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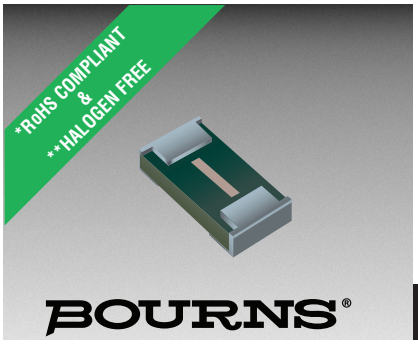
SF-0402FP020F-2



SingIFuse™ SF-0402FPxxxF Series Features

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

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

Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I^2t (A^2s) ****
SF-0402FP020F	0.20	Open within 5 sec. at 300 % rated current	0.60	DC 35 V	DC 35 V 35 A	0.0017
SF-0402FP025F	0.25		0.33			0.0035
SF-0402FP0375F	0.375	Open within 5 sec. at 200 % rated current	0.24			0.0036
SF-0402FP050F	0.50		0.16			0.0060
SF-0402FP075F	0.75		0.10			0.0120
SF-0402FP100F	1.00		0.073			0.024
SF-0402FP125F	1.25		0.054			0.045
SF-0402FP150F	1.50		0.040			0.081
SF-0402FP175F	1.75		0.034			0.092
SF-0402FP200F	2.00		0.031			0.120
SF-0402FP250F	2.50		0.018			0.220
SF-0402FP300F	3.00		0.015			0.270
SF-0402FP350F	3.50		0.012			0.340
SF-0402FP400F	4.00		0.011			0.360
SF-0402FP500F	5.00		0.009			0.550

*** Resistance value measured with ≤10 % rated current at 25 °C ambient.
**** Melting I^2t calculated at 0.001 second pre-arcing time.

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	MI L-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

* 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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SingIFuse™ SF-0402FPxxxF 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-0402FPxxxF Series - Fast Acting Precision Surface Mount Fuses

BOURNS®

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

Agency Recognition

UL File Number E198545

http://www.ul.com/ Follow link to Online Certificates Directory, then enter UL File No. E198545, or click here

Typical Part Marking

Represents total content. Layout may vary.

RATED CURRENT (A)

= 0.200	= 1.00	= 2.50
= 0.250	= 1.25	= 3.00
= 0.375	= 1.50	= 3.50
= 0.500	= 1.75	= 4.00
= 0.750	= 2.00	= 5.00

How to Order

SF - 0402 FP 050 F - 2

SingIFuse™ Product Designator

SMD Footprint
0402 = 1005 (EIA 0402) size

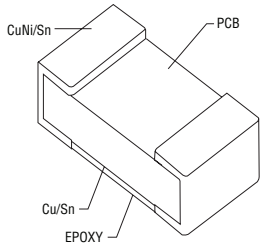
Fuse Blow Type
FP = Fast acting precision

Rated Current
020 ~ 500 (200 mA ~ 5.00 A)

