

## 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

## BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com

EMEA: Tel: +36 88 520 390 • Email: eurocus@bourns.com

The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com

[www.bourns.com](http://www.bourns.com)



**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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# SingIFuse™ 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)

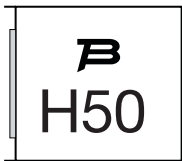
## SF-2923HC-C Series – High Current SMD Fuses BOURNS®

### 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.



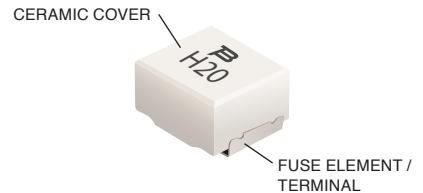
Rated Current	Part Marking
20 A	H20
30 A	H30
40 A	H40
50 A	H50

### How to Order

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

SingIFuse™ \_\_\_\_\_  
 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 \_\_\_\_\_

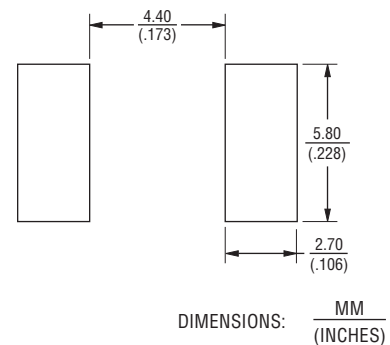
### Construction



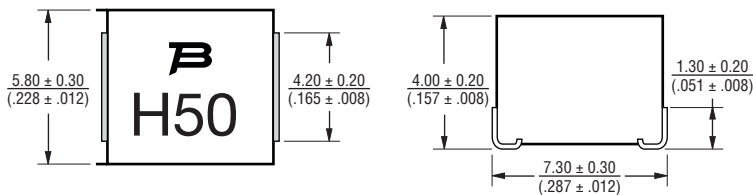
### Packaging Quantity

1,000 pieces per 13-inch reel

### Recommended Pad Layout

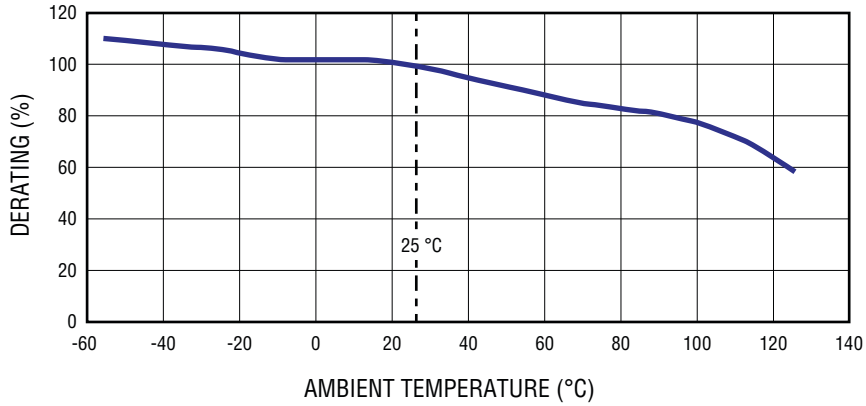


### Product Dimensions

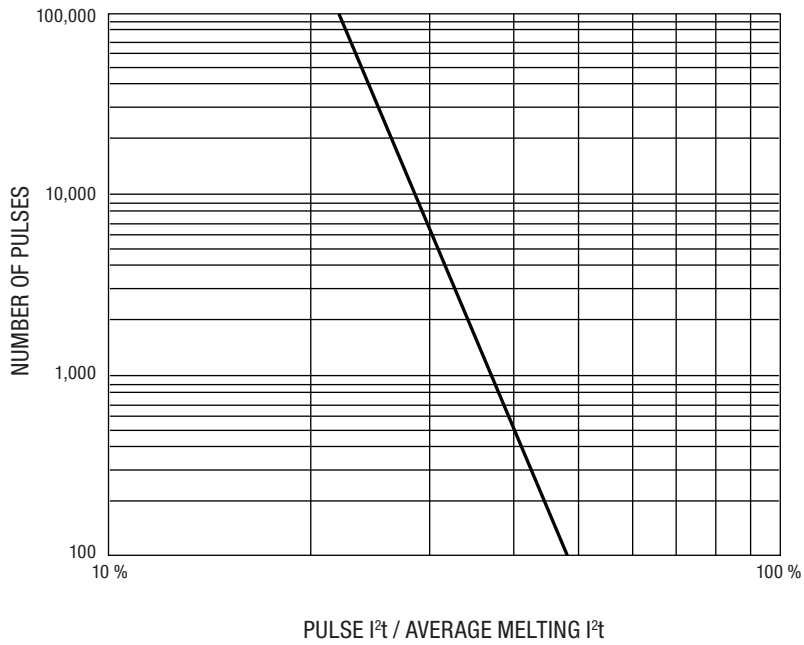


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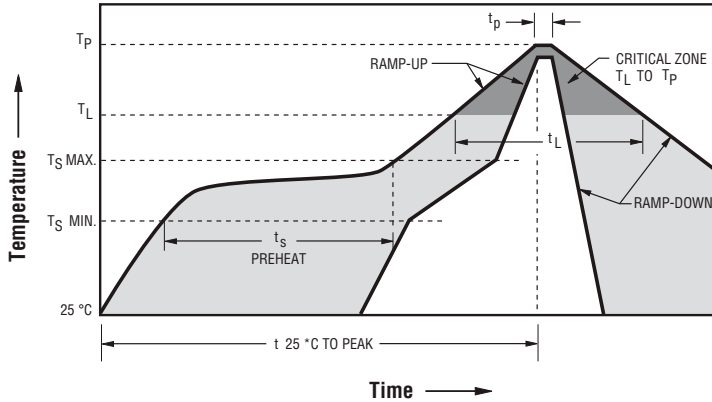
**Current Rating Thermal Derating Curve**



