

## ➤ 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 <sub>dc</sub> )	(A)	(W)	(A)	(Sec)	(Ω)	(Ω)
BSMD2920-030-60V	0.30	0.60	60	40	1.5	1.50	3.0	0.600	4.800
BSMD2920-050-60V	0.50	1.00	60	40	1.5	2.50	4.0	0.180	1.400
BSMD2920-075-33V	0.75	1.50	33	40	1.5	8.00	0.3	0.100	1.000
BSMD2920-075-60V	0.75	1.50	60	40	1.5	8.00	0.3	0.100	1.000
BSMD2920-100-33V	1.10	2.20	33	40	1.5	8.00	0.5	0.065	0.410
BSMD2920-100-60V	1.10	2.20	60	40	1.5	8.00	0.5	0.065	0.410
BSMD2920-125-33V	1.25	2.50	33	40	1.5	8.00	2.0	0.050	0.250
BSMD2920-150-33V	1.50	3.00	33	40	1.5	8.00	2.0	0.035	0.230
BSMD2920-185-33V	1.85	3.70	33	40	1.5	8.00	2.5	0.030	0.150
BSMD2920-200-16V	2.00	4.00	16	40	1.8	8.00	4.5	0.020	0.120
BSMD2920-200-24V	2.00	4.00	24	40	1.8	8.00	4.5	0.020	0.120
BSMD2920-200-33V	2.00	4.00	33	40	1.8	8.00	4.5	0.020	0.120
BSMD2920-250-16V	2.50	5.00	16	40	1.8	8.00	10	0.020	0.085
BSMD2920-250-24V	2.50	5.00	24	40	1.8	8.00	10	0.020	0.085
BSMD2920-260-6V	2.60	5.20	6	40	1.8	8.00	10	0.014	0.075
BSMD2920-260-16V	2.60	5.20	16	40	1.8	8.00	10	0.014	0.075
BSMD2920-260-24V	2.60	5.20	24	40	1.8	8.00	10	0.014	0.075
BSMD2920-300-6V	3.00	6.00	6	40	1.8	8.00	20	0.012	0.048
BSMD2920-300-16V	3.00	6.00	16	40	1.8	8.00	20	0.012	0.048

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)
BSMD2920-300-24V	3.00	6.00	24	40	1.8	8.00	20	0.012	0.048
BSMD2920-300-30V	3.00	6.00	30	40	1.8	8.00	20	0.012	0.048
BSMD2920-300-33V	3.00	6.00	33	40	1.8	8.00	20	0.012	0.048
BSMD2920-330-24V	3.30	6.60	24	40	1.8	8.00	20	0.015	0.055
BSMD2920-400-6V	4.00	8.00	6	40	2.0	20.0	4	0.008	0.040
BSMD2920-400-16V	4.00	8.00	16	40	2.0	20.0	4	0.008	0.040
BSMD2920-400-24V	4.00	8.00	24	40	2.0	20.0	4	0.008	0.040
BSMD2920-500-6V	5.00	10.00	6	40	2.0	25.0	5	0.005	0.031
BSMD2920-500-12V	5.00	10.00	12	40	2.0	25.0	5	0.005	0.031
BSMD2920-500-16V	5.00	10.00	16	40	2.0	25.0	5	0.005	0.031
BSMD2920-600-6V	6.00	12.00	6	40	2.0	25.0	6	0.004	0.020
BSMD2920-600-12V	6.00	12.00	12	40	2.0	25.0	6	0.004	0.020
BSMD2920-600-16V	6.00	12.00	16	40	2.0	25.0	6	0.004	0.020
BSMD2920-700-6V	7.00	14.00	6	40	2.0	25.0	6	0.0025	0.010
BSMD2920-700-12V	7.00	14.00	12	40	2.0	25.0	6	0.0025	0.010

## ➤ 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.

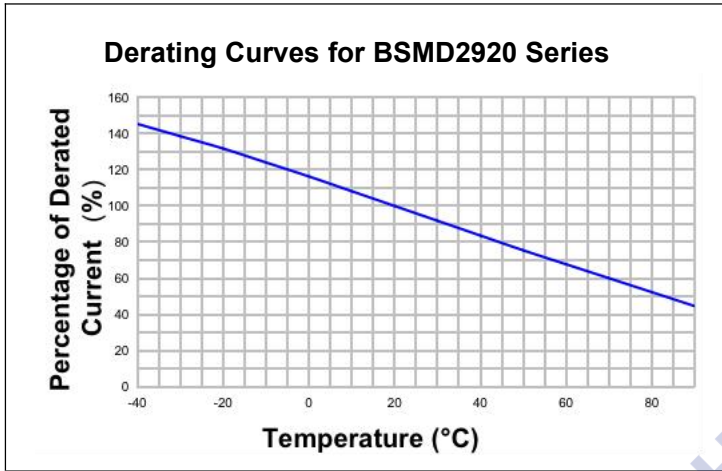
**Caution: Operation beyond the specified ratings may result in damage and possible arcing and flame.**



