

SinglFuse™ SF-0603SP Series Features

- Time lag 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-0603SP Series - Time Lag 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-0603SP050	0.50	Open within 1~120 sec. at 200 % rated current	264	DC 50 V	DC 50 V 50 A	0.009
SF-0603SP063	0.63		200	DC 32 V	DC 32 V 50 A	0.014
SF-0603SP080	0.80		143			0.023
SF-0603SP100	1.00		83			0.036
SF-0603SP125	1.25		54			0.056
SF-0603SP150	1.50		42			0.081
SF-0603SP160	1.60		40			0.092
SF-0603SP200	2.00		28			0.145
SF-0603SP250	2.50		21.5			0.229
SF-0603SP300	3.00		18			0.332
SF-0603SP315	3.15		16			0.365
SF-0603SP400	4.00		13			0.574
SF-0603SP500	5.00		9.5			0.927
SF-0603SP600	6.00		6			1.860

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

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

Reliability Testing

Parameter	Requirement	Test Method
Carrying Capacity	No fusing	Rated current, 4 hours
Fusing Time	Within 120 seconds	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	± 20 %	260 °C ± 5 °C, 10 seconds ± 1 second
Solderability	95 % coverage minimum	235 °C ± 5 °C, 2 ± 0.5 second
Temperature Rise	<75 °C	245 °C ± 5 °C, 2 ± 0.5 second (lead free)
Resistance to Dry Heat	± 20 %	100 % of its rated current, measure of surface temperature
Resistance to Solvent	No evident damage on protective coating and marking	105 °C ± 5 °C, 1000 hours
Residual Resistance	10k ohms or more	23 °C ± 5 °C of isopropyl alcohol, 90 seconds
Thermal Shock	$\Delta R < 10$ %	Measure DC resistance after fusing
UL File Number	E198545	-20 °C / +25 °C / +125 °C / +25 °C, 10 cycles
	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

* 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. "SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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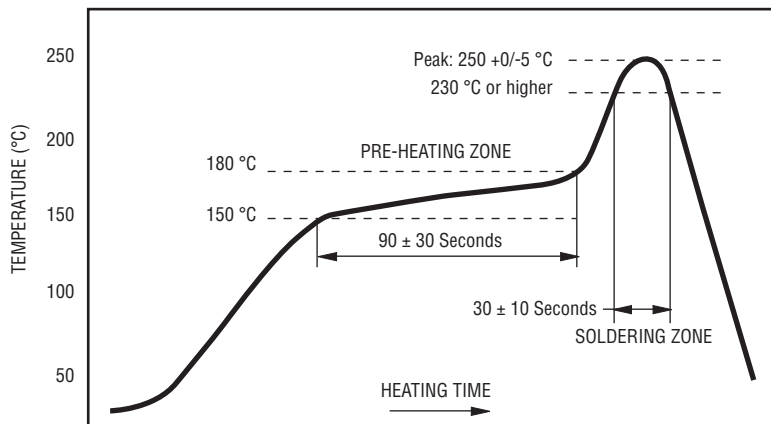
SinglFuse™ SF-0603SP Series Applications

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

SF-0603SP Series - Time Lag Surface Mount Fuses

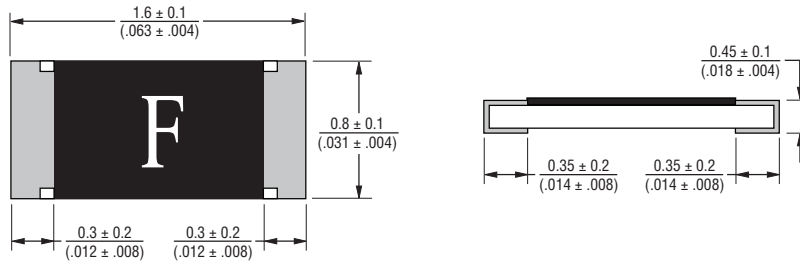
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Solder Reflow Recommendations