**Pulse Cycle Withstand Capability**



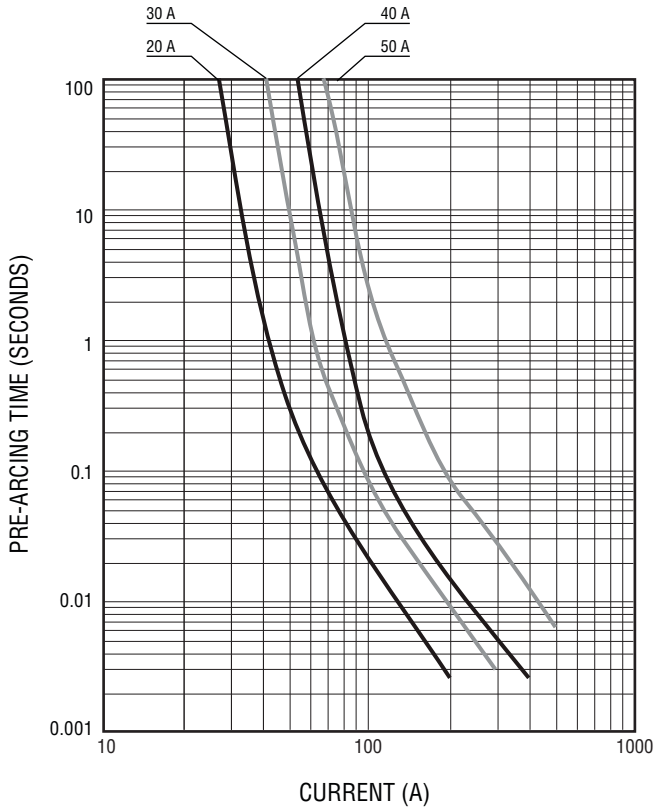
**Solder Reflow Recommendations**



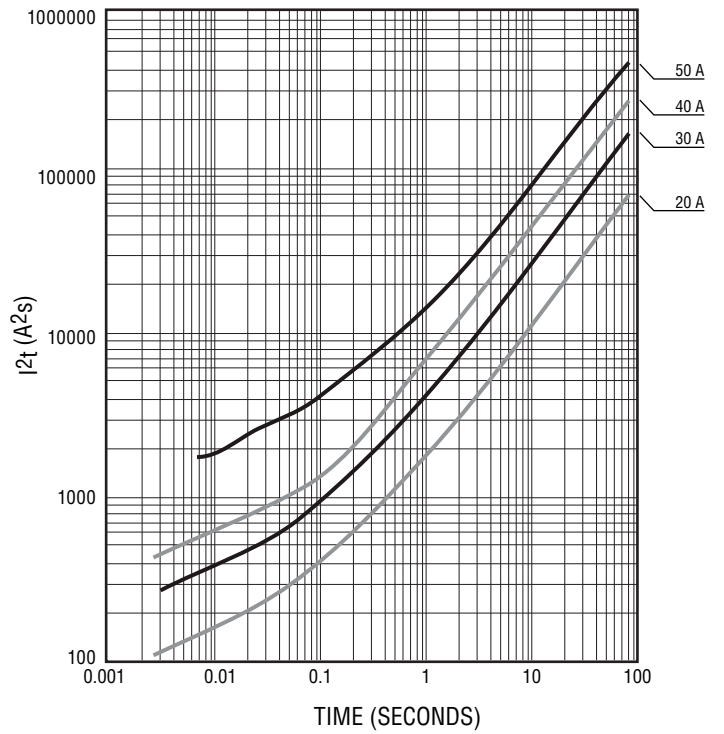
Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. (T <sub>smin</sub> ) Temperature Max. (T <sub>smax</sub> ) Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	150 °C 200 °C 60~180 seconds
Ramp Up Rate (T <sub>L</sub> to T <sub>p</sub> )	3 °C / second max.
Ramp Up Rate (T <sub>smax</sub> to T <sub>L</sub> )	5 °C / second max.
Liquidous Temperature (T <sub>L</sub> ) Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	217 °C 60~90 seconds
