



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 listed (UL 248-14)
- RoHS compliant* and halogen free**

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

Electrical Characteristics

| Model | Rated Current (Amps) | Fusing Time | Resistance (mΩ)*** | Rated Voltage | Breaking Capacity | Typical I ² t (A ² s)**** |
|--------------|----------------------|---|--------------------|---------------|-------------------|---|
| SF-0402FP050 | 0.50 | Open within 5 sec. at 200 % rated current | 380 | DC 32 V | DC32 V 35 A | 0.00317 |
| SF-0402FP080 | 0.80 | | 120 | | | 0.00532 |
| SF-0402FP100 | 1.00 | | 95 | | | 0.00724 |
| SF-0402FP125 | 1.25 | | 67 | | | 0.01344 |
| SF-0402FP150 | 1.50 | | 51 | | | 0.01356 |
| SF-0402FP160 | 1.60 | | 46 | | | 0.01672 |
| SF-0402FP200 | 2.00 | | 33 | | | 0.01983 |
| SF-0402FP250 | 2.50 | | 22.5 | | | 0.03763 |
| SF-0402FP300 | 3.00 | | 20 | | | 0.05427 |
| SF-0402FP315 | 3.15 | | 19 | | | 0.06304 |
| SF-0402FP400 | 4.00 | | 16 | | | 0.0896 |

*** Resistance value measured with less than 10 % of rated current. Tolerance ±25 %.

****Typical I²t value measured at 10x rated current.

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 |

Agency Recognition

UL File Number E198545

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



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

* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

** 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.

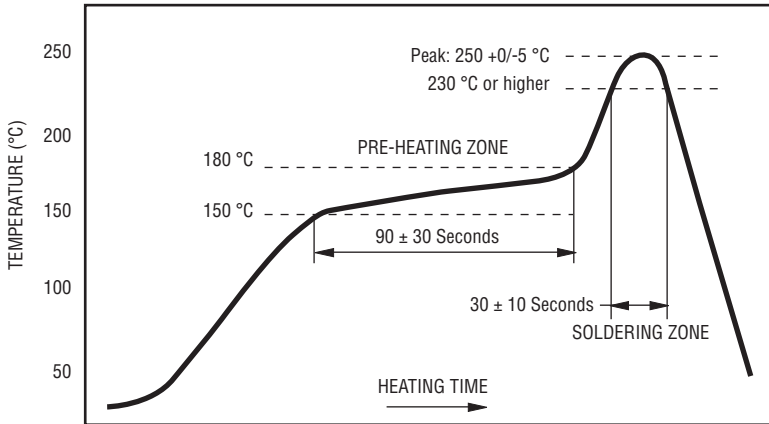
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SinglFuse™ SF-0402FP Series Applications

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

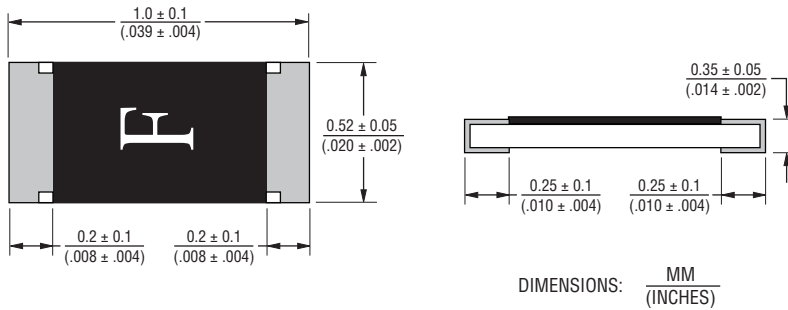
SF-0402FP Series - Fast Acting Precision Surface Mount Fuses **BOURNS®**

Solder Reflow Recommendations

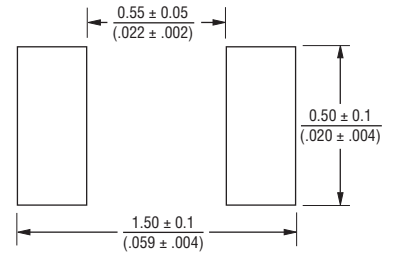


PEAK: 250 +0/-5 °C, 5 seconds
 PRE-HEATING ZONE: 150 to 180 °C, 90 ± 30 seconds
 SOLDERING ZONE: 230 °C or higher, 30 ± 10 seconds

