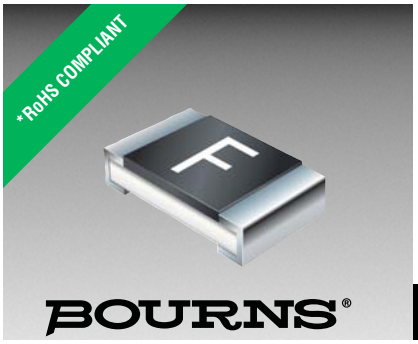


## SingIFuse™ SF-0603F Series Features

- Single blow fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- Fast-acting fuse
- UL listed
- RoHS compliant* and halogen free**
- Thin film chip fuse
- Surface mount packaging for automated assembly

# SF-0603F Series - Fast Acting Surface Mount Fuses

### Electrical Characteristics

| Model | Rated Current (Amps) | Fusing Time | Resistance (mΩ) Typ.*** | Rated Voltage | Breaking Capacity | Typical $I^2t$ ($A^2s$) |
|---|---|---|---|---|---|---|
| SF-0603F050 | 0.50 | Open within 1 min. at 200 % rated current | 250 | DC 50 V | DC 50 V 50 A | 0.005 |
| SF-0603F063 | 0.63 | | 173 | DC 32 V | DC 32 V 50 A | 0.007 |
| SF-0603F080 | 0.80 | | 115 | | | 0.014 |
| SF-0603F100 | 1.00 | | 88 | | | 0.016 |
| SF-0603F125 | 1.25 | | 63 | | | 0.027 |
| SF-0603F150 | 1.50 | | 45 | | | 0.037 |
| SF-0603F160 | 1.60 | | 42 | | | 0.041 |
| SF-0603F200 | 2.00 | | 33 | | | 0.044 |
| SF-0603F250 | 2.50 | | 24 | DC 24 V | DC 24 V 50 A | 0.055 |
| SF-0603F300 | 3.00 | | 21 | | | 0.082 |
| SF-0603F315 | 3.15 | | 19 | | | 0.089 |
| SF-0603F400 | 4.00 | | 15 | DC 32 V | DC 32 V 50 A | 0.239 |
| SF-0603F500 | 5.00 | | 12 | | | 0.433 |

***Resistance value was measured with less than 10 % of rated current.

### Reliability Testing

| Parameter | Requirement | Test Method |
|---|---|---|
| Carrying Capacity | No fusing | Rated current, 4 hours |
| Fusing Time | Within 1 minute | 200 % of its rated current |
| Interrupting Ability | No mechanical damages | After the fuse is interrupted, rated voltage applied for 30 seconds again |
| Bending Test | No mechanical damages | Distance between holding points: 90 mm, Bending: 3 mm,1time, 30 seconds |
| Resistance to Solder Heat | ±20 % | 260 °C ±5 °C,10 seconds ±1 second |
| Solderability | 95 % coverage minimum | 235 °C ±5 °C, 2 ±0.5 second<br>245 °C ±5 °C, 2 ±0.5 second (lead free) |
| Temperature Rise | <75 ° | 100 % of its rated current, measure of surface temperature |
| Resistance to Dry Heat | ±20 % | 105 °C ±5 °C,1000 hours |
| Resistance to Solvent | No evident damage on protective | 23 °C ±5 °C of isopropyl alcohol, 90 seconds coating and marking |
| Residual Resistance | 10k W or more | Measure DC resistance after fusing |
| Thermal Shock | DR < 10 % | -20 °C / +25 °C /+125 °C /+25 °C, 10 cycles |

### Typical Part Marking

Represents total content. Layout may vary.

RATING CURRENT (A)

| | |
|---|---|
| F = 0.50 | S = 2.00 |
| I = 0.63 | T = 2.50 |
| K = 0.80 | 3 = 3.00 |
| L = 1.00 | U = 3.15 |
| M = 1.25 | W = 4.00 |
| P = 1.50 | Y = 5.00 |
| N = 1.60 | |

### How to Order

**SF - 0603 F 050 - 2**

- SingIFuse™ Product Designator
- SMD Footprint
  1608 (EIA 0603) size
- Fuse Blow Type
  F = Fast acting
  S = Slow blow
- Rated Current
  050-500 (500 mA - 5.00 A)
- Packaging Type
  - 2 = Tape & Reel (5,000 pcs./reel)

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Fax: +886-2 2562-4116

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Fax: +41-41 768 5510

**The Americas:**
Tel: +1-951 781-5500
Fax: +1-951 781-5700

**www.bourns.com**

* RoHS Directive 2002/95/EC Jan 27 2003 including Annex.

** Bourns is using the definition that appears to be the prevalent definition used as the industry standard at this time. The Bourns definition of "halogen-free" is: Bromine (Br) content: ≤ 900 ppm; Chlorine (Cl) content: ≤ 900 ppm; Total Br + Cl content: ≤1500 ppm.

"SingIFuse" is a trademark of Bourns, Inc.
Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.

