

SingIFuse™ 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 248-14 compliant
- RoHS compliant* and halogen free**

SF-0603SP Series - Time Lag Surface Mount Fuses

Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
200 %	1 second	120 seconds

Additional Information

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Electrical Characteristics

Model	Rated Current (A)	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I^2t (A^2s) ****	Certifications
						cUL: E198545
SF-0603SP050-2	0.50	0.264	50 VDC	50 A @ 50 VDC	0.009	✓
SF-0603SP063-2	0.63	0.2	32 VDC	50 A @ 32 VDC	0.014	✓
SF-0603SP080-2	0.80	0.143			0.023	✓
SF-0603SP100-2	1.00	0.083			0.036	✓
SF-0603SP125-2	1.25	0.054			0.056	✓
SF-0603SP150-2	1.50	0.042			0.081	✓
SF-0603SP160-2	1.60	0.04			0.092	✓
SF-0603SP200-2	2.00	0.028			0.145	✓
SF-0603SP250-2	2.50	0.0215			0.229	✓
SF-0603SP300-2	3.00	0.018			0.332	✓
SF-0603SP315-2	3.15	0.016			0.365	✓
SF-0603SP400-2	4.00	0.013			0.574	✓
SF-0603SP500-2	5.00	0.0095			0.927	✓
SF-0603SP600-2	6.00	0.006			1.860	✓

*** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ± 25 %.
**** Melting I^2t 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

CALIFORNIA WARNING: Can expose you to lead, a carcinogen and reproductive toxicant.
See www.P65Warnings.ca.gov

*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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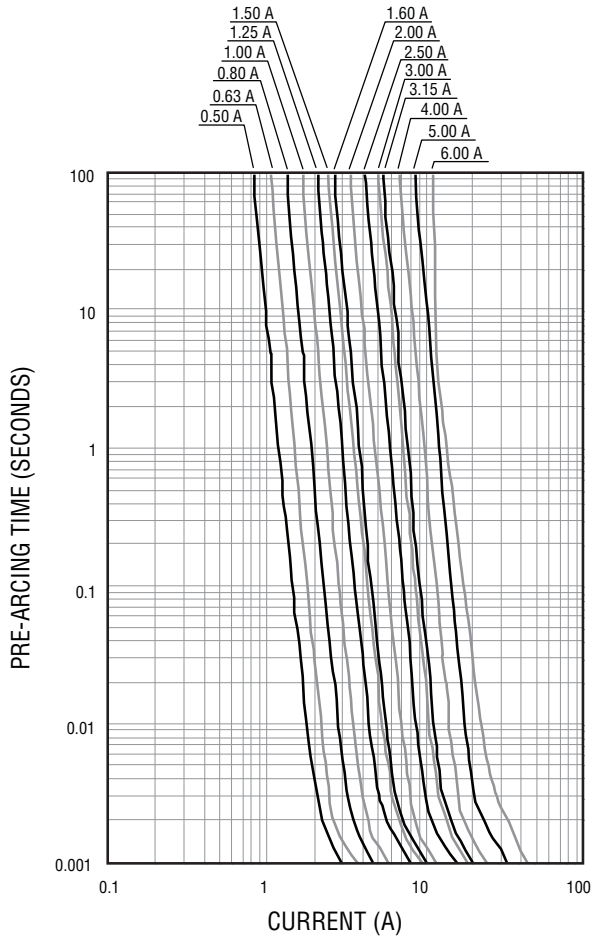
SingIFuse™ SF-0603SP Series Applications

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

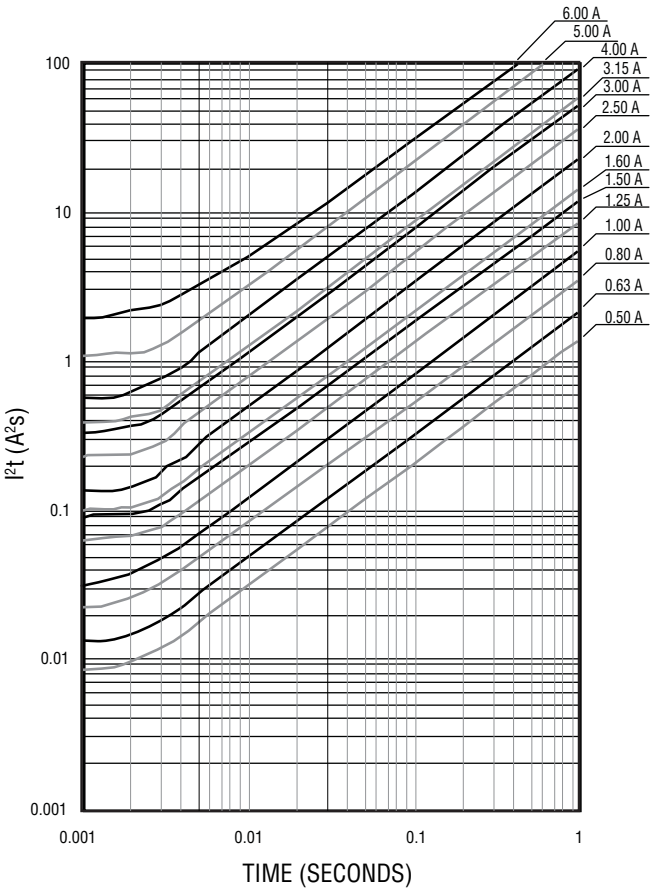
SF-0603SP Series - Time Lag Surface Mount Fuses

