



## SinglFuse™ SF-0603HIxxxF Series Features

- Single blow fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- High inrush current withstand fuse
- UL 248-14 listed
- RoHS compliant\* and halogen free\*\*
- Thin film chip design
- Surface mount packaging for automated assembly

### SF-0603HIxxxF Series - High Inrush Current Withstand Surface Mount 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-0603HI050F-2	0.50	Open within 60 sec. at 200 % rated current	0.1550	DC 65 V	AC/DC 35 V 50 A DC 65 V 13 A	0.019
SF-0603HI075F-2	0.75		0.0830			0.036
SF-0603HI100F-2	1.00		0.0500			0.052
SF-0603HI150F-2	1.50		0.0290			0.110
SF-0603HI200F-2	2.00		0.0200	DC 35 V	AC/DC 35 V 35 A AC/DC 24 V 50 A	0.310
SF-0603HI250F-2	2.50		0.0165			0.400
SF-0603HI300F-2	3.00		0.0140			0.600
SF-0603HI350F-2	3.50		0.0120			0.800
SF-0603HI400F-2	4.00		0.0095			1.200

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

\*\*\*\* Melting I<sup>2</sup>t calculated at 0.001 second pre-arcing time.

#### Reliability Testing

No.	Test	Requirement	Test Condition	Test Reference
1	Bending	≤1 A: DCR change ≤ ±10 % >1 A: DCR change ≤ ±20 %	2 mm	Refer to STP document
2	Solderability	Minimum 95 % coverage	One dip at 255 °C for 5 seconds	MIL-STD-202 Method 208
3	Thermal shock	DCR change ≤ ±10 % No mechanical damage	100 cycles between -55 °C and +125 °C	MIL-STD-202 Method 107
4	Moisture resistance	DCR change ≤ ±10 % No excessive corrosion	10 cycles	MIL-STD-202 Method 106
5	Salt spray	DCR change ≤ ±10 % No excessive corrosion	48 hour exposure, 5 % salt solution	MIL-STD-202 Method 101
6	Mechanical vibration	DCR change ≤ ±10 % No mechanical damage	0.4 inch D.A. or 30 G between 5-3000 Hz	MIL-STD-202 Method 204
7	Mechanical shock	DCR change ≤ ±10 % No mechanical damage	1500 G, 0.5 ms, half-sine shocks	MIL-STD-202 Method 213
8	Life	No electrical "opens" during testing Voltage drop change shall be less than ±10 % of initial value	75 % rated current for 2000 hours at ambient temperature between +20 °C and +30 °C	Refer to STP document

#### Agency Recognition

UL File Number ..... E198545

<http://www.ul.com/> Follow link to Online Certificates Directory, then enter UL File No. E198545, or [click here](#)

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\* 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.

"SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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## SinglFuse™ SF-0603HIxxxF Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

### SF-0603HIxxxF Series - High Inrush Current Withstand Surface Mount Fuses

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#### Environmental Characteristics

Operating Temperature.....	-55 °C to +90 °C
Storage Conditions	
Temperature .....	+5 °C to +35 °C
Humidity.....	40 % to 75 %
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.



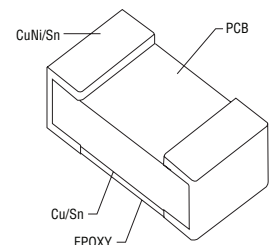
RATED CURRENT (A)  
 C = 0.50    J = 2.50  
 D = 0.75    L = 3.00  
 E = 1.00    N = 3.50  
 T = 1.50    P = 4.00  
 F = 2.00

#### How to Order

**SF - 0603 HI 015 F - 2**

SinglFuse™  
 Product Designator  
 SMD Footprint  
 0603 = 1608 (EIA 0603) size  
 Fuse Blow Type  
 HI = High Inrush Current Withstand  
 Rated Current  
 050 ~ 400 (500 mA ~ 4.0 A)  
 Structure Type  
 F = Thin film  
 Packaging Type  
 - 2 = Tape & Reel