## SingIFuse™ SF-0603F Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- DVDs
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set top boxes
- Industrial controllers

# SF-0603F Series - Fast Acting Surface Mount Fuses

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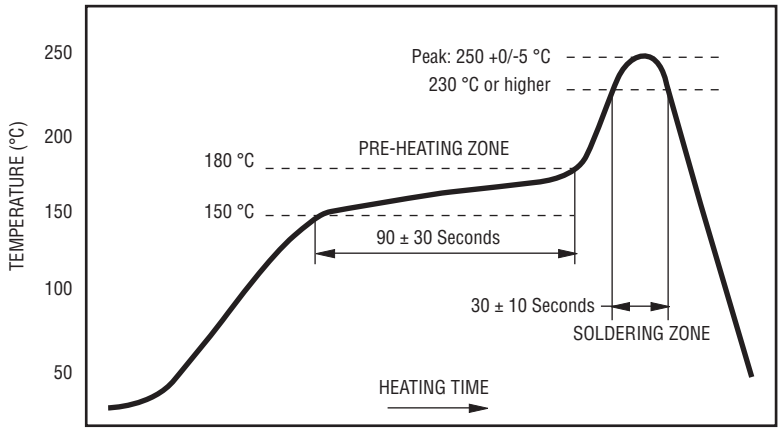
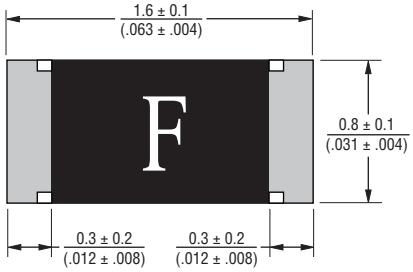
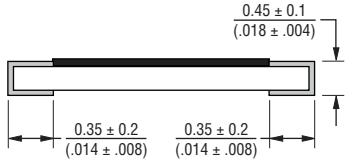
### Solder Reflow Recommendations




PEAK: 250 +0/-5 °C, 5 seconds
PRE-HEATING ZONE: 150 to 180 °C, 90 ± 30 seconds
SOLDERING ZONE: 230 °C or higher, 30 ± 10 seconds

### Product Dimensions

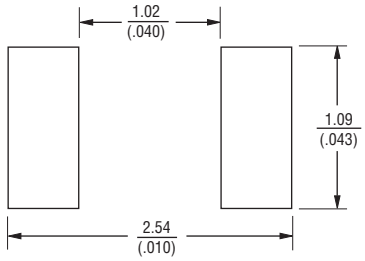


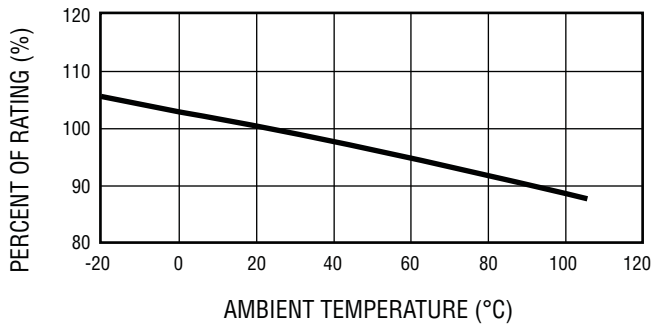

DIMENSIONS: MM / (INCHES)

PACKAGING: 5,000 pcs./reel

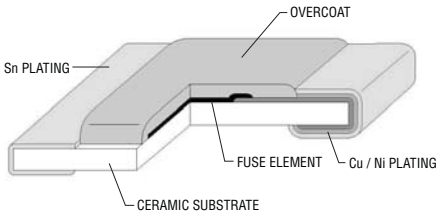
### Recommended Pad Layout




### Thermal Derating Curve




### Construction & Material Content




Operating Temperature.....-40 °C to +105 °C
Storage Conditions
Temperature .....+5 °C to +35 °C
Humidity.....40 % to 75 %
Shelf Life..... 2 years from manufacturing date

