

## SinglFuse™ SF-2923HC-C Series Features

- Single blow fuse for overcurrent protection
- EIA 2923 (7358 metric) footprint
- High current ceramic housing design
- UL 248-14 listed
- Surface mount packaging for automated assembly
- RoHS compliant\* and halogen free\*\*

## SF-2923HC-C Series – High Current SMD Fuses

### Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I <sup>2</sup> t (A <sup>2</sup> s) ****
SF-2923HC20C-2	20	Open within 60 sec. at 250 % rated current	0.0020	60 VDC	300 A @ 60 VDC	108
SF-2923HC30C-2	30		0.0012			270
SF-2923HC40C-2	40		0.0010			416
SF-2923HC50C-2	50		0.0007			1750

\*\*\* Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±30 %.

\*\*\*\* Melting I<sup>2</sup>t calculated at 10 times rated current.

### Reliability Testing

No.	Test	Test Condition	Requirement	Test Reference
1	Solderability	Temperature setup: 235 +0 / -5 °C Time setup: 10 sec.	After test terminal electrode wetting area must be greater than 95 %	IEC 68-2-58
2	Resistance to soldering heat	Temperature setup: 235 ±5 °C Time setup: 30 sec.	DCR change ≤ ±15 %	IEC 68-2-58
3	Thermal shock	Temperature setup: 25 °C ~ -65 °C ~ 25 °C ~ 125 °C Time setup: -65 °C (30 min) ~ 25 °C (5 min) ~ 125 °C (30 min) ~ 25 °C (5 min), 5 cycles	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 107G Test Condition B
4	Humidity unload	Heat (85 ±0.5 °C) High Humidity (85 ±1 % RH) 240 hours	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 103B Test Condition A
5	Salt spray	Salt spray concentration: 5 ±1 % Test liquid temperature: 35 ±0.5 °C 96 hours	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 101E Test Condition A
6	Bending	The board shall be bent by 1 mm at a rate of 1 mm/sec.	DCR change ≤ ±15 %	IEC 60127-4
7	Vibration	Frequency setup: 10 ~ 55 ~ 10 Hz Time setup: 1 Minute/cycle (X-Y-Z, 120 cycles, 6 hours)	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 201A

### Agency Recognition

UL File Number .....E198545

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**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

\*\* Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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## SinglFuse™ SF-2923HC-C Series Applications

- Li-ion Battery Packs
- Energy Storage Systems (ESS)
- Power Tools
- Electric Assist Bicycles
- Servers and Routers
- Uninterruptible Power Supplies (UPS)
- Power Distribution Units (PDUs)
- Power Factor Correction (PFC)

## SF-2923HC-C Series – High Current SMD Fuses

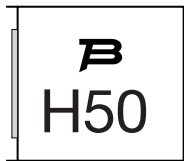
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### Environmental Characteristics

Operating Temperature.....	-55 °C to +125 °C
Storage Conditions	
Temperature .....	+15 °C to +30 °C
Humidity.....	20 % to 70 %
Shelf Life.....	2 years from manufacturing date
Moisture Sensitivity Level .....	1
ESD Classification (HBM).....	Class 6

### Typical Part Marking

Represents total content. Layout may vary.



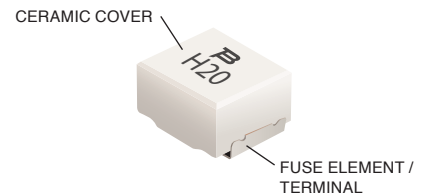
Rated Current	Part Marking
20 A	H20
30 A	H30
40 A	H40
50 A	H50

### How to Order

#### SF - 2923 HC 20 C - 2

SinglFuse™ \_\_\_\_\_  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 2923 = EIA 2923  
 (7358 metric)  
 Fuse Blow Type \_\_\_\_\_  
 HC = High Current  
 Rated Current \_\_\_\_\_  
 20 ~ 50 (20 A ~ 50 A)  
 Structure Type \_\_\_\_\_  
 C = Ceramic Cube Housing  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel

