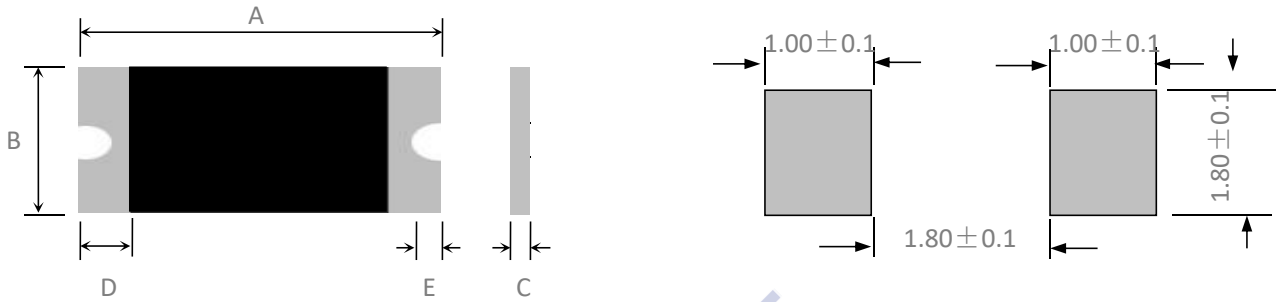
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate( $T_{S_{max}}$ to $T_P$ )	3°C/second max
Preheat -Temperature Min( $T_{S_{min}}$ ) -Temperature Max( $T_{S_{max}}$ ) -Time( $T_{S_{min}}$ to $T_{S_{max}}$ )	150°C 200°C 60~180 seconds
Time maintained above: -Temperature( $T_L$ ) -Time( $t_L$ )	217°C 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<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.

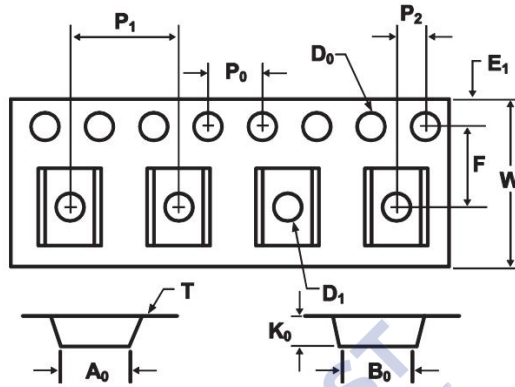
**Note 2:** If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

➤ **Physical Dimensions & Recommended Pad Layout (mm)**



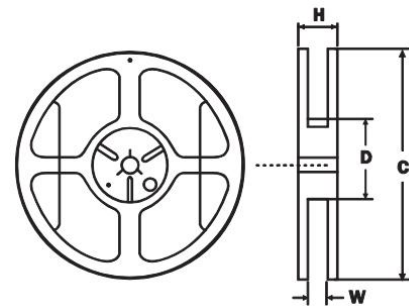
Part Number	Marking	Quantity	A		B		C		D	E
			Min	Max	Min	Max	Min	Max	Min	Min
BSMD1206L-110		4000	--	3.50	--	1.85	--	0.8	0.25	0.10
BSMD1206L-125		4000	--	3.50	--	1.85	--	0.8	0.25	0.10
BSMD1206L-150		4000	--	3.50	--	1.85	--	0.8	0.25	0.10
BSMD1206L-175		4000	--	3.50	--	1.85	--	0.8	0.25	0.10
BSMD1206L-200		4000	--	3.50	--	1.85	--	0.8	0.25	0.10
BSMD1206L-230		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-260		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-300		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-350		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-380		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-400		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-450		4000	--	3.50	--	1.85	--	1.0	0.25	0.10
BSMD1206L-500		3000	--	3.50	--	1.85	--	1.3	0.25	0.10
BSMD1206L-550		3000	--	3.50	--	1.85	--	1.3	0.25	0.10
BSMD1206L-600		3000	--	3.50	--	1.85	--	1.3	0.25	0.10

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



Governing Specifications	BSMD1206L-110~ BSMD1206L-260	BSMD1206L-300~ BSMD1206L-450	BSMD1206L-500 BSMD1206L-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
E <sub>1</sub>	1.75 ± 0.1	1.75 ± 0.1	1.75 ± 0.1
D <sub>0</sub>	1.55 ± 0.05	1.55 ± 0.05	1.55 ± 0.05
D <sub>1</sub>	1.0 ± 0.1	1.0 ± 0.1	1.0 ± 0.1
P <sub>0</sub>	4.0 ± 0.1	4.0 ± 0.1	4.0 ± 0.1
P <sub>1</sub>	4.0 ± 0.1	4.0 ± 0.1	4.0 ± 0.1
P <sub>2</sub>	2.0 ± 0.05	2.0 ± 0.05	2.0 ± 0.05
A <sub>0</sub>	1.95 ± 0.1	1.95 ± 0.1	1.95 ± 0.1
B <sub>0</sub>	3.65 ± 0.1	3.65 ± 0.1	3.65 ± 0.1
T	0.2 ± 0.1	0.2 ± 0.1	0.2 ± 0.1
K <sub>0</sub>	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	11.0 ± 0.5
W	9.0 ± 1.5



➤ **Contact information**

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