



# THE DATASHEET OF SF-0402F075-2



## SinglFuse™ SF-0402F Series Features

- Fast acting 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-0402F Series - Fast Acting Surface Mount Fuses

### Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time at 25 °C |            |
|---------------------|------------------------|------------|
|                     | Min.                   | Max.       |
| 100 %               | 4 hours                | —          |
| 200 %               | —                      | 60 seconds |

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### Electrical Characteristics

| Model          | Rated Current<br>(A) | Resistance<br>(Ω) Typ.*** | Rated<br>Voltage | Interrupting<br>Rating | Typical<br>I <sup>2</sup> t (A <sup>2</sup> s) **** | Certifications               |
|----------------|----------------------|---------------------------|------------------|------------------------|-----------------------------------------------------|------------------------------|
|                |                      |                           |                  |                        |                                                     | cUL: <a href="#">E198545</a> |
| SF-0402F0315-2 | 0.315                | 0.69                      | 32 VDC           | 35 A @ 32 VDC          | 0.00203                                             | ✓                            |
| SF-0402F050-2  | 0.50                 | 0.34                      |                  |                        | 0.00317                                             | ✓                            |
| SF-0402F075-2  | 0.75                 | 0.14                      |                  |                        | 0.00402                                             | ✓                            |
| SF-0402F080-2  | 0.80                 | 0.10                      |                  |                        | 0.00532                                             | ✓                            |
| SF-0402F100-2  | 1.00                 | 0.095                     |                  |                        | 0.00724                                             | ✓                            |
| SF-0402F125-2  | 1.25                 | 0.057                     |                  |                        | 0.01344                                             | ✓                            |
| SF-0402F150-2  | 1.50                 | 0.045                     |                  |                        | 0.01356                                             | ✓                            |
| SF-0402F160-2  | 1.60                 | 0.044                     |                  |                        | 0.01672                                             | ✓                            |
| SF-0402F200-2  | 2.00                 | 0.033                     |                  |                        | 0.01983                                             | ✓                            |
| SF-0402F250-2  | 2.50                 | 0.025                     |                  |                        | 0.03763                                             | ✓                            |
| SF-0402F300-2  | 3.00                 | 0.019                     |                  |                        | 0.05427                                             | ✓                            |
| SF-0402F315-2  | 3.15                 | 0.018                     |                  |                        | 0.06304                                             | ✓                            |
| SF-0402F400-2  | 4.00                 | 0.012                     |                  |                        | 0.0896                                              | ✓                            |

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

\*\*\*\* Melting I<sup>2</sup>t 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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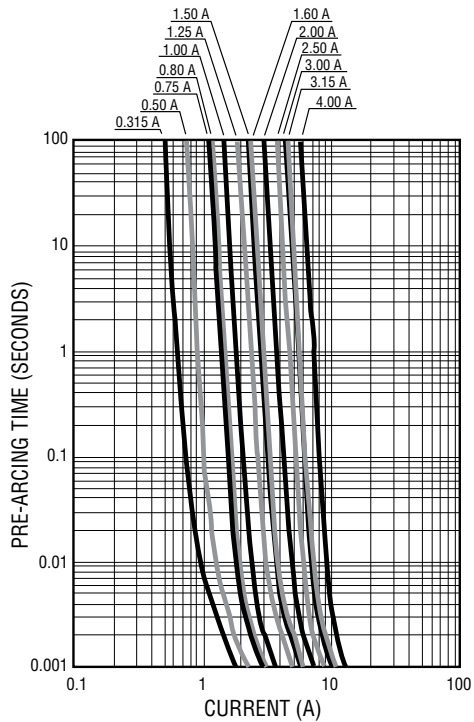
## SinglFuse™ SF-0402F Series Applications

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

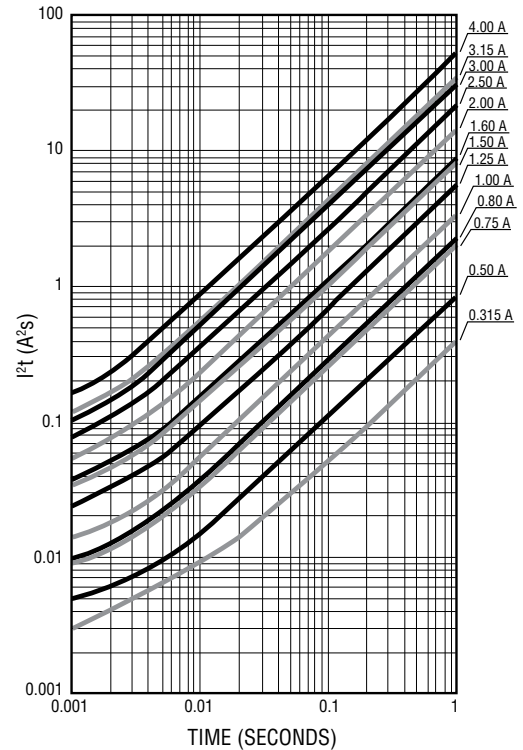
## SF-0402F Series - Fast Acting Surface Mount Fuses

