

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

|                      |                                             |
|----------------------|---------------------------------------------|
| <b>Part Number:</b>  | SF-0603HI100F-2                             |
| <b>Manufacturer:</b> | Bourns Inc.                                 |
| <b>Package:</b>      | Tape & Reel (TR), Cut Tape (CT), Digi-Reel® |
| <b>Availability:</b> | Please confirm with sales                   |

#### Product Page:

<https://antrexco.com/product/details/bourns-inc/sf-0603hi100f-2.html>

#### Request a Quote:

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New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



## SinglFuse™ SF-0603HI-F Series Features

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

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

#### Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time at 25 °C |              |
|---------------------|------------------------|--------------|
|                     | Min.                   | Max.         |
| 100 %               | 4 hours                | —            |
| 200 %               | 1 second               | 60 seconds   |
| 1000 %              | 0.0002 seconds         | 0.02 seconds |

#### Additional Information

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#### Electrical Characteristics

| Model           | Rated Current (A) | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating                                              | Typical I <sup>2</sup> t (A <sup>2</sup> s)**** | Certifications               |
|-----------------|-------------------|------------------------|---------------|------------------------------------------------------------------|-------------------------------------------------|------------------------------|
|                 |                   |                        |               |                                                                  |                                                 | cUL: <a href="#">E198545</a> |
| SF-0603HI050F-2 | 0.50              | 0.1550                 | 65 VDC        | 50 A @ 35 VAC<br>13 A @ 65 VDC<br>50 A @ 35 VDC                  | 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                 | 35 VDC        | 35 A @ 35 VAC<br>50 A @ 24 VAC<br>35 A @ 35 VDC<br>50 A @ 24 VDC | 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. Tolerance ±25 %.

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

# BOURNS®

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

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

\*\*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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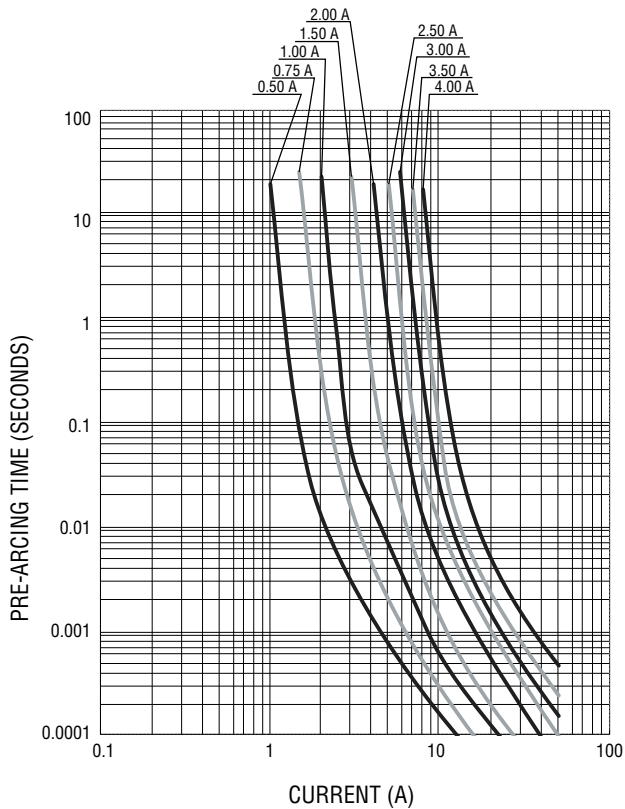
## SinglFuse™ SF-0603HI-F Series Applications

- 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

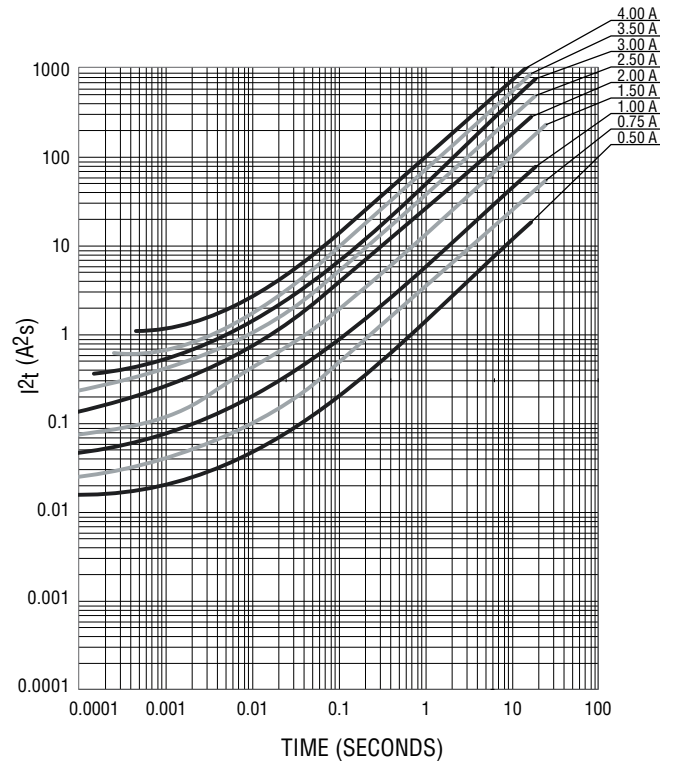
### SF-0603HI-F Series - High Inrush Current Withstand Surface Mount Fuses

