



**THE DATASHEET OF
SF-0603FP025F-2**





SinglFuse™ SF-0603FP-F Series Features

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

SF-0603FP-F Series - Fast Acting Precision Surface Mount Fuses

Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time at 25 °C | |
|---------------------|------------------------|-------------|
| | Min. | Max. |
| 100 % | 4 hours | — |
| 200 % | — | 5 seconds |
| 300 % | — | 0.2 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-0603FP015F-2 | 0.15 | 2.189 | 65 VDC | 50 A @ 35 VAC 13 A @ 65 VDC 50 A @ 35 VDC | 0.00061 | ✓ |
| SF-0603FP020F-2 | 0.20 | 1.294 | | | 0.00142 | ✓ |
| SF-0603FP025F-2 | 0.25 | 1.095 | | | 0.00162 | ✓ |
| SF-0603FP0375F-2 | 0.375 | 0.478 | | | 0.0041 | ✓ |
| SF-0603FP050F-2 | 0.50 | 0.184 | | | 0.0122 | ✓ |
| SF-0603FP075F-2 | 0.75 | 0.111 | | | 0.0213 | ✓ |
| SF-0603FP100F-2 | 1.00 | 0.0687 | | | 0.0426 | ✓ |
| SF-0603FP125F-2 | 1.25 | 0.0478 | 35 VDC | 35 A @ 35 VAC 13 A @ 65 VDC 35 A @ 35 VDC | 0.0525 | ✓ |
| SF-0603FP150F-2 | 1.50 | 0.0368 | | | 0.0717 | ✓ |
| SF-0603FP175F-2 | 1.75 | 0.0308 | | | 0.101 | ✓ |
| SF-0603FP200F-2 | 2.00 | 0.0259 | | | 0.141 | ✓ |
| SF-0603FP250F-2 | 2.50 | 0.0209 | | | 0.242 | ✓ |
| SF-0603FP300F-2 | 3.00 | 0.0175 | | | 0.333 | ✓ |
| SF-0603FP350F-2 | 3.50 | 0.0147 | | | 0.495 | ✓ |
| SF-0603FP400F-2 | 4.00 | 0.0124 | 0.636 | ✓ | | |
| SF-0603FP500F-2 | 5.00 | 0.0095 | 1.11 | ✓ | | |

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

**** Melting I²t calculated at 0.001 second pre-arcing time.

*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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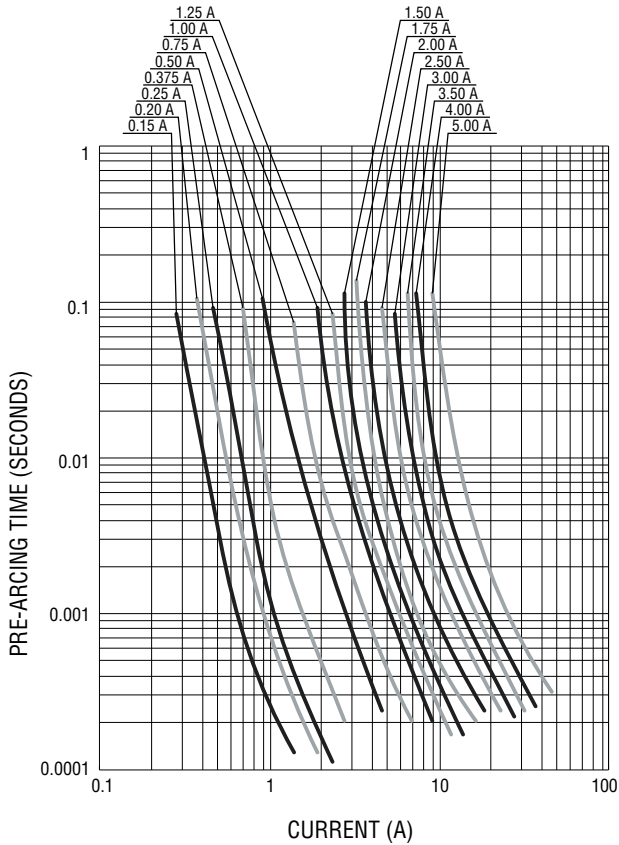
WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

SinglFuse™ SF-0603FP-F Series Applications

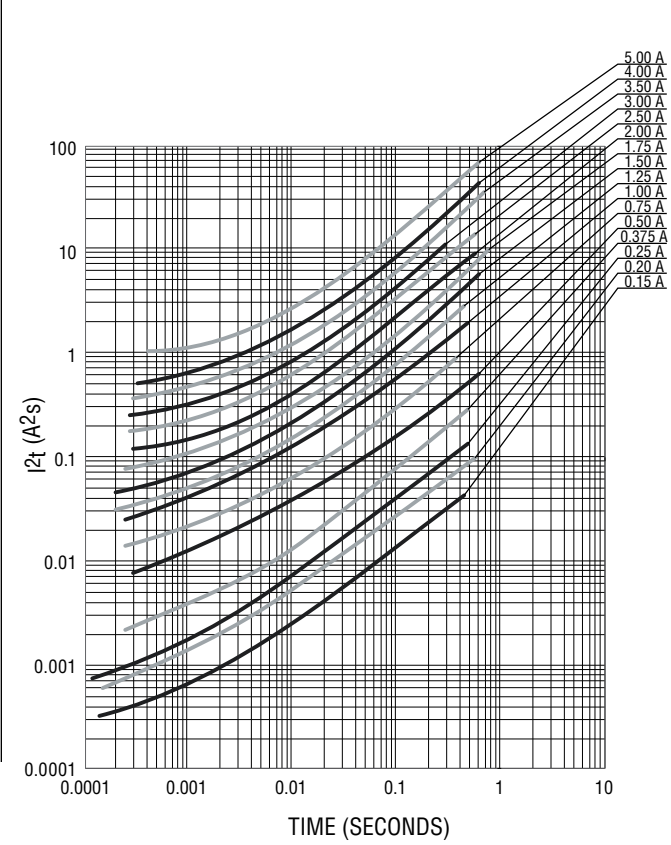
- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

