

SinglFuse™ SF-0603FP Series Features

- Fast acting precision 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-0603FP Series - Fast Acting Precision Surface Mount Fuses

Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance Tolerance $\pm 25\%$ (m Ω) ***	Rated Voltage	Breaking Capacity	Typical I ² t (A ² s) ****
SF-0603FP050	0.50	Open within 5 sec. at 200 % rated current	260	DC 50 V	DC 50 V 50 A	0.088
SF-0603FP063	0.63		218	DC 32 V	DC 32 V 50 A	0.0125
SF-0603FP080	0.80		132			0.0206
SF-0603FP100	1.00		84.5			0.0211
SF-0603FP125	1.25		63			0.0472
SF-0603FP150	1.50		50.5			0.0623
SF-0603FP160	1.60		46			0.0817
SF-0603FP200	2.00		32			0.1176
SF-0603FP250	2.50		25.5			0.1807
SF-0603FP300	3.00		20			0.3177
SF-0603FP315	3.15		19			0.3615
SF-0603FP400	4.00		13			0.5348
SF-0603FP500	5.00		10			0.7726

*** Resistance value measured with less than 10 % of rated current. Tolerance $\pm 25\%$.

****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 5 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, 1time, 30 seconds
Resistance to Solder Heat	$\pm 20\%$	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 °C	100 % of its rated current, measure of surface temperature
Resistance to Dry Heat	$\pm 20\%$	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	$\Delta R < 10\%$	-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 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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Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

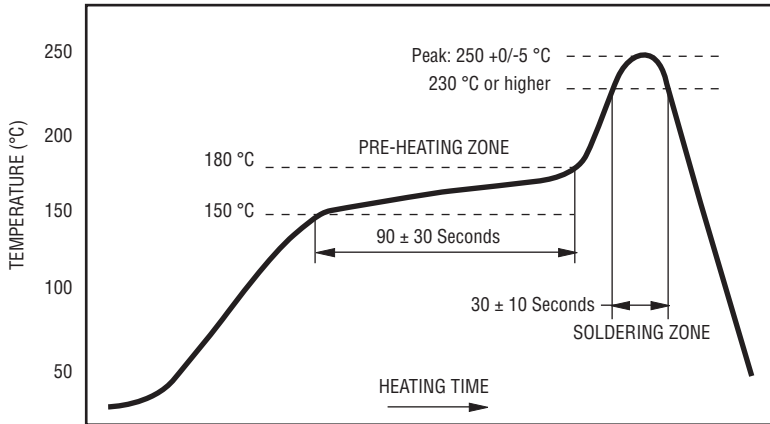
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SingFuse™ SF-0603FP Series Applications

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

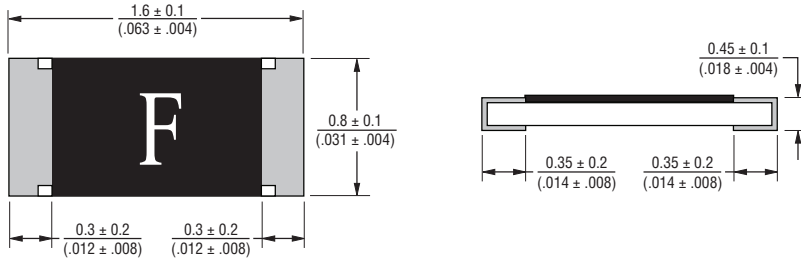
SF-0603FP Series - Fast Acting Precision Surface Mount Fuses **BOURNS®**

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

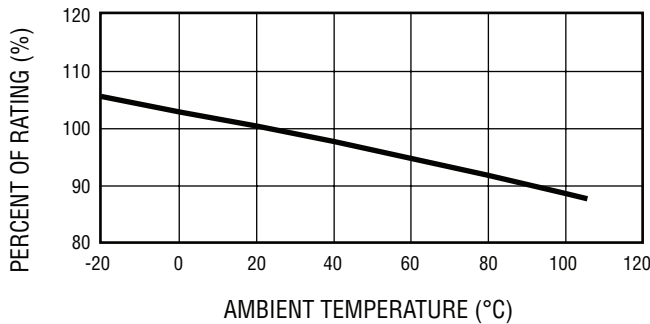
Product Dimensions