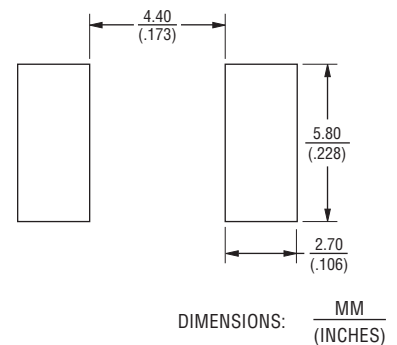
### Construction



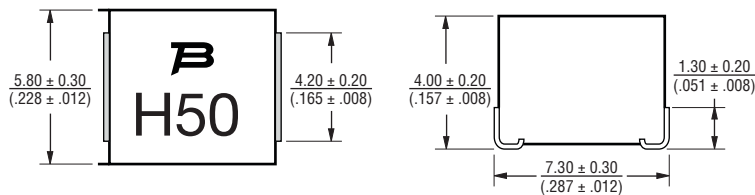
### Packaging Quantity

1,000 pieces per 13-inch reel

### Recommended Pad Layout



### Product Dimensions



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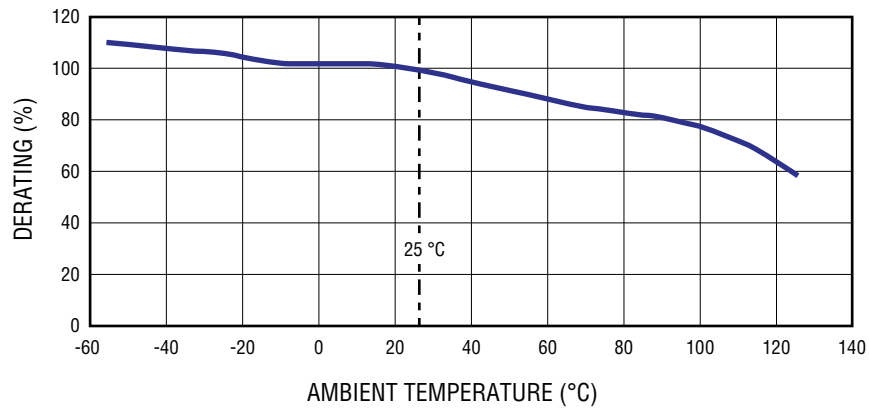
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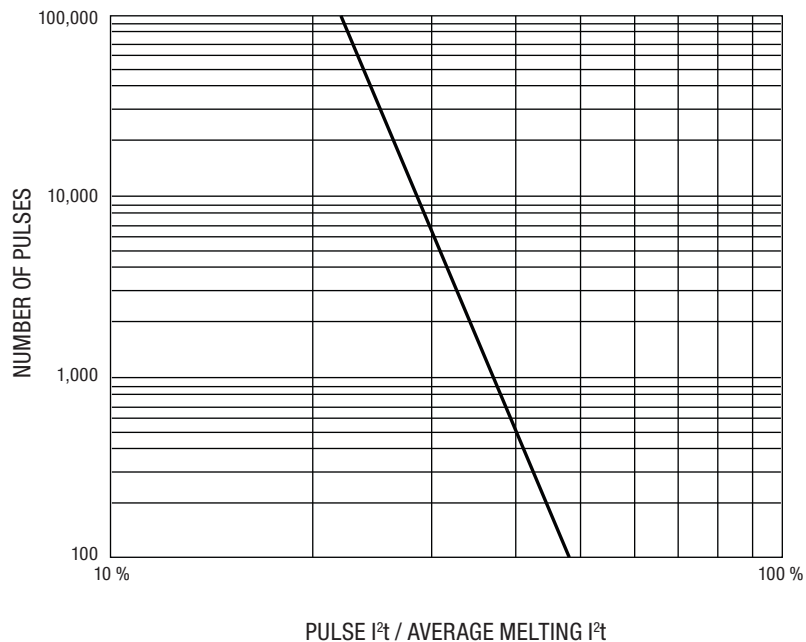
## SF-2923HC-C Series – High Current SMD Fuses

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### Current Rating Thermal Derating Curve



