

SingIFuse™ SF-0603S Series Features

- Slow blow thin film chip fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- Surface mount packaging for automated assembly
- UL listed (UL 248-14)
- RoHS compliant* and halogen free**

SF-0603S Series - Slow Blow Surface Mount Fuses

Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (mΩ) Typ.***	Rated Voltage	Breaking Capacity	Typical I ² t (A ² s) ****
SF-0603S040	0.40	Open within 5 sec. at 250 % rated current	350	DC 50 V	DC 50 V / AC 35 V 50 A	0.004
SF-0603S050	0.50		232			0.009
SF-0603S063	0.63		150			0.017
SF-0603S070	0.70		148	DC 32 V	DC 32 V / AC 35 V 50 A	0.023
SF-0603S080	0.80		113			0.024
SF-0603S100	1.00		67			0.026
SF-0603S125	1.25		50			0.057
SF-0603S150	1.50		42			0.081
SF-0603S160	1.60		40			0.086
SF-0603S200	2.00		27			0.115
SF-0603S250	2.50		19.5			0.200
SF-0603S300	3.00		16			0.210
SF-0603S315	3.15		15			0.279
SF-0603S400	4.00		11			0.326
SF-0603S500	5.00		8			0.622
SF-0603S600	6.00		6			2.700

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

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

Reliability Testing

Parameter	Requirement	Test Method
Carrying Capacity	No fusing	Rated current, 4 hours
Fusing Time	Within 5 seconds	250 % 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	±20 %	260 °C ±5 °C, 10 seconds ±1 second
Solderability	95 % coverage minimum	235 °C ±5 °C, 2 ±0.5 second 245 °C ±5 °C, 2 ±0.5 second (lead free)
Temperature Rise	<75 °	100 % of its rated current, measure of surface temperature
Resistance to Dry Heat	±20 %	105 °C ±5 °C, 1000 hours
Resistance to Solvent	No evident damage on protective coating and marking	23 °C ±5 °C of isopropyl alcohol, 90 seconds
Residual Resistance	10k ohms or more	Measure DC resistance after fusing
Thermal Shock	ΔR < 10 %	-20 °C / +25 °C / +125 °C / +25 °C, 10 cycles
UL File Number	E198545 http://www.ul.com/ Follow link to Online Certificates Directory, then enter UL File No. E198545, or click here	

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.

"SingIFuse" 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.

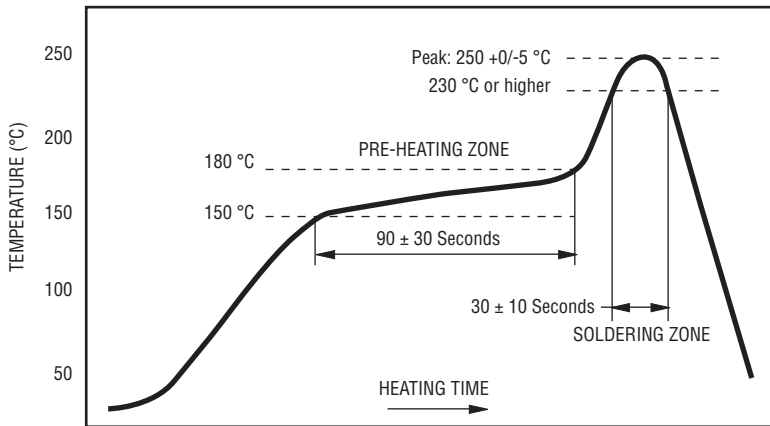
Users should verify actual device performance in their specific applications.

SinglFuse™ SF-0603S Series Applications

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

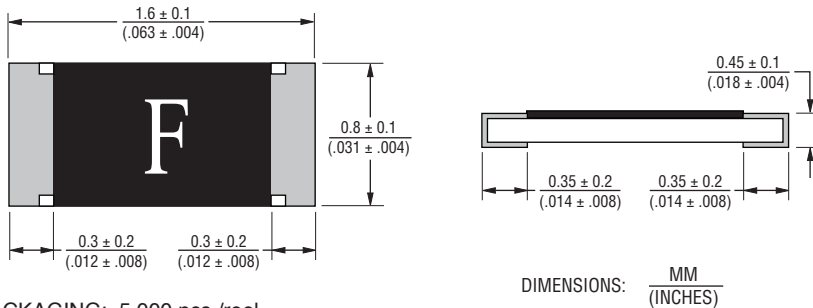
SF-0603S Series - Slow Blow Surface Mount Fuses **BOURNS®**