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

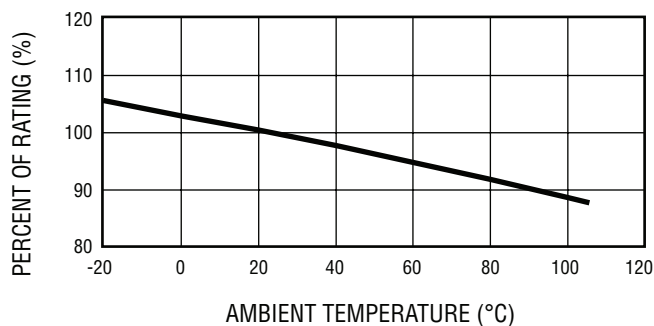
Product Dimensions



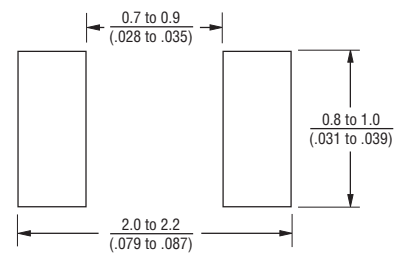
PACKAGING: 5,000 pcs./reel

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

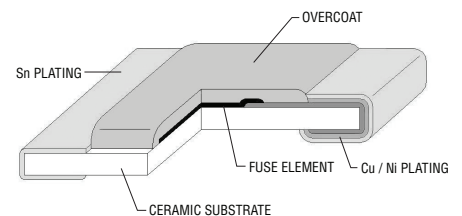
Thermal Derating Curve



Recommended Pad Layout



Construction & Material Content



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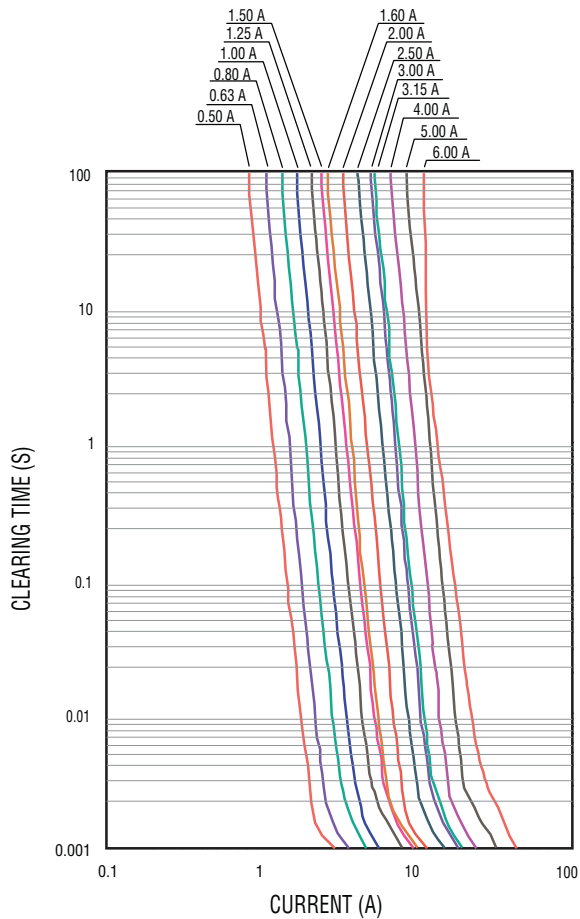
Users should verify actual device performance in their specific applications.

