



## SinglFuse™ SF-0402F Series Features

- Single blow fuse for overcurrent protection
- 1005 (EIA 0402) miniature footprint
- Fast-acting fuse
- UL listed
- RoHS compliant\* and halogen free\*\*
- Thin film chip fuse
- Surface mount packaging for automated assembly

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

### Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance Tolerance $\pm 25\%$ ( $m\Omega$ )***	Rated Voltage	Breaking Capacity	Typical $I^2t$ (A <sup>2</sup> s)****
SF-0402F0315	0.315	Open within 1 min. at 200 % rated current	690	DC 32 V	DC32 V 35 A	0.00203
SF-0402F050	0.50		340			0.00317
SF-0402F075	0.75		140			0.0049
SF-0402F080	0.80		100			0.00532
SF-0402F100	1.00		95			0.00724
SF-0402F125	1.25		57			0.01344
SF-0402F150	1.50		45			0.01356
SF-0402F160	1.60		44			0.01672
SF-0402F200	2.00		33			0.01983
SF-0402F250	2.50		25			0.03763
SF-0402F300	3.00		19			0.05427
SF-0402F315	3.15		18			0.06304
SF-0402F400	4.00		12			0.0896

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

\*\*\*\*Typical  $I^2t$  value measured at 10x 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, 1 time, 30 seconds
Resistance to Solder Heat	$\pm 20\%$	260 °C $\pm 5$ °C, 10 seconds $\pm 1$ second
Solderability	95 % coverage minimum	235 °C $\pm 5$ °C, 2 $\pm 0.5$ second 245 °C $\pm 5$ °C, 2 $\pm 0.5$ second (lead free)
Temperature Rise	<75 °	100 % of its rated current, measure of surface temperature
Resistance to Dry Heat	$\pm 20\%$	105 °C $\pm 5$ °C, 1000 hours
Resistance to Solvent	No evident damage on protective coating and marking	23 °C $\pm 5$ °C of isopropyl alcohol, 90 seconds
Residual Resistance	10k ohms or more	Measure DC resistance after fusing
Thermal Shock	$\Delta R < 10\%$	-20 °C / +25 °C / +125 °C / +25 °C, 10 cycles

### 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

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\* 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.

"SinglFuse" 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.

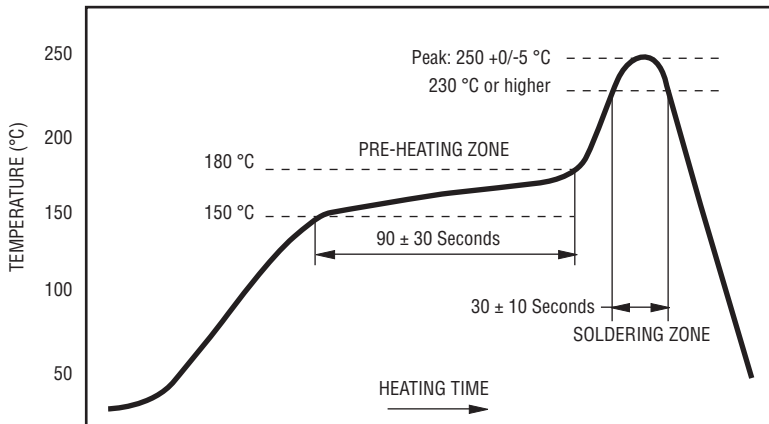
## SinglFuse™ SF-0402F Series Applications

- 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

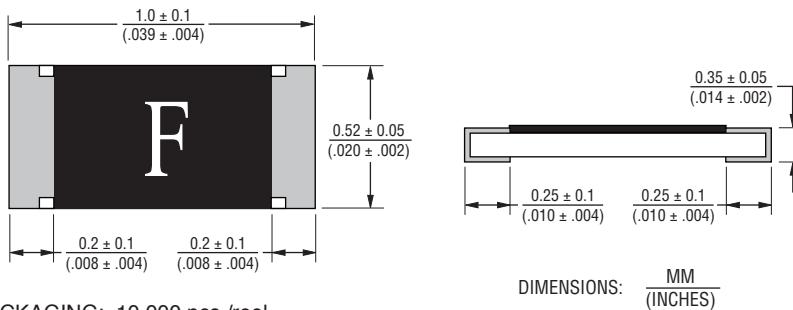
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### Solder Reflow Recommendations



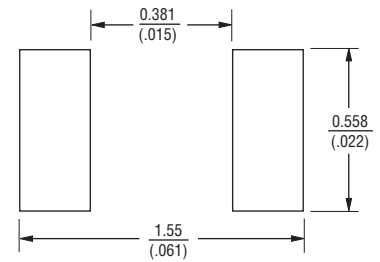
PEAK: 250 +0/-5 °C, 5 seconds  
PRE-HEATING ZONE: 150 to 180 °C, 90 ± 30 seconds  
SOLDERING ZONE: 230 °C or higher, 30 ± 10 seconds