### Pulse Cycle Withstand Capability

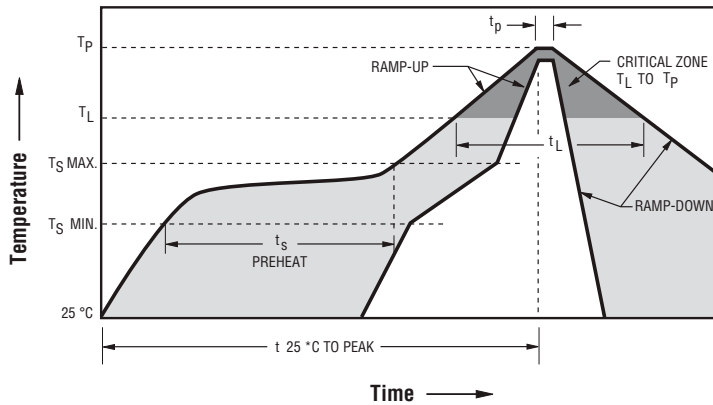


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## Solder Reflow Recommendations



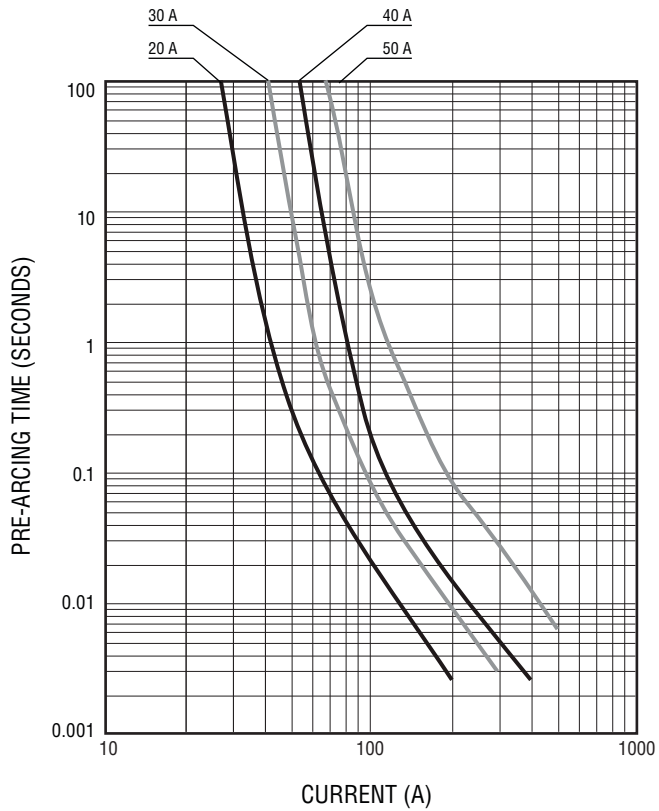
Profile Feature	Pb-Free Assembly
Preheat / Soak:	
Temperature Min. ( $T_{smin}$ )	150 °C
Temperature Max. ( $T_{smax}$ )	200 °C
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60~180 seconds
Ramp Up Rate ( $T_L$ to $T_P$ )	3 °C / second max.
Ramp Up Rate ( $T_{smax}$ to $T_L$ )	5 °C / second max.
Liquidous Temperature ( $T_L$ )	217 °C
Time ( $t_L$ ) maintained above $T_L$	60~90 seconds
Peak Package Body Temperature ( $T_P$ )	235 °C $\pm$ 5 °C
Time within 5 °C of actual peak temperature ( $T_P$ )	20~30 seconds*
Ramp Down Rate ( $T_P$ to $T_L$ )	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.
Do not exceed	240 °C

\* Tolerance for peak profile temperature ( $T_P$ ) is defined as a supplier minimum and a user maximum.