## ➤ Warning

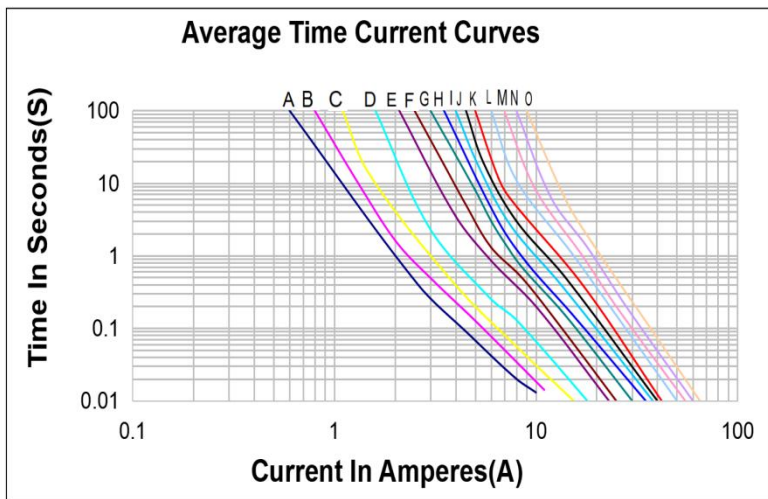
- Users shall independently assess the suitability of these devices for each of their applications.
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire.
- These devices are intended to protect against the effects 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**



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➤ **Average Time-Current Curve**



- A=BSMD2920-030
- B=BSMD2920-050
- C=BSMD2920-075
- D=BSMD2920-100
- E=BSMD2920-125
- F=BSMD2920-150
- G=BSMD2920-185
- H=BSMD2920-200
- I=BSMD2920-250
- J=BSMD2920-260
- K=BSMD2920-300
- L=BSMD2920-400
- M=BSMD2920-500
- N=BSMD2920-600
- O=BSMD2920-700

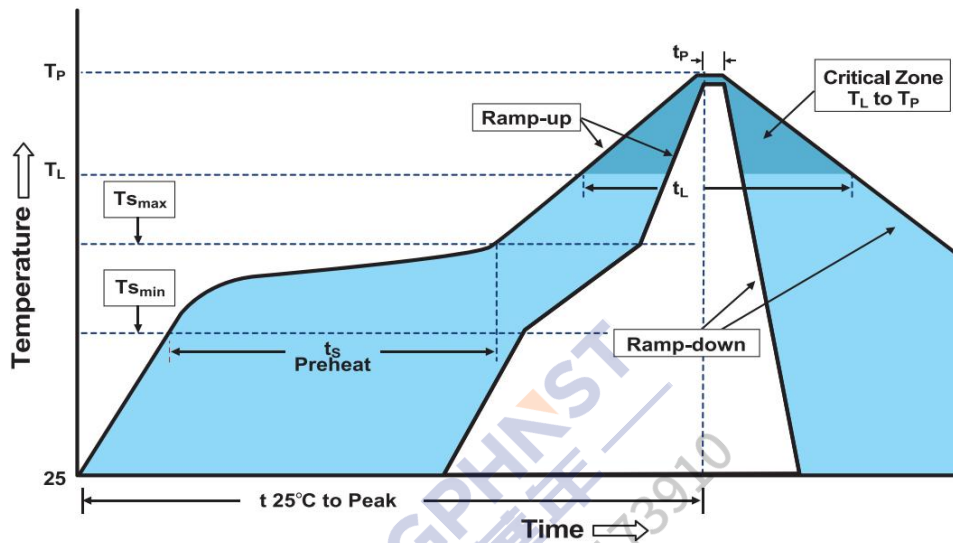
## ➤ Thermal Derating Chart

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
BSMD2920-330	4.60	4.20	3.75	3.30	2.95	2.75	2.50	2.25	1.70
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