**BOURNS®**

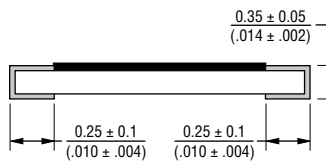
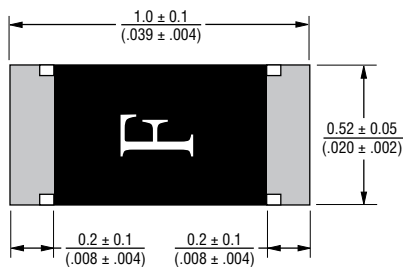
Average Pre-Arcing Time vs. Current Curves



Average  $I^2t$  vs.  $t$  Curves

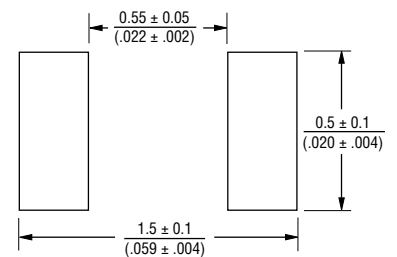


Product Dimensions



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

Recommended Pad Layout



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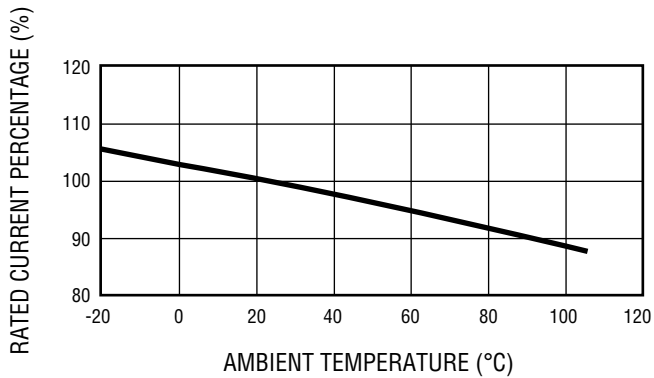
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# SF-0402F Series - Fast Acting Surface Mount Fuses

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## Thermal Derating Curve



## How to Order

SinglFuse™  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 1005 (EIA 0402) size  
 Fuse Blow Type \_\_\_\_\_  
 F = Fast acting  
 Rated Current \_\_\_\_\_  
 0315-400 (315 mA - 4.00 A)  
 Packaging Type \_\_\_\_\_  
 2 = Tape & Reel (10,000 pcs./reel)

**SF - 0402 F 0315 - 2**

## Packaging

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

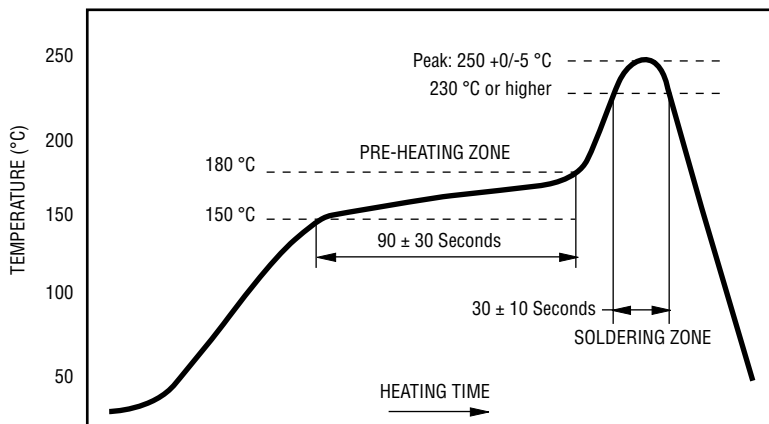
## Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)  
 D = 0.315 N = 1.60  
 F = 0.50 S = 2.00  
 V = 0.75 T = 2.50  
 K = 0.80 3 = 3.00  
 L = 1.00 U = 3.15  
 M = 1.25 W = 4.00  
 P = 1.50

## 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-0402F Series - Fast Acting Surface Mount Fuses

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### Reliability Testing

| No. | Test                      | Requirement                                         | Test Condition                                                            |
|-----|---------------------------|-----------------------------------------------------|---------------------------------------------------------------------------|
| 1   | Carrying Capacity         | No fusing                                           | Rated current, 4 hours                                                    |
| 2   | Fusing Time               | Within 1 minute                                     | 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<br>245 °C ±5 °C, 2 ±0.5 second (lead free)    |
| 7   | Temperature Rise          | <75 °                                               | 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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