



**THE DATASHEET OF
SF-0603HI350M-2**





SinglFuse™ SF-0603HI-M 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**
- Multilayer SMD design
- Surface mount packaging for automated assembly

SF-0603HI-M 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 % (1 A - 5 A) | 0.0002 seconds | 0.02 seconds |

Additional Information

Click these links for more information:



Electrical Characteristics

| Model | Rated Current (A) | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating | Typical I ² t (A ² s) **** | Certifications |
|-----------------|-------------------|------------------------|---------------|---------------------|--|------------------------------|
| | | | | | | cUL: E198545 |
| SF-0603HI100M-2 | 1.00 | 0.2090 | 32 VDC | 50 A @ 32 VDC | 0.081 | ✓ |
| SF-0603HI150M-2 | 1.50 | 0.1005 | | | 0.111 | ✓ |
| SF-0603HI200M-2 | 2.00 | 0.0567 | | | 0.242 | ✓ |
| SF-0603HI250M-2 | 2.50 | 0.0418 | | | 0.566 | ✓ |
| SF-0603HI300M-2 | 3.00 | 0.0299 | | | 0.727 | ✓ |
| SF-0603HI350M-2 | 3.50 | 0.0219 | | | 1.11 | ✓ |
| SF-0603HI400M-2 | 4.00 | 0.0179 | | | 2.101 | ✓ |
| SF-0603HI450M-2 | 4.50 | 0.0139 | | | 2.656 | ✓ |
| SF-0603HI500M-2 | 5.00 | 0.0129 | | | 3.283 | ✓ |
| SF-0603HI600M-2 | 6.00 | 0.0100 | | 70 A @ 32 VDC | 4.0 | ✓ |
| SF-0603HI700M-2 | 7.00 | 0.0080 | | 80 A @ 32 VDC | 5.1 | ✓ |
| SF-0603HI800M-2 | 8.00 | 0.0060 | | | 7.1 | ✓ |

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

**** Melting I²t calculated at 1000 % of current rating.



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WARNING Cancer and Reproductive Harm
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.

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Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

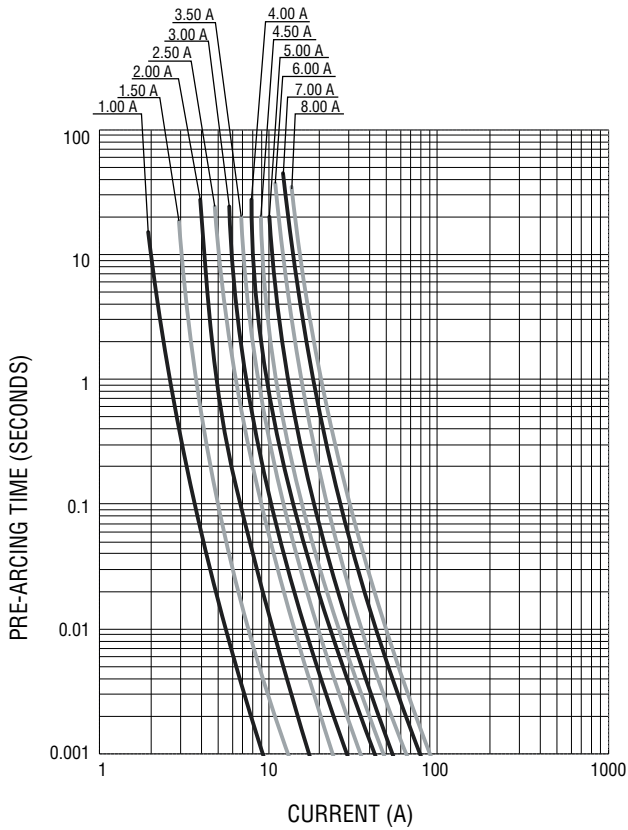
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SinglFuse™ SF-0603HI-M Series Applications

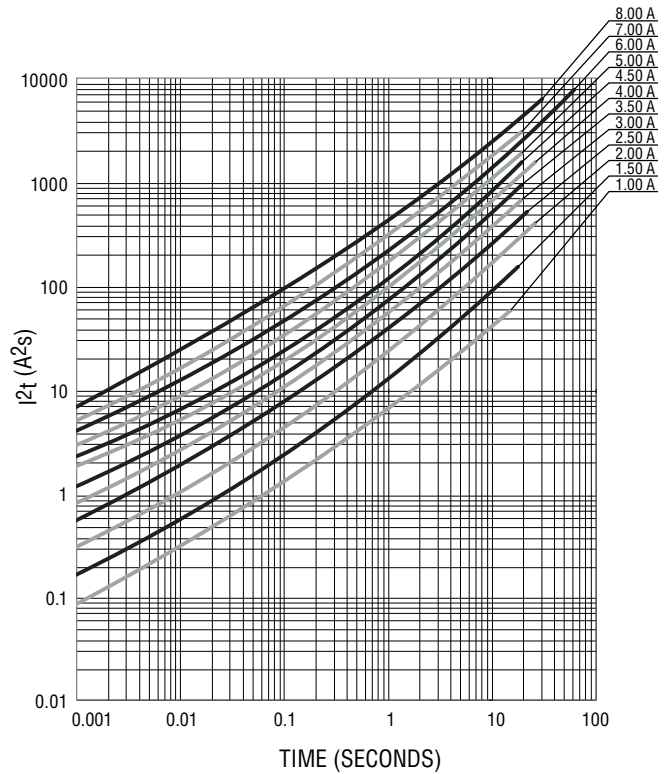
- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cellphones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