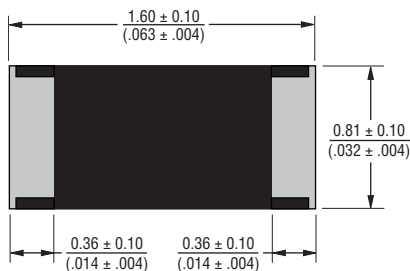
#### Construction



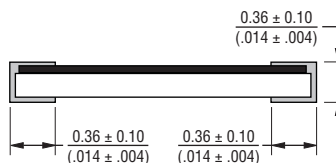
#### Packaging Quantity

8,000 pieces per 7-inch reel

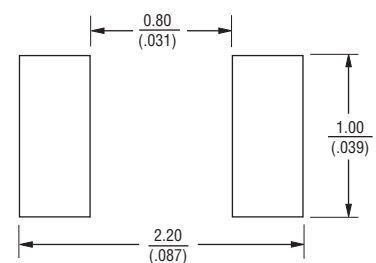
#### Product Dimensions



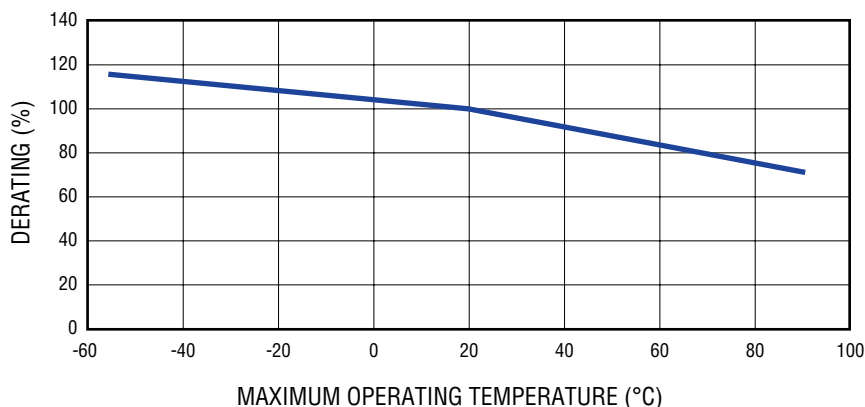
DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$



#### Recommended Pad Layout



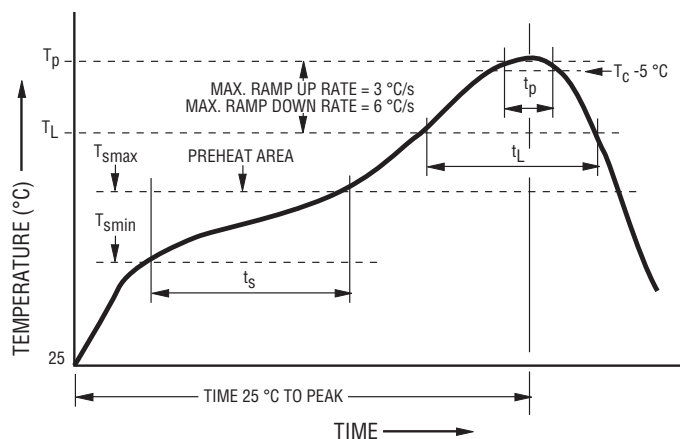
#### Current Rating Thermal Derating Curve



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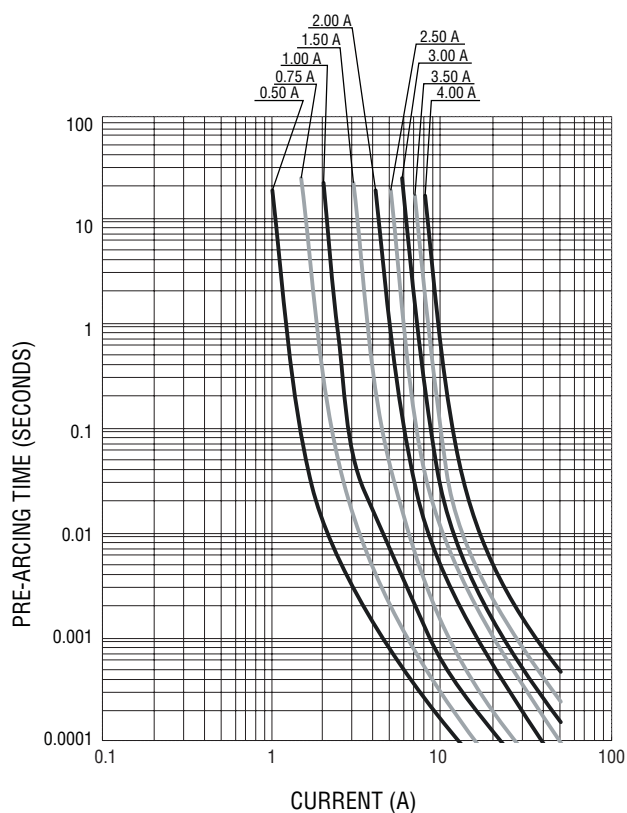
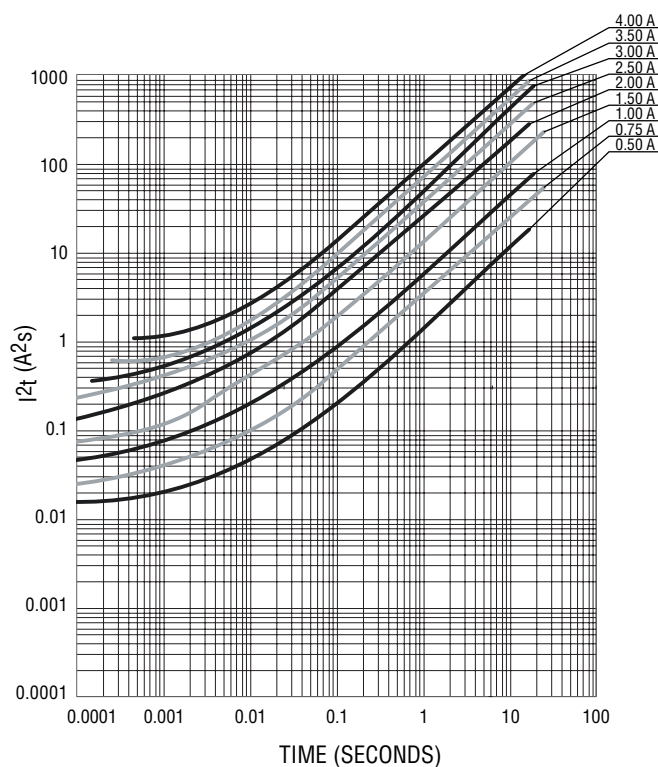
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**Solder Reflow Recommendations**

Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. ( $T_{smin}$ ) Temperature Max. ( $T_{smax}$ ) Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	150 °C 200 °C 60~120 seconds
Ramp Up Rate ( $T_L$ to $T_p$ )	3 °C / second max.
Liquidous Temperature ( $T_L$ ) Time ( $t_L$ ) maintained above $T_L$	217 °C 60~150 seconds
Peak Package Body Temperature ( $T_p$ )	260 °C
Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_c$ )	30 seconds*
Ramp Down Rate ( $T_p$ to $T_L$ )	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

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

**Average Pre-Arcing Time vs. Current Curves****Average  $I^2t$  vs.  $t$  Curves**

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# SF-0603HlxxxF Series Tape and Reel Packaging Specifications

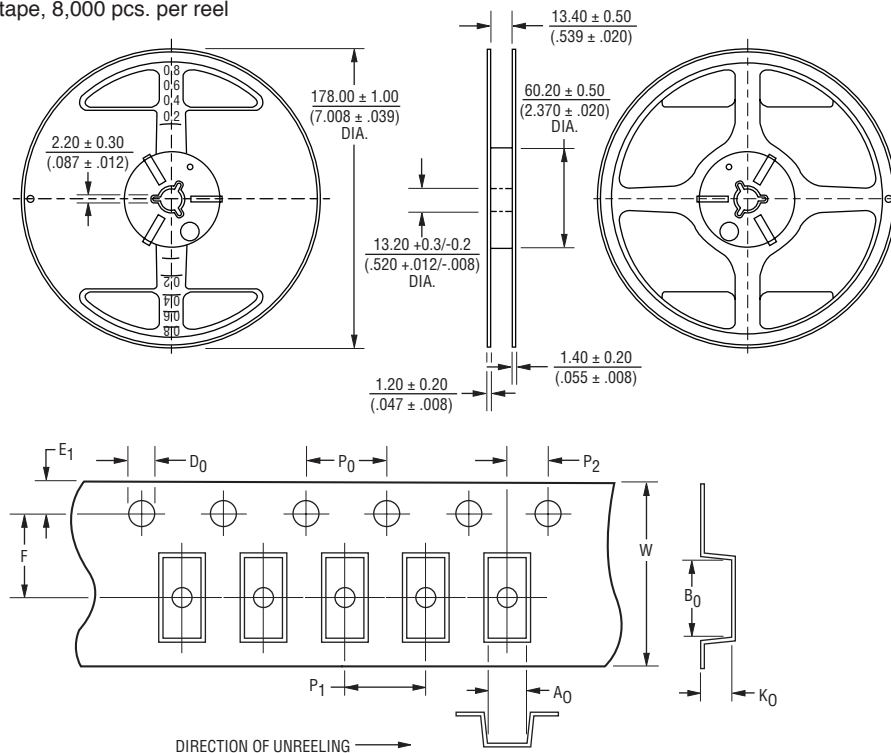
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## SF-0603HlxxxF Series per EIA 481-2

### Tape Dimensions

W	$\frac{8.10 \pm 0.20}{(.319 \pm .008)}$
P <sub>0</sub>	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P <sub>1</sub>	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P <sub>2</sub>	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
A <sub>0</sub>	$\frac{1.00 \pm 0.10}{(.039 \pm .004)}$
B <sub>0</sub>	$\frac{1.80 \pm 0.10}{(.071 \pm .004)}$
F	$\frac{3.50 \pm 0.05}{(.138 \pm .002)}$
E <sub>1</sub>	$\frac{1.75 \pm 0.10}{(.069 \pm .004)}$
D <sub>0</sub>	$\frac{1.55 \pm 0.05}{(.061 \pm .002)}$

PACKAGING: Paper tape, 8,000 pcs. per reel



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

REV. A 06/18

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