**BOURNS®**

**Average Pre-Arcing Time vs. Current Curves**



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



### 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                         |

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

**BOURNS®**

## 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

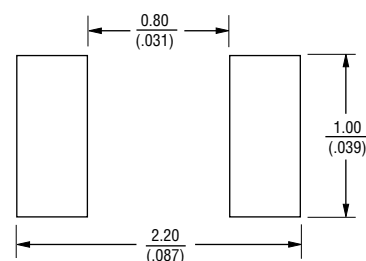
**SF - 0603 HI 015 F - 2**

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

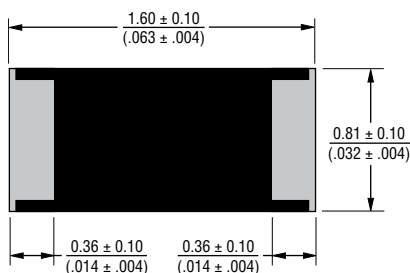
## Packaging

|                |                      |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification  | EIA 481-2            |
| Quantity       | 8,000 pieces         |
| Packaging Code | -2                   |

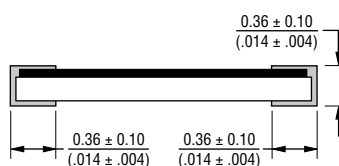
## Recommended Pad Layout



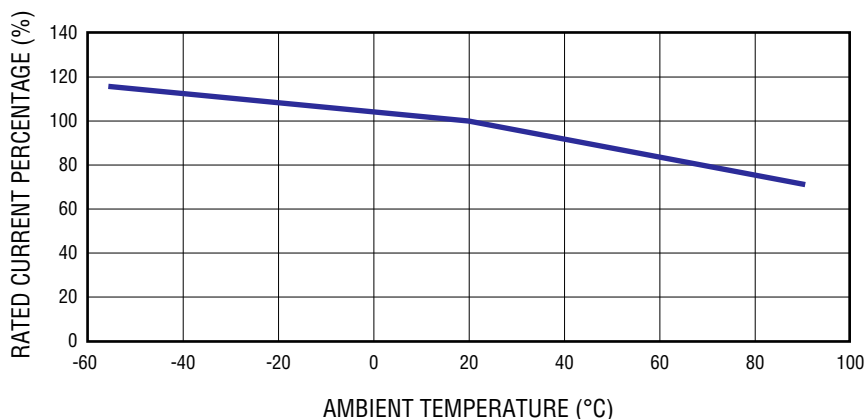
## Product Dimensions



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



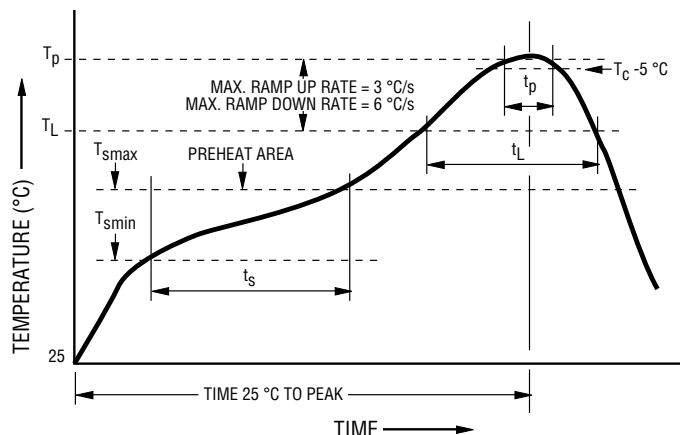
## Current Rating Thermal Derating Curve



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**Solder Reflow Recommendations**

| Profile Feature                                                                                                                           | Pb-Free Assembly                   |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Preheat / Soak:<br>Temperature Min. ( $T_{smin}$ )<br>Temperature Max. ( $T_{smax}$ )<br>Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ ) | 150 °C<br>200 °C<br>60~120 seconds |
| Ramp Up Rate ( $T_L$ to $T_p$ )                                                                                                           | 3 °C / second max.                 |
| Liquidous Temperature ( $T_L$ )<br>Time ( $t_L$ ) maintained above $T_L$                                                                  | 217 °C<br>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.

**Reliability Testing**

| No. | Test                 | Requirement                                                                                                | Test Condition                                                                     | Test Reference         |
|-----|----------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------|
| 1   | Bending              | $\leq 1$ A: DCR change $\leq \pm 10\%$<br>$> 1$ A: DCR change $\leq \pm 20\%$                              | 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 $\leq \pm 10\%$<br>No mechanical damage                                                         | 100 cycles between -55 °C and +125 °C                                              | MIL-STD-202 Method 107 |
| 4   | Moisture resistance  | DCR change $\leq \pm 10\%$<br>No excessive corrosion                                                       | 10 cycles                                                                          | MIL-STD-202 Method 106 |
| 5   | Salt spray           | DCR change $\leq \pm 10\%$<br>No excessive corrosion                                                       | 48 hour exposure, 5 % salt solution                                                | MIL-STD-202 Method 101 |
| 6   | Mechanical vibration | DCR change $\leq \pm 10\%$<br>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 $\leq \pm 10\%$<br>No mechanical damage                                                         | 1500 G, 0.5 ms, half-sine shocks                                                   | MIL-STD-202 Method 213 |
| 8   | Life                 | No electrical "opens" during testing<br>Voltage drop change shall be less than $\pm 10\%$ of initial value | 75 % rated current for 2000 hours at ambient temperature between +20 °C and +30 °C | Refer to STP document  |

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