Solder Reflow Recommendations



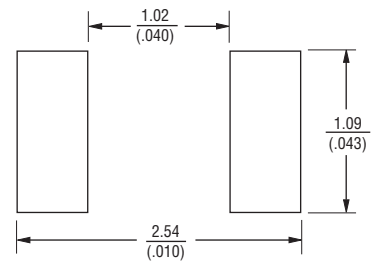
PEAK: 250 +0/-5 °C, 5 seconds
 PRE-HEATING ZONE: 150 to 180 °C, 90 ± 30 seconds
 SOLDERING ZONE: 230 °C or higher, 30 ± 10 seconds

Product Dimensions

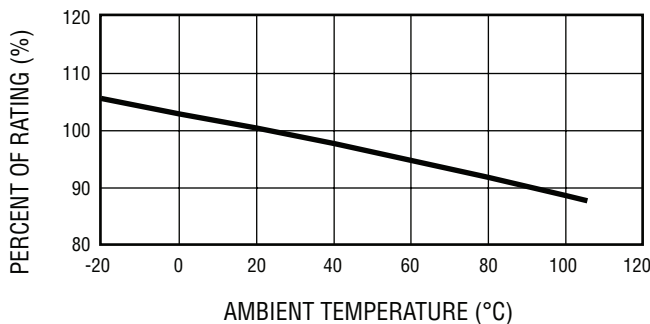


PACKAGING: 5,000 pcs./reel

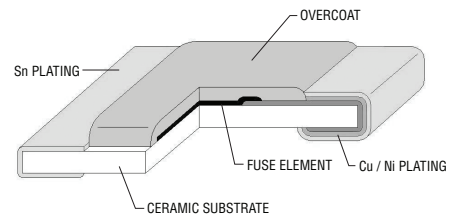
Recommended Pad Layout



Thermal Derating Curve



Construction & Material Content

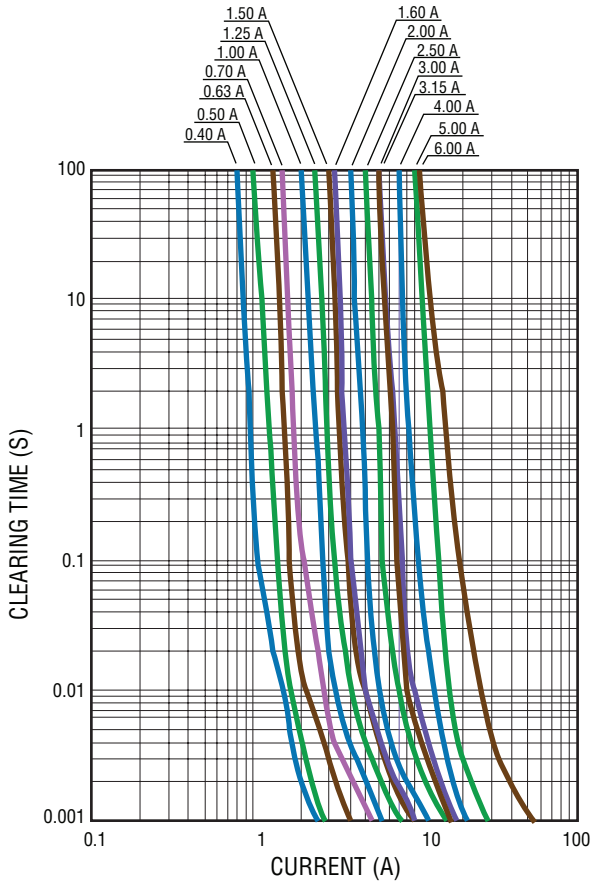


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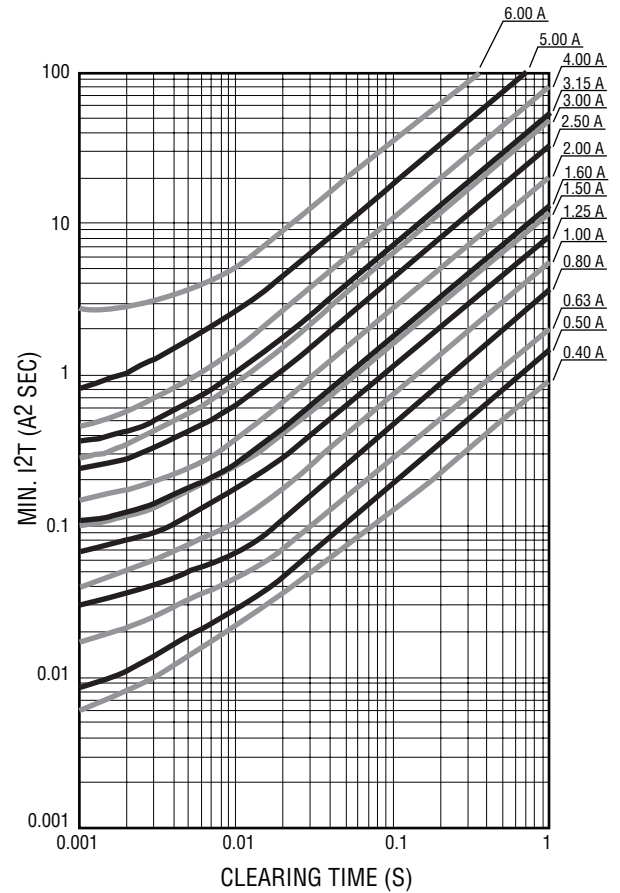
SF-0603S Series - Slow Blow Surface Mount Fuses



Average Time Current Curves



Minimum I²T V Clear Time Curves



Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)	
E = 0.40	N = 1.60
F = 0.50	S = 2.00
I = 0.63	T = 2.50
J = 0.70	3 = 3.00
K = 0.80	U = 3.15
L = 1.00	W = 4.00
M = 1.25	Y = 5.00
P = 1.50	<u>6</u> = 6.00

How to Order

Parameter	Value
Product Designator	SF - 0603 S 040 - 2