SF-0603FP-F Series - Fast Acting Precision Surface Mount Fuses BOURNS®

Average Pre-Arcing Time vs. Current Curves



Average I²t 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-0603FP-F Series - Fast Acting Precision Surface Mount Fuses



Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)

| | |
|-------------|-------------|
| • = 0.150 | = 1.500 |
| •• = 0.200 | = = 1.750 |
| ∴ = 0.250 | ≡ = 2.000 |
| ••• = 0.375 | H = 2.500 |
| I = 0.500 | III = 3.000 |
| — = 0.750 | HH = 3.500 |
| + = 1.000 | □ = 4.000 |
| x = 1.250 | ○ = 5.000 |

How to Order

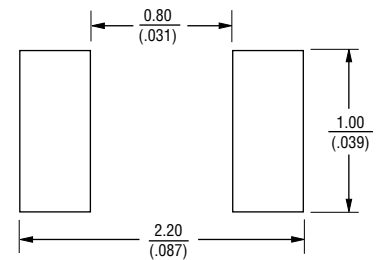
SF - 0603 FP 015 F - 2

SinglFuse™
 Product Designator
 SMD Footprint
 1608 = (EIA 0603) size
 Fuse Blow Type
 FP = Fast acting precision
 Rated Current
 015 ~ 500 (150 mA ~ 5.0 A)
 Structure Type
 F = Thin film
 Packaging Type
 - 2 = Tape & Reel

Packaging

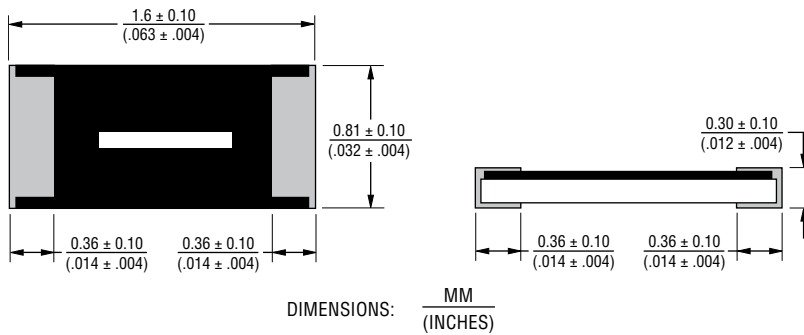
| | |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification | EIA 481-2 |
| Quantity | 8,000 pieces |
| Packaging Code | -2 |

Recommended Pad Layout

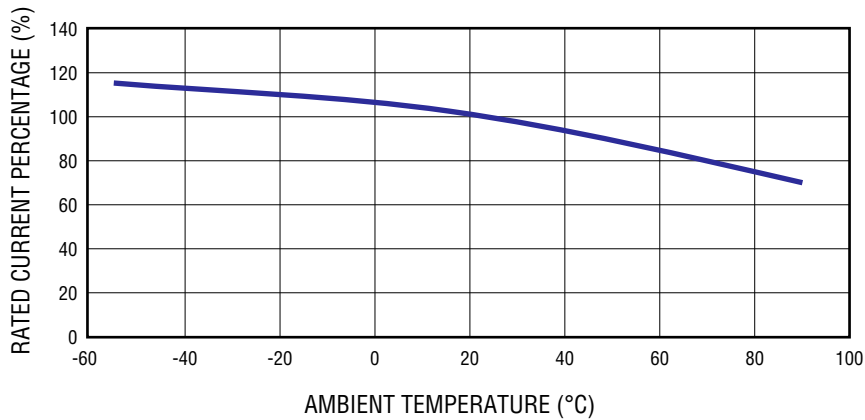


DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Product Dimensions



Current Rating Thermal Derating Curve

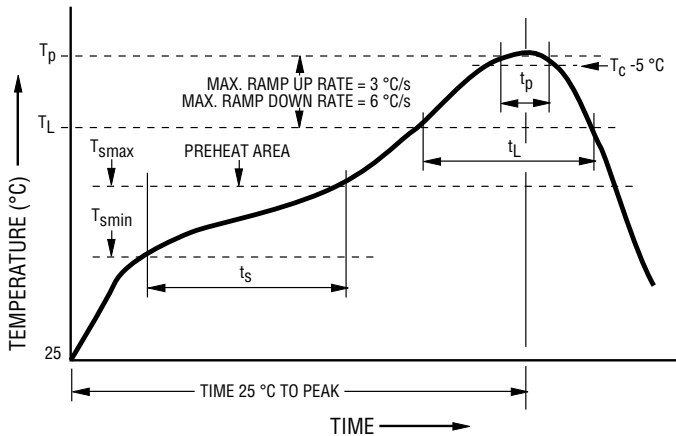


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Solder Reflow Recommendations



| 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 | 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 |

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