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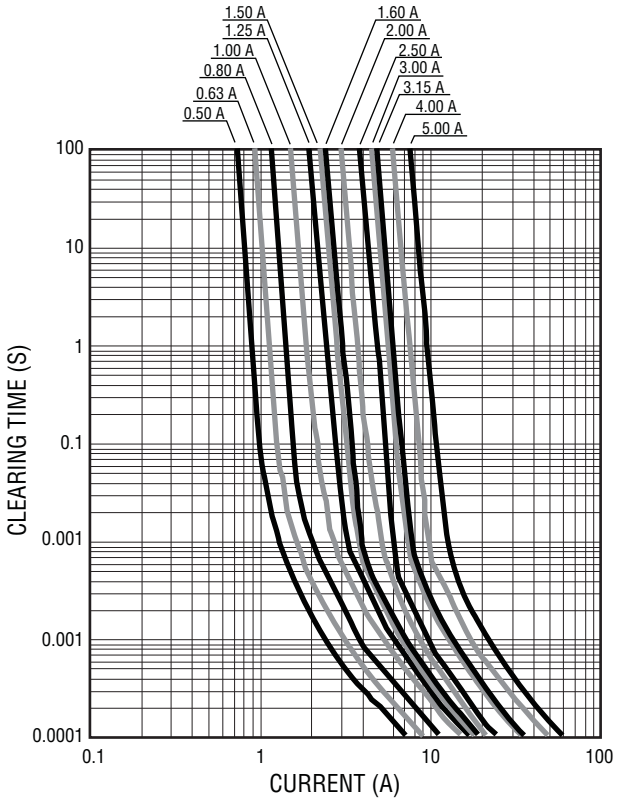
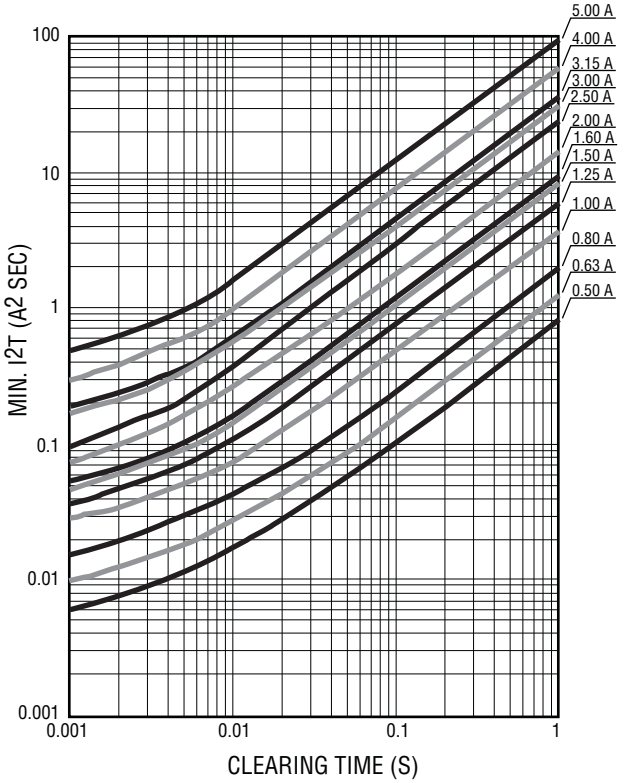
## Average Time Current Curves




## Minimum I²T V Clear Time Curves



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# SF-0603F Series Tape and Reel Specifications

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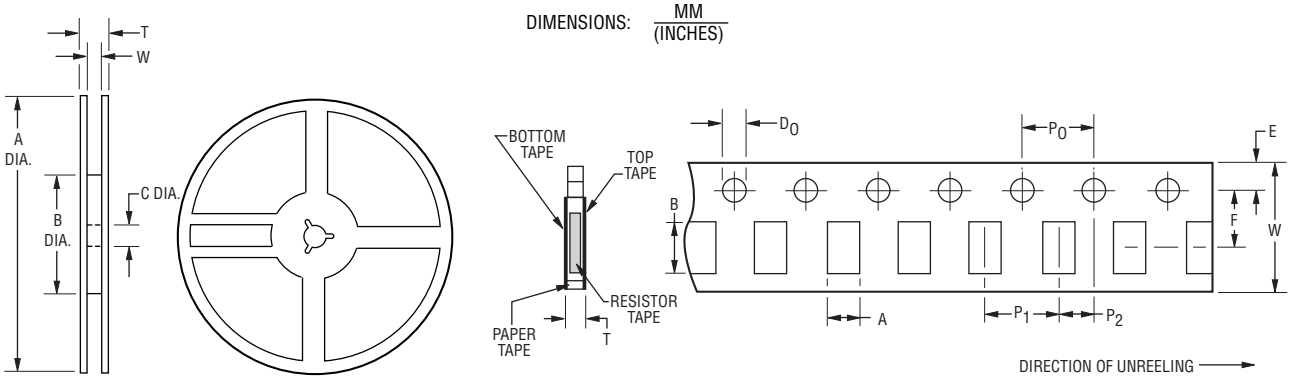
| Tape Dimensions | SF-0603F Series per EIA 481-2 |
|---|---|
| W | 8.0 ± 0.2 (.315 ± .008) |
| $P_0$ | 4.0 ± 0.1 (.157 ± .004) |
| $P_1$ | 4.0 ± 0.1 (.157 ± .004) |
| $P_2$ | 2.0 ± 0.05 (.079 ± .002) |
| A | 1.1 ± 0.1 (.043 ± .004) |
| B | 1.9 ± 0.1 (.075 ± .004) |
| F | 3.5 ± 0.05 (.138 ± .002) |
| E | 1.75 ± 0.1 (.069 ± .004) |
| $D_0$ | 1.5 + 0.1/-0 (.059 + .004/-0) |
| T | 0.64 ± 0.1 (.025 ± .004) |
| **Reel Dimensions** | |
| A | 180 +0/-3.0 (7.087 +0/-.118) |
| B Min. | 60.0 (2.362) |
| C | 13.0 ± 1.0 (.512 ± .039) |
| W | 9.0 ± 1.0 (.354 ± .039) |
| T | 11.4 ± 2.0 (.449 ± .079) |

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