SMD Footprint	1608 (EIA 0603) size
Fuse Blow Type	F = Fast acting S = Slow blow
Rated Current	040-600 (400 mA - 6.00 A)
Packaging Type	- 2 = Tape & Reel (5,000 pcs./reel)

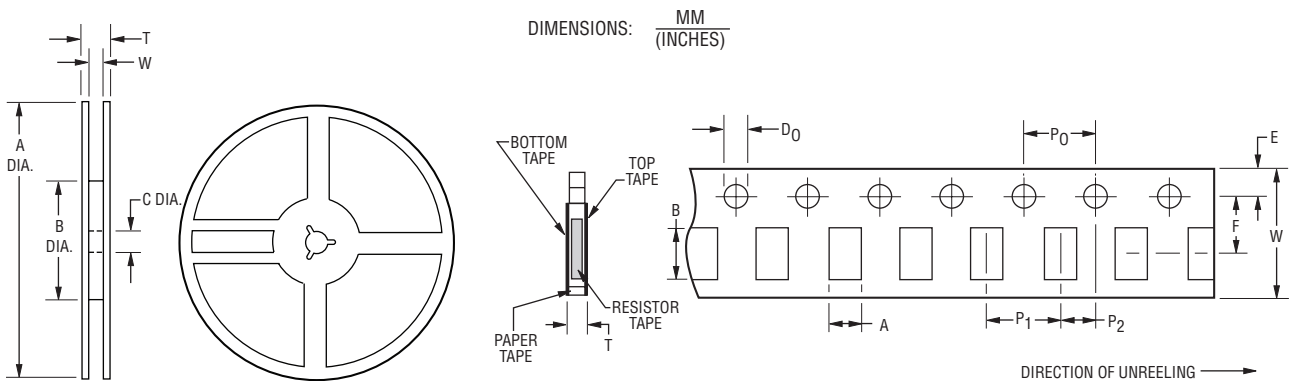
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SF-0603S Series Tape and Reel Specifications

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Tape Dimensions	SF-0603S 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	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
P ₂	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
A	$\frac{1.1 \pm 0.1}{(.043 \pm .004)}$
B	$\frac{1.9 \pm 0.1}{(.075 \pm .004)}$
F	$\frac{3.5 \pm 0.05}{(.138 \pm .002)}$
E	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$
D ₀	$\frac{1.5 + 0.1/-0}{(.059 + .004/-0)}$
T	$\frac{0.64 \pm 0.1}{(.025 \pm .004)}$
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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