Structure Type
F = Thin film

Packaging Type
- 2 = Tape & Reel

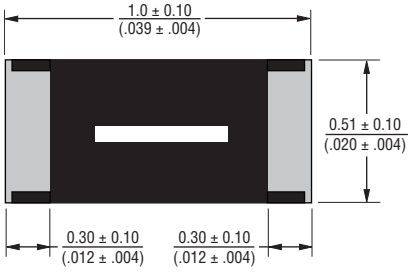
Construction

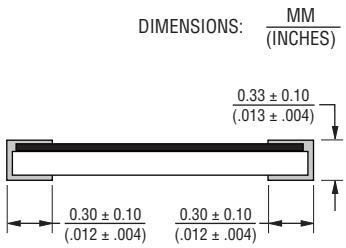


Packaging Quantity

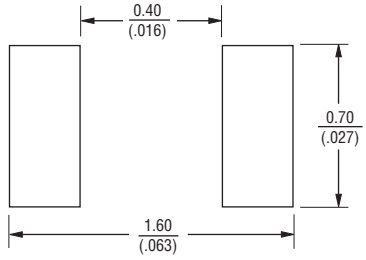
20,000 pieces per 7-inch reel

Product Dimensions

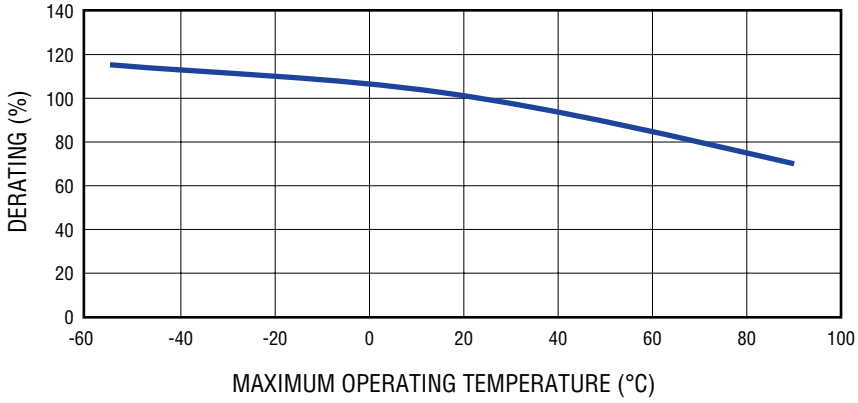




Recommended Pad Layout



Current Rating Thermal Derating Curve



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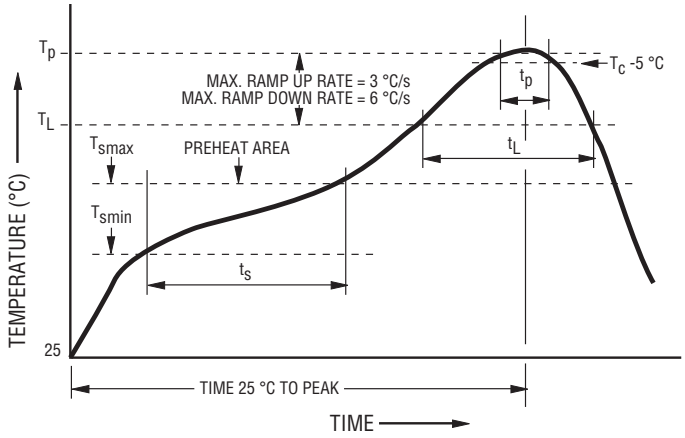
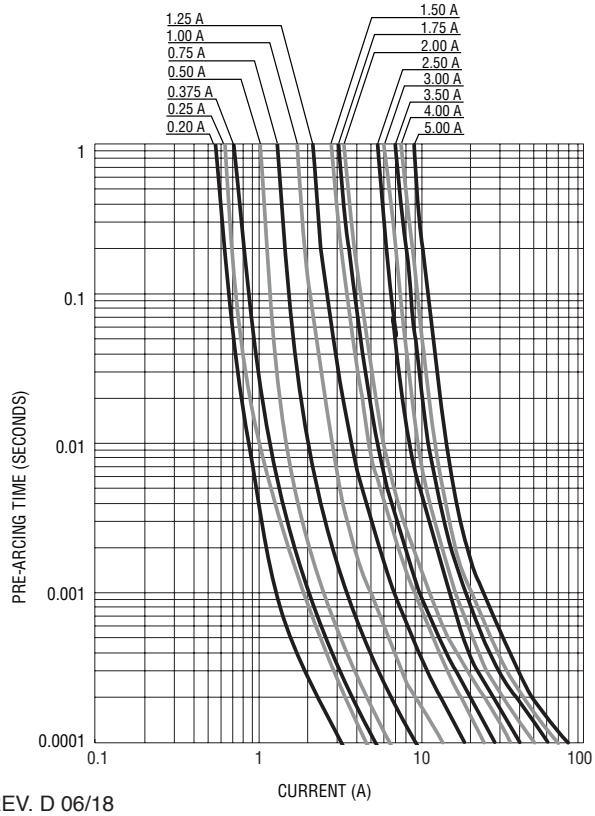
Solder Reflow Recommendations