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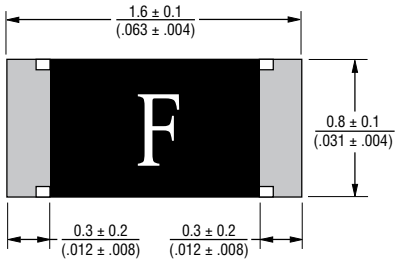
Average Pre-Arcing Time vs. Current Curves

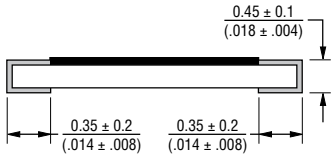


Average I²t vs. t Curves



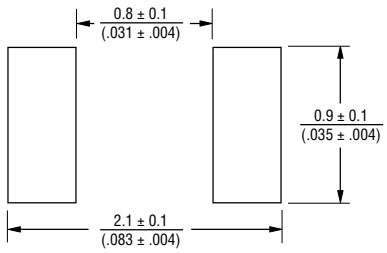
Product Dimensions





DIMENSIONS: MM / (INCHES)

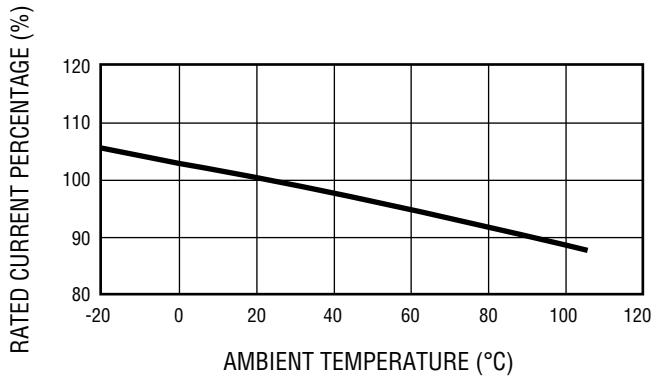
Recommended Pad Layout



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Thermal Derating Curve



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)

Packaging

Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	5,000 pieces
Packaging Code	-2

Typical Part Marking

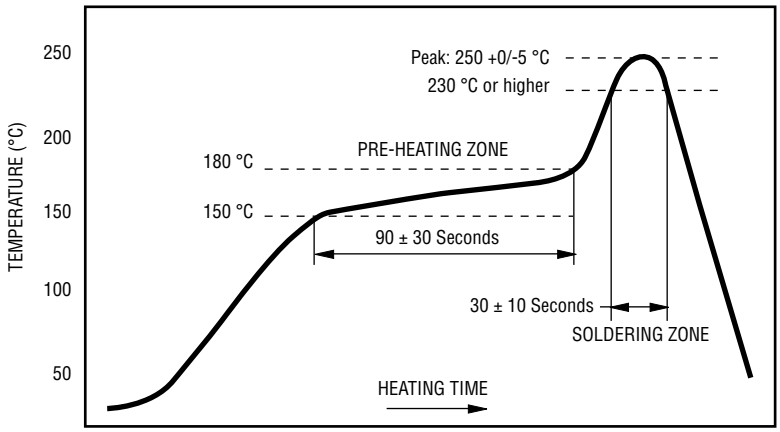
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RATED CURRENT (A)

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	6 = 6.00

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

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Reliability Testing

No.	Test	Requirement	Test Condition
1	Carrying Capacity	No fusing	Rated current, 4 hours
2	Fusing Time	Within 120 seconds	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 245 °C ±5 °C, 2 ±0.5 second (lead free)
7	Temperature Rise	<75 °C	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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