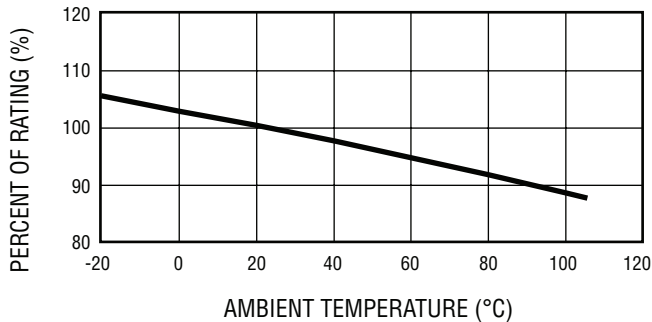
Product Dimensions



Recommended Pad Layout



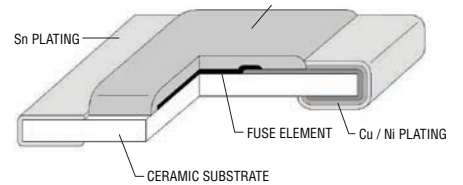
Thermal Derating Curve



Packaging Quantity

10,000 pieces per 7-inch reel

Construction & Material Content

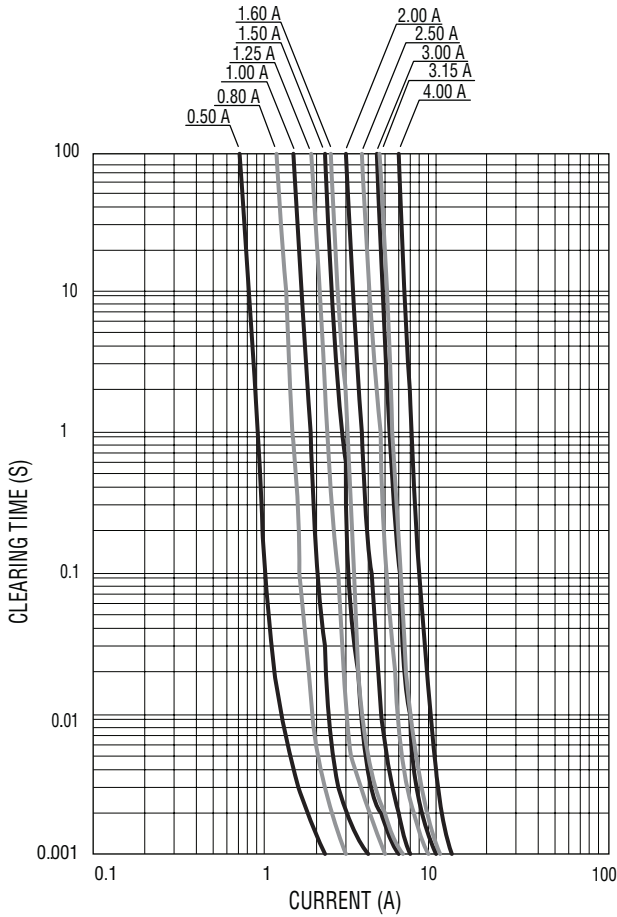


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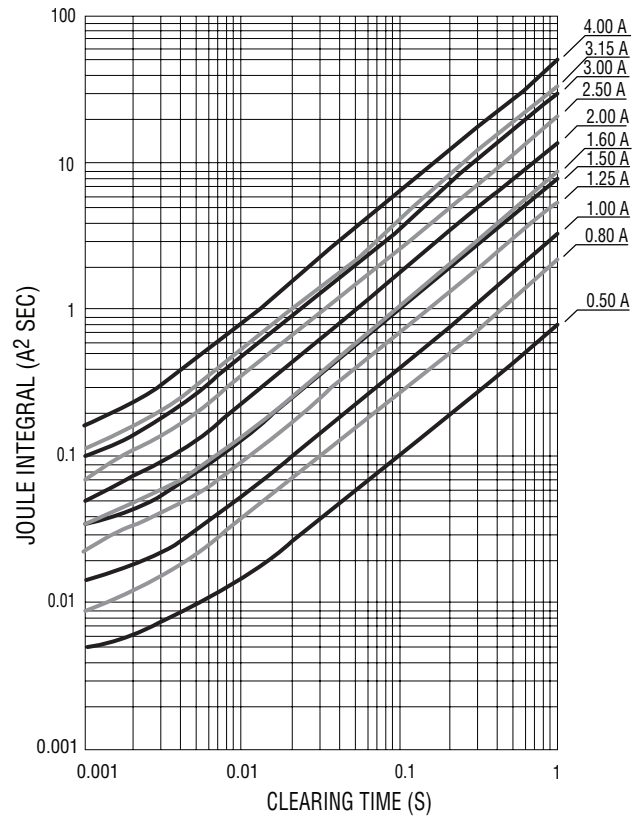
SF-0402FP Series - Fast Acting Precision Surface Mount Fuses



Average Time Current Curves



Minimum I²T V Clear Time Curves



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 | |

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)

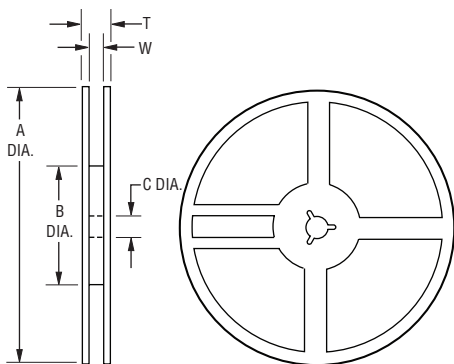
REV. D 01/19

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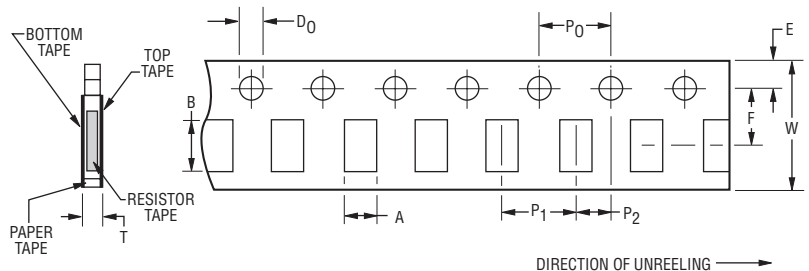
SF-0402FP Series Tape and Reel Specifications

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| Tape Dimensions | SF-0402FP Series per EIA 481-2 |