Peak Package Body Temperature (T <sub>p</sub> )	235 °C ± 5 °C
Time within 5 °C of actual peak temperature (T <sub>p</sub> )	20~30 seconds*
Ramp Down Rate (T <sub>p</sub> to T <sub>L</sub> )	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.
Do not exceed	240 °C

\* Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.

Average Pre-Arcing Time vs. Current Curves



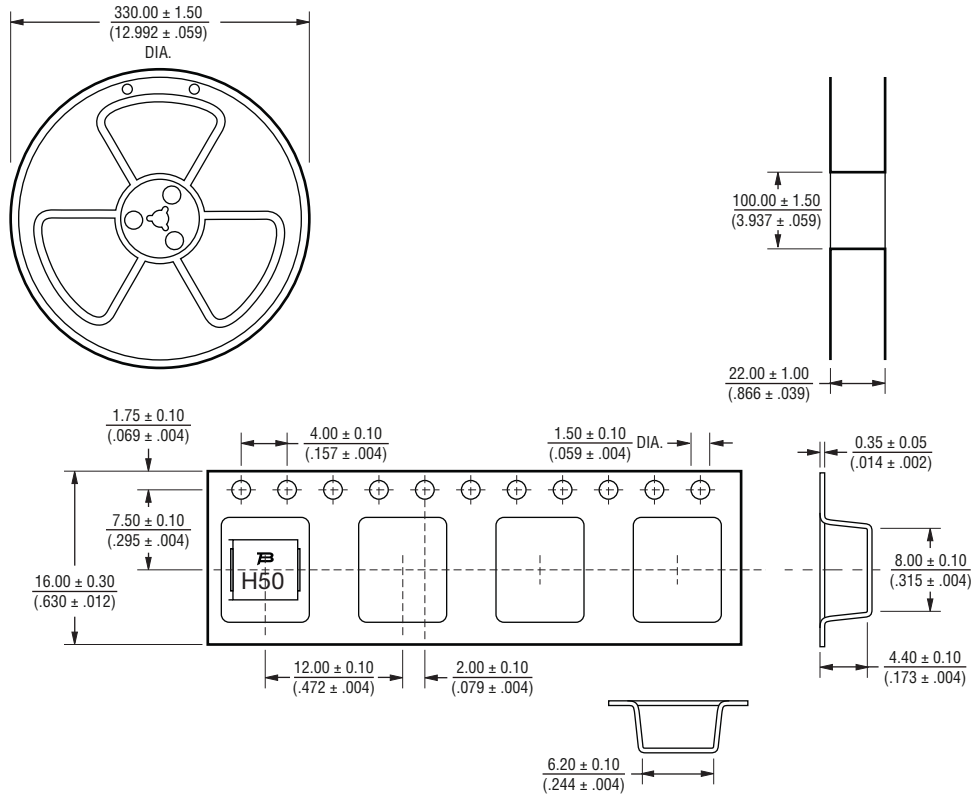
Average  $I^2t$  vs. t Curves



# 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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