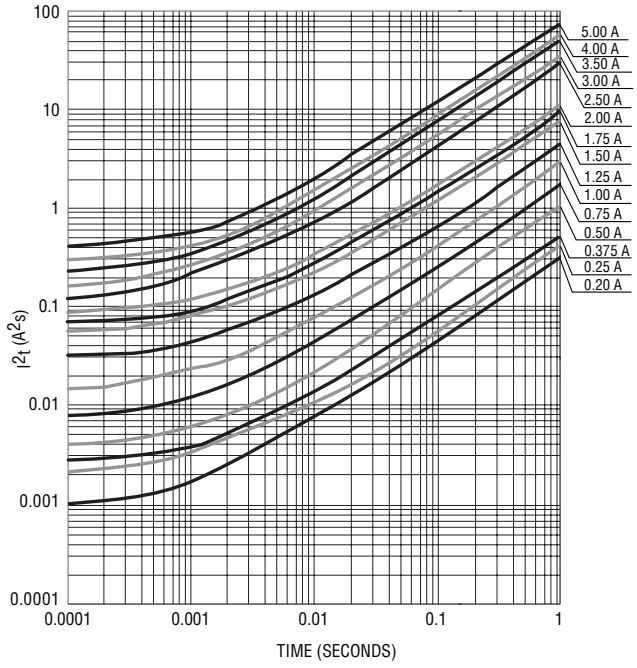
Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. (T_{smin}) Temperature Max. (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	 150 °C 200 °C 60~120 seconds
Ramp Up Rate (T_L to T_p)	3 °C / second max.
Liquidous Temperature (T_L) Time (t_L) maintained above T_L	217 °C 60~150 seconds
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 (Tp) is defined as a supplier minimum and a user maximum.

Average Pre-Arcing Time vs. Current Curves



Average I²t vs. t Curves



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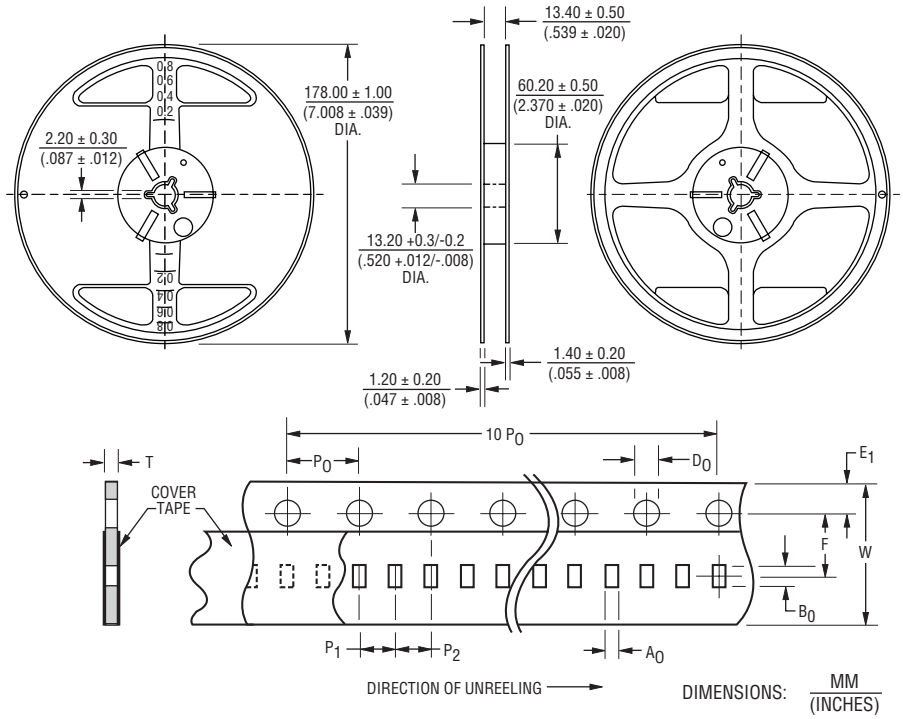
SF-0402FPxxxF Series Tape and Reel Packaging Specifications

BOURNS®

Tape Dimensions	SF-0402FPxxxF Series per EIA 481-2
W	8.00 ± 0.10 (.315 ± .004)
P_0	4.0 ± 0.10 (.157 ± .004)
P_1	2.0 + 0.05 (.079 + .002)
P_2	2.0 ± 0.05 (.079 ± .002)
A_0	0.61 ± 0.05 (.024 ± .002)
B_0	1.15 ± 0.05 (.045 ± .002)
F	3.50 ± 0.05 (.138 ± .002)
E_1	1.75 ± 0.10 (.069 ± .004)
D_0	1.50 + 0.10 (.059 + .004)
T	0.43 ± 0.03 (.017 ± .001)

PACKAGING: Paper tape, 20,000 pcs. per reel



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