### Product Dimensions

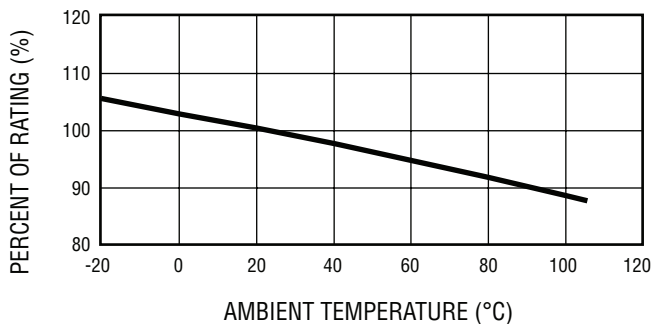


PACKAGING: 10,000 pcs./reel

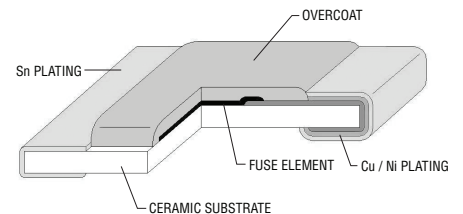
### Recommended Pad Layout



### Thermal Derating Curve



### Construction & Material Content



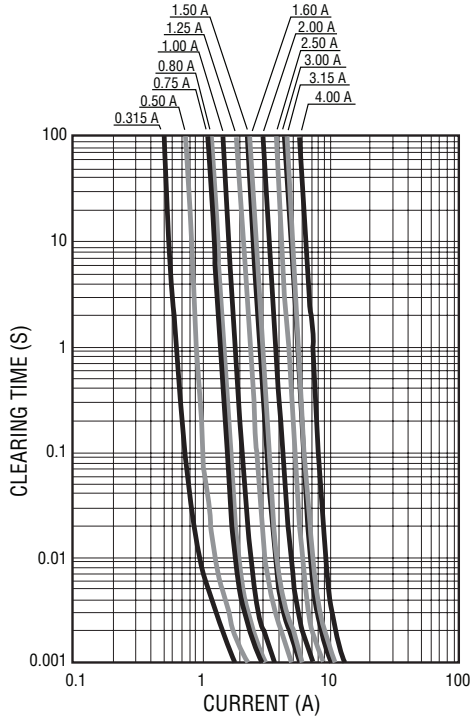
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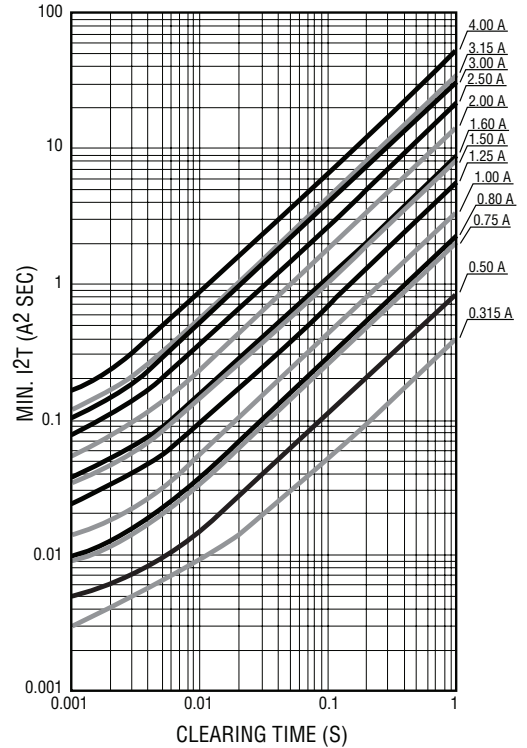
# SF-0402F Series - Fast Acting Surface Mount Fuses



## Average Time Current Curves



## Minimum I<sup>2</sup>T V Clear Time Curves



## Typical Part Marking

Represents total content. Layout may vary.



RATING 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	

## How to Order

**SF - 0402 F 0315 - 2**

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

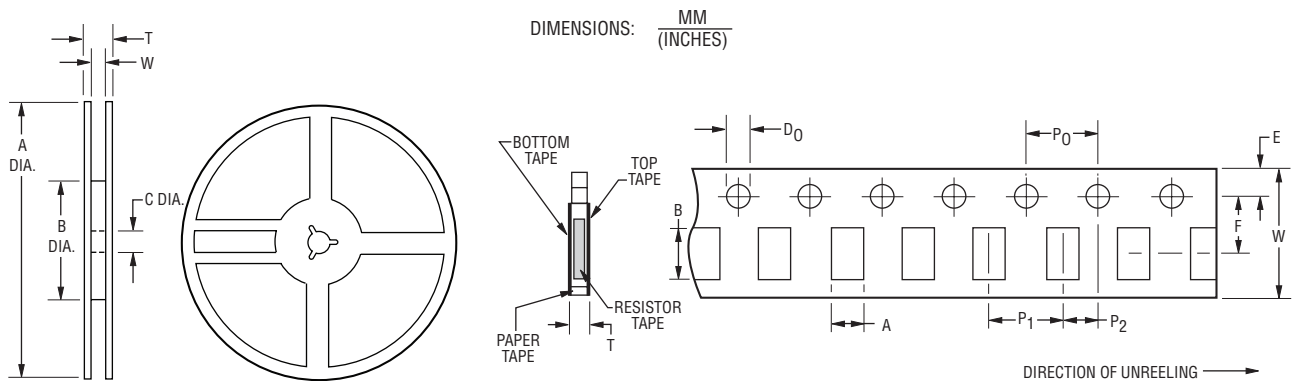
REV. G 07/17

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# SF-0402F Series Tape and Reel Specifications

# BOURNS®

Tape Dimensions	SF-0402F Series per EIA 481-2
W	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$
P <sub>0</sub>	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
P <sub>1</sub>	$\frac{2.0 \pm 0.1}{(.079 \pm .004)}$
P <sub>2</sub>	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
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 <sub>0</sub>	$\frac{1.5 \pm 0.1}{(.059 \pm .004)}$
T	$\frac{0.45 \pm 0.01}{(.018 \pm .004)}$
Reel Dimensions	
A	$\frac{180 +0/-3.0}{(7.087 +0/-118)}$
B Min.	$\frac{60.0}{(2.362)}$
C	$\frac{13.0 \pm 1.0}{(.512 \pm .039)}$
W	$\frac{9.0 \pm 1.0}{(.354 \pm .039)}$
T	$\frac{11.4 \pm 2.0}{(.449 \pm .079)}$



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