## ➤ 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**



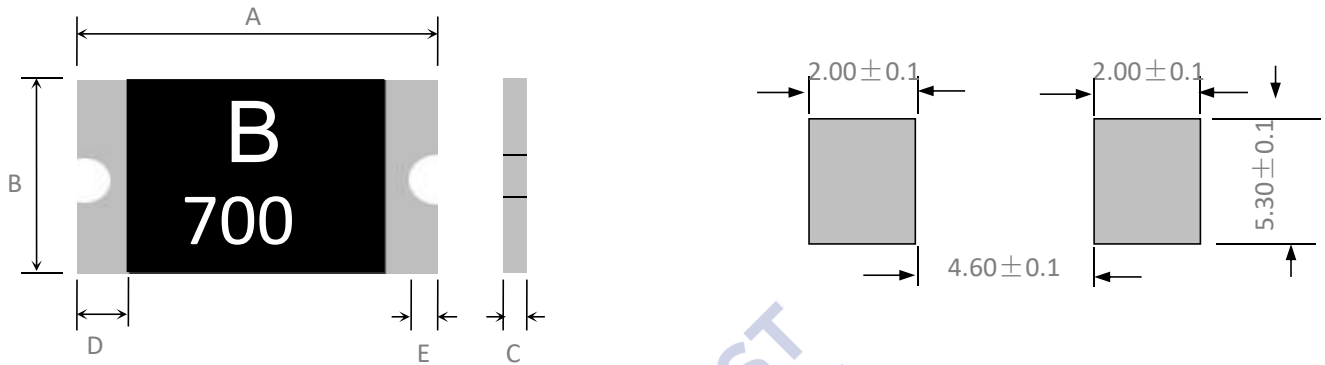
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate( $T_{s_{max}}$ to $T_p$ )	3°C/second max
Preheat -Temperature Min( $T_{s_{min}}$ ) -Temperature Max( $T_{s_{max}}$ ) -Time( $T_{s_{min}}$ to $T_{s_{max}}$ )	150°C 200°C 60~180 seconds
Time maintained above: -Temperature( $T_L$ ) -Time( $t_L$ )	217°C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



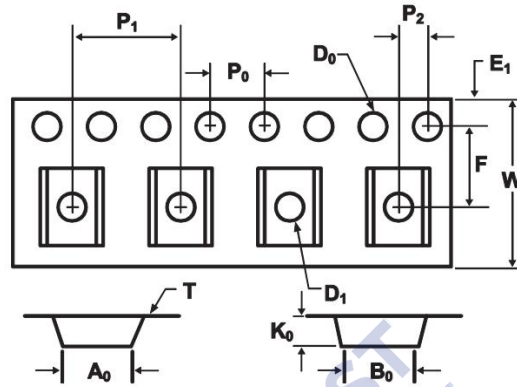
Part Number	Marking	Quantity	A		B		C		D	E
			Min	Max	Min	Max	Min	Max	Min	Min
BSMD2920-030-60V	B030	1500	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.30
BSMD2920-050-60V	B050	1500	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.25
BSMD2920-075-33V	B075	1500	6.73	7.98	4.80	5.44	0.70	1.40	0.30	0.25
BSMD2920-075-60V	B075	1500	6.73	7.98	4.80	5.44	0.70	1.40	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	1000	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
BSMD2920-260-24V	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
BSMD2920-300-30V	B300	1500	6.73	7.98	4.80	5.44	0.60	1.60	0.30	0.25
BSMD2920-300-33V	B300	1500	6.73	7.98	4.80	5.44	0.60	1.60	0.30	0.25
BSMD2920-330-24V	B330	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	0.60	1.20	0.30	0.25
BSMD2920-400-16V	B400	1500	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.25
BSMD2920-400-24V	B400	1500	6.73	7.98	4.80	5.44	0.60	1.20	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

Part Number	Marking	Quantity	A		B		C		D	E
			Min	Max	Min	Max	Min	Max	Min	Min
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

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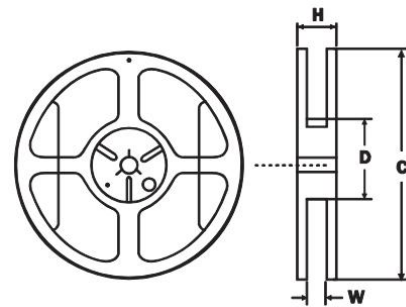


➤ **Tape And Reel Specifications (mm)**



Governing Specifications	BSMD2920-030~ BSMD2920-185	BSMD2920-200~ BSMD2920-700
W	16.0 ± 0.3	16.0 ± 0.3
F	7.5 ± 0.05	7.5 ± 0.05
E <sub>1</sub>	1.75 ± 0.1	1.75 ± 0.1
D <sub>0</sub>	1.55 ± 0.05	1.55 ± 0.05
D <sub>1</sub>	1.55 <sub>min</sub>	1.55 <sub>min</sub>
P <sub>0</sub>	4.0 ± 0.1	4.0 ± 0.1
P <sub>1</sub>	8.0 ± 0.1	8.0 ± 0.1
P <sub>2</sub>	2.0 ± 0.05	2.0 ± 0.05
A <sub>0</sub>	5.74 ± 0.1	5.74 ± 0.1
B <sub>0</sub>	8.02 ± 0.1	8.02 ± 0.1
T	0.3 ± 0.1	0.3 ± 0.1
K <sub>0</sub>	1.04 ± 0.1	1.35 ± 0.1
Leader <sub>min</sub>	390	390
Trailer <sub>min</sub>	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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