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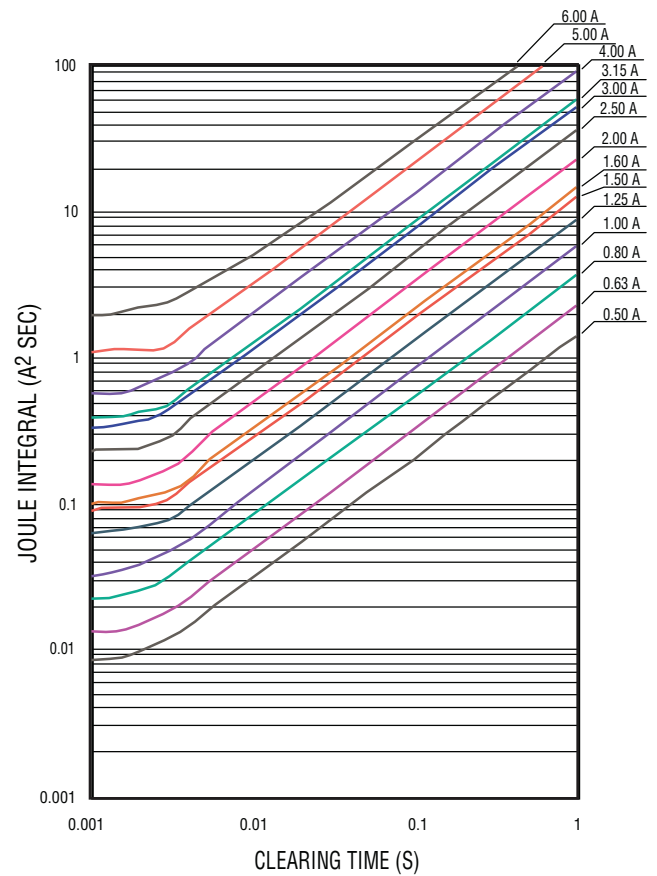
SF-0603SP Series - Time Lag Surface Mount Fuses

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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
I = 0.63	T = 2.50
K = 0.80	3 = 3.00
L = 1.00	U = 3.15
M = 1.25	W = 4.00
N = 1.60	Y = 5.00
P = 1.50	<u>6</u> = 6.00

How to Order

SF - 0603 SP 050 - 2

SinglFuse™
 Product Designator
 SMD Footprint
 1608 (EIA 0603) size
 Fuse Blow Type
 SP = Time lag
 Rated Current
 050-600 (500 mA - 6.00 A)
 Packaging Type
 - 2 = Tape & Reel (5,000 pcs./reel)

REV. A 08/17

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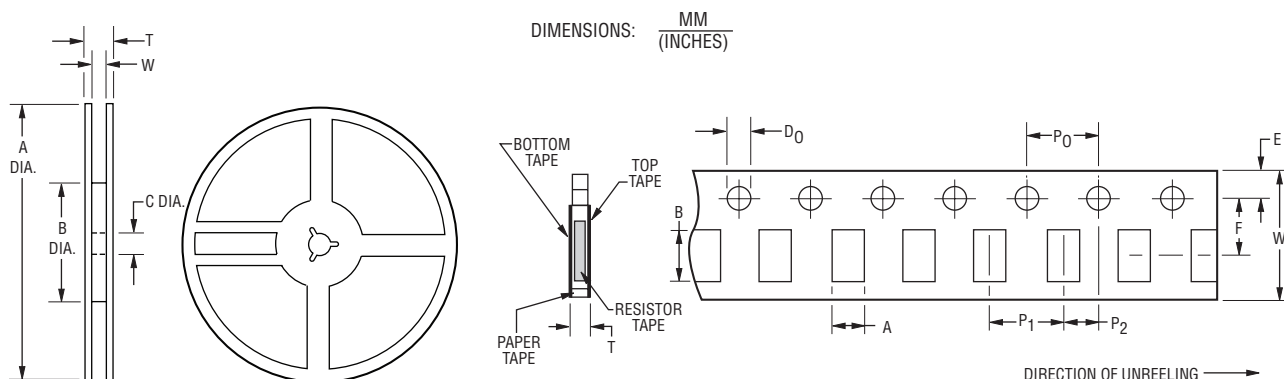
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SF-0603SP Series Tape and Reel Specifications

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Tape Dimensions	SF-0603SP 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	$\frac{1.5 \pm 0.1/-0}{(.059 \pm .004/-0)}$
T	$\frac{0.64 \pm 0.1}{(.025 \pm .004)}$
Reel Dimensions	
A	$\frac{180 \pm 0/-3.0}{(7.087 \pm 0/-0.118)}$
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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