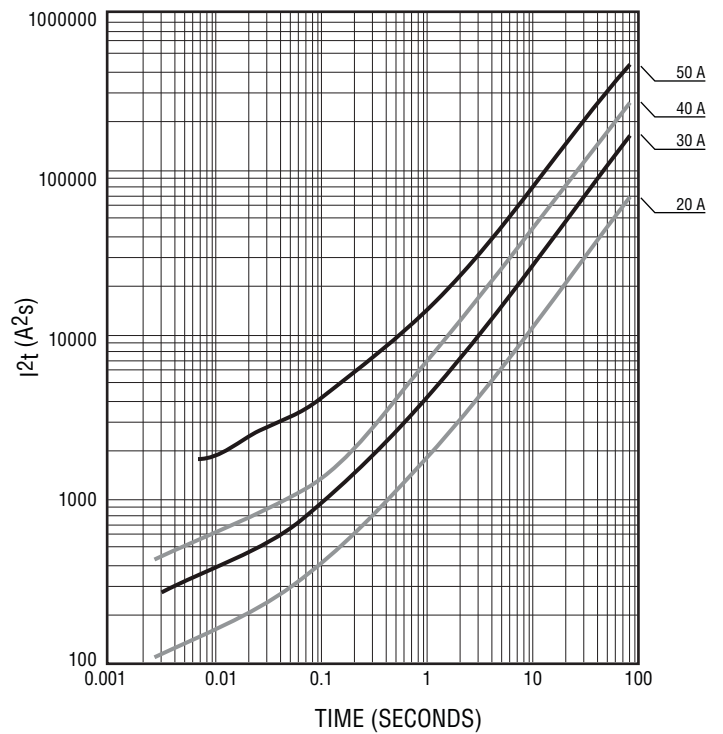
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Average Pre-Arcing Time vs. Current Curves



Average  $I^2t$  vs.  $t$  Curves



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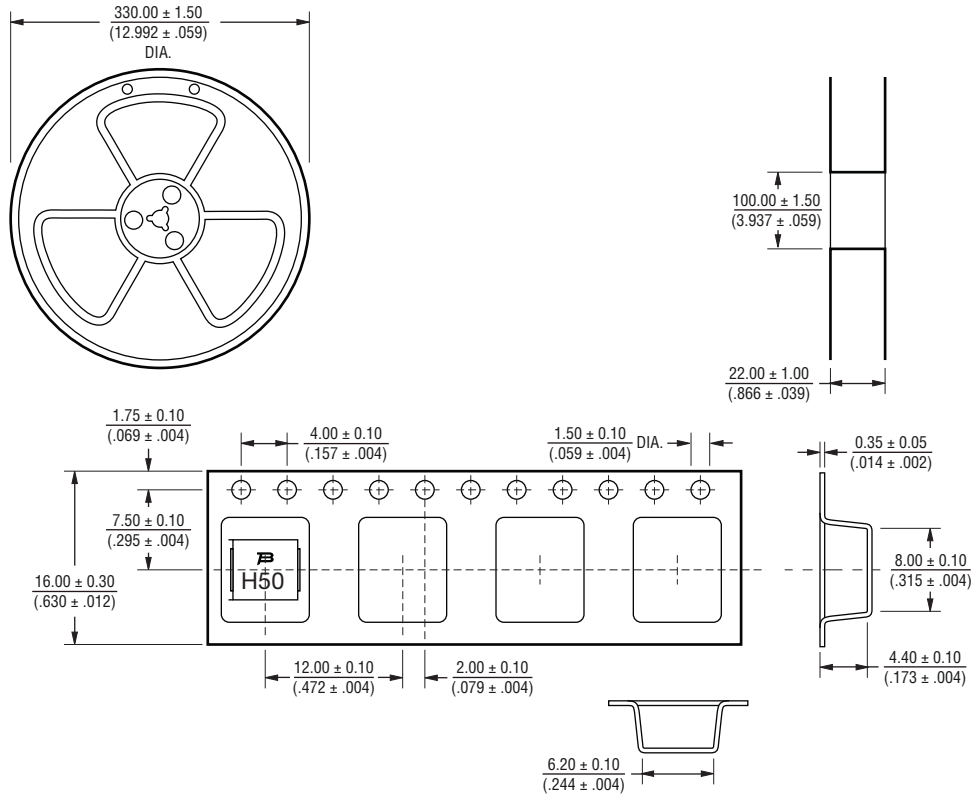
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# SF-2923HC-C Series – High Current SMD Fuses

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## Packaging Specifications



DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

REV. 01/19

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