

SinglFuse™ SF-0402FP Series Features

- Fast acting precision thin film chip fuse for overcurrent protection
- 1005 (EIA 0402) miniature footprint
- Surface mount packaging for automated assembly
- UL 248-14 compliant
- RoHS compliant* and halogen free**

SF-0402FP 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 |

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Electrical Characteristics

| Model | Rated Current (A) | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating | Typical I ² t (A ² s) **** | Certifications |
|----------------|-------------------|------------------------|---------------|---------------------|--|------------------------------|
| | | | | | | cUL: E198545 |
| SF-0402FP050-2 | 0.50 | 0.38 | 32 VDC | 35 A @ 32 VDC | 0.00317 | ✓ |
| SF-0402FP080-2 | 0.80 | 0.12 | | | 0.00532 | ✓ |
| SF-0402FP100-2 | 1.00 | 0.095 | | | 0.00724 | ✓ |
| SF-0402FP125-2 | 1.25 | 0.067 | | | 0.01344 | ✓ |
| SF-0402FP150-2 | 1.50 | 0.051 | | | 0.01356 | ✓ |
| SF-0402FP160-2 | 1.60 | 0.046 | | | 0.01672 | ✓ |
| SF-0402FP200-2 | 2.00 | 0.033 | | | 0.01983 | ✓ |
| SF-0402FP250-2 | 2.50 | 0.0225 | | | 0.03763 | ✓ |
| SF-0402FP300-2 | 3.00 | 0.02 | | | 0.05427 | ✓ |
| SF-0402FP315-2 | 3.15 | 0.019 | | | 0.06304 | ✓ |
| SF-0402FP400-2 | 4.00 | 0.016 | | | 0.0896 | ✓ |

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

**** Melting I²t calculated at 10 times rated current.

Environmental Characteristics

| | |
|----------------------------------|---------------------------------|
| Operating Temperature..... | -20 °C to +105 °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 |

*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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and Reproductive Harm**
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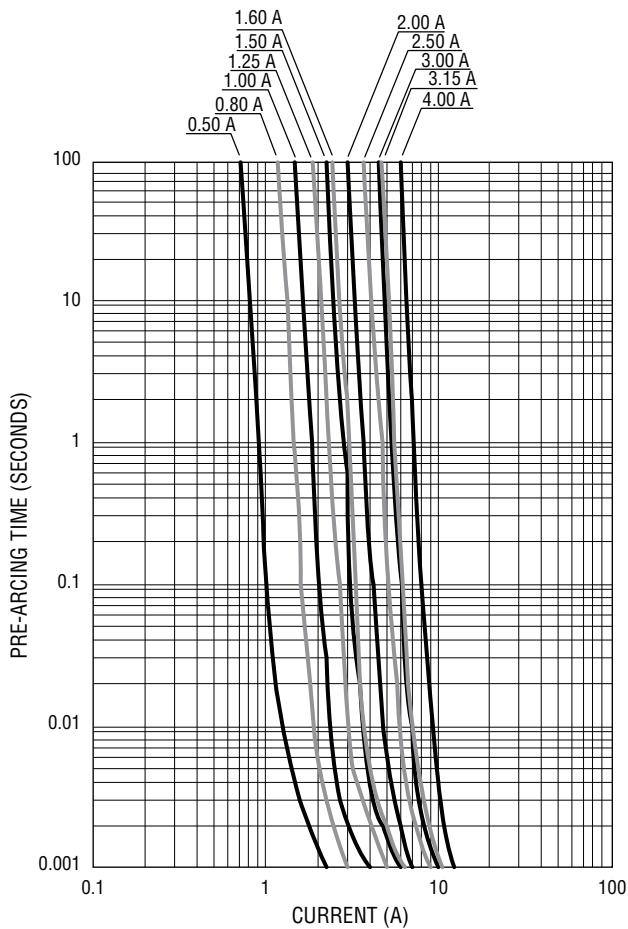
SinglFuse™ SF-0402FP Series Applications

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

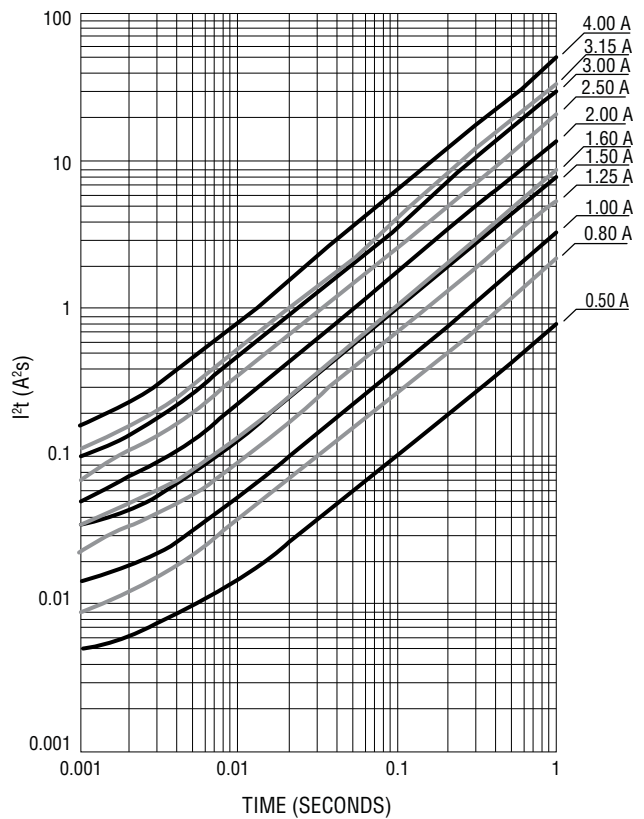
SF-0402FP Series - Fast Acting Precision Surface Mount Fuses