|-----------------|---|
| W | $\frac{8.0 \pm 0.2}{(.315 \pm .008)}$ |
| P ₀ | $\frac{4.0 \pm 0.1}{(.157 \pm .004)}$ |
| P ₁ | $\frac{2.0 \pm 0.1}{(.079 \pm .004)}$ |
| P ₂ | $\frac{2.0 \pm 0.05}{(.079 \pm .002)}$ |
| A | $\frac{0.7 \pm 0.05}{(.028 \pm .002)}$ |
| B | $\frac{1.2 \pm 0.05}{(.047 \pm .002)}$ |
| F | $\frac{3.5 \pm 0.05}{(.138 \pm .002)}$ |
| E | $\frac{1.75 \pm 0.1}{(.069 \pm .004)}$ |
| D ₀ | $\frac{1.5 \pm 0.1}{(.059 \pm .004)}$ |
| T | $\frac{0.45 \pm 0.01}{(.018 \pm .004)}$ |
| Reel Dimensions | |
| A | $\frac{178 \pm 2.0}{(7.087 \pm .079)}$ |
| B Min. | $\frac{60.0 \pm 1.0}{(2.362 \pm .039)}$ |
| C | $\frac{13.0 \pm 1.0}{(.512 \pm .039)}$ |
| W | $\frac{9.0 \pm 1.0}{(.354 \pm .039)}$ |
| T | $\frac{11.4 \pm 2.0}{(.449 \pm .079)}$ |



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



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