SF-0603HI-M Series - High Inrush Current Withstand Surface Mount Fuses BOURNS®

Average Pre-Arcing Time vs. Current Curves



Average I²t vs. t Curves



Environmental Characteristics

| | |
|---------------------------------|---------------------------------|
| Operating Temperature..... | -55 °C to +125 °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-M Series - High Inrush Current Withstand Surface Mount Fuses



Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)

| | |
|----------|----------|
| E = 1.00 | M = 4.00 |
| G = 1.50 | T = 4.50 |
| I = 2.00 | N = 5.00 |
| J = 2.50 | O = 6.00 |
| K = 3.00 | P = 7.00 |
| L = 3.50 | R = 8.00 |

How to Order

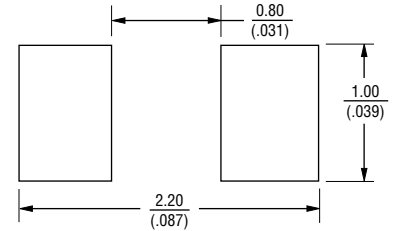
SF - 0603 HI 100 M - 2

SinglFuse™
 Product Designator
 SMD Footprint
 0603 = 1608 (EIA 0603) size
 Fuse Blow Type
 HI = High Inrush Current Withstand
 Rated Current
 100 ~ 800 (1.0 A ~ 8.0 A)
 Structure Type
 M = Multilayer
 Packaging Type
 - 2 = Tape & Reel

Packaging

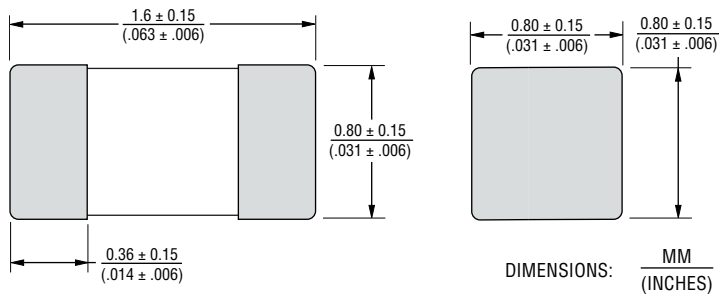
| | |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification | EIA 481-2 |
| Quantity | 4,000 pieces |
| Packaging Code | -2 |

Recommended Pad Layout

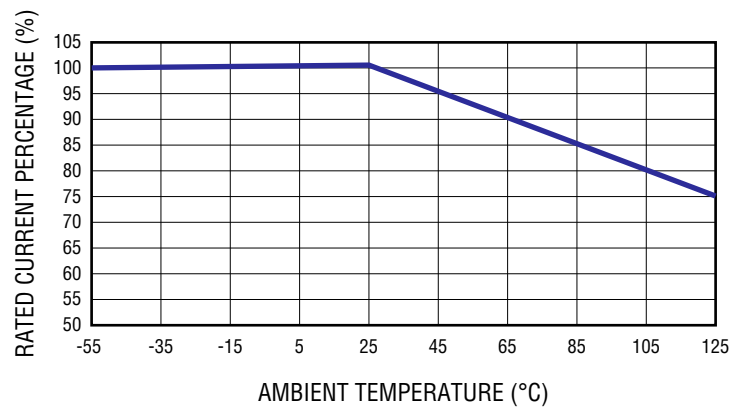


DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Product Dimensions



Current Rating Thermal Derating Curve



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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.

Recommended Temperature Profile for Wave Soldering



Wave soldering is suitable for 0603 size models.

Reliability Testing

| No. | Test | Requirement | Test Condition | Test Reference |
|-----|---------------------------|---|---|---------------------------|
| 1 | Solderability | Minimum 95 % coverage | One dip at 245 °C for 5 seconds | MIL-STD-202 Method 208 |
| 2 | Soldering heat resistance | DCR change \leq 10 % No mechanical damage | One dip at 260 °C for 60 seconds | MIL-STD-202 Method 210 |
| 3 | Moisture resistance | DCR change \leq \pm 15 % No excessive corrosion | 10 cycles | MIL-STD-202 Method 106 |
| 4 | Salt spray | DCR change \leq \pm 10 % No excessive corrosion | 48 hour exposure, 5 % salt solution | MIL-STD-202 Method 101 |
| 5 | Mechanical vibration | DCR change \leq \pm 10 % No mechanical damage | 0.4 inch D.A. or 30 G between 5-3000 Hz | MIL-STD-202 Method 204 |
| 6 | Mechanical shock | DCR change \leq \pm 10 % No mechanical damage | 1500 G, 0.5 ms, half-sine shocks | MIL-STD-202 Method 213 |
| 7 | Thermal Shock | DCR change \leq \pm 10 % No mechanical damage | 100 cycles between -65 °C and +125 °C | MIL-STD-202 Method 107 |
| 8 | Life | No electrical "opens" during testing Voltage drop change shall be less than \pm 20 % of initial value | 80 % rated current (75 % for < 1 A fuses) for 2000 hours at ambient temperature between +20 °C and +30 °C | Refer to STP document |

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