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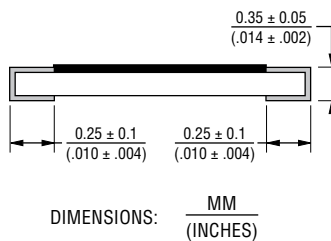
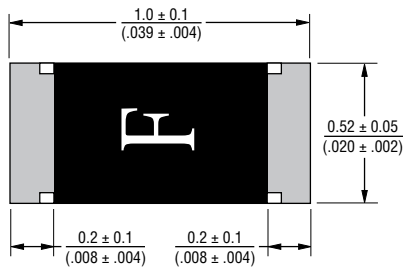
Average Pre-Arcing Time vs. Current Curves



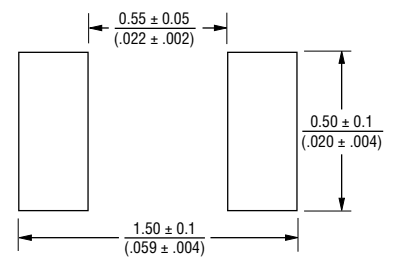
Average I^2t vs. t Curves



Product Dimensions



Recommended Pad Layout



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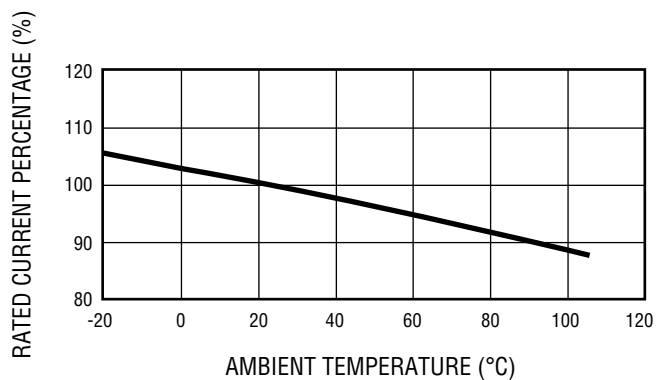
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SF-0402FP Series - Fast Acting Precision Surface Mount Fuses

BOURNS®

Thermal Derating Curve



How to Order

SF - 0402 FP 050 - 2

SinglFuse™
 Product Designator _____
 SMD Footprint _____
 1005 (EIA 0402) size
 Fuse Blow Type _____
 FP = Fast acting precision
 Rated Current _____
 050-400 (500 mA - 4.00 A)
 Packaging Type _____
 2 = Tape & Reel (10,000 pcs./reel)

Packaging

| | |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification | EIA 481-2 |
| Quantity | 10,000 pieces |
| Packaging Code | -2 |

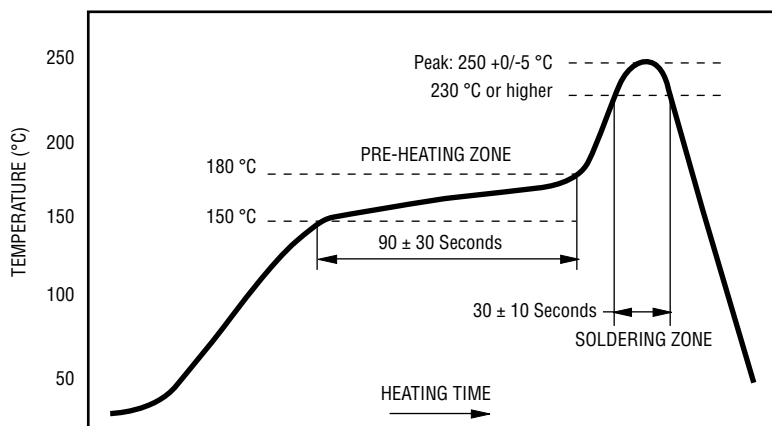
Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)
 F = 0.50 S = 2.00
 K = 0.80 T = 2.50
 L = 1.00 3 = 3.00
 M = 1.25 U = 3.15
 P = 1.50 W = 4.00
 N = 1.60

Solder Reflow Recommendations



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

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SF-0402FP Series - Fast Acting Precision Surface Mount Fuses**BOURNS®****Reliability Testing**

| No. | Test | Requirement | Test Condition |
|-----|---------------------------|---|---|
| 1 | Carrying Capacity | No fusing | Rated current, 4 hours |
| 2 | Fusing Time | Within 5 seconds | 200 % of its rated current |
| 3 | Interrupting Ability | No mechanical damages | After the fuse is interrupted, rated voltage applied for 30 seconds again |
| 4 | Bending Test | No mechanical damages | Distance between holding points: 90 mm, Bending: 3 mm, 1 time, 30 seconds |
| 5 | Resistance to Solder Heat | ±20 % | 260 °C ±5 °C, 10 seconds ±1 second |
| 6 | Solderability | 95 % coverage minimum | 235 °C ±5 °C, 2 ±0.5 second 245 °C ±5 °C, 2 ±0.5 second (lead free) |
| 7 | Temperature Rise | <75 °C | 100 % of its rated current, measure of surface temperature |
| 8 | Resistance to Dry Heat | ±20 % | 105 °C ±5 °C, 1000 hours |
| 9 | Resistance to Solvent | No evident damage on protective coating and marking | 23 °C ±5 °C of isopropyl alcohol, 90 seconds |
| 10 | Residual Resistance | 10k ohms or more | Measure DC resistance after fusing |
| 11 | Thermal Shock | ΔR < 10 % | -20 °C / +25 °C / +125 °C / +25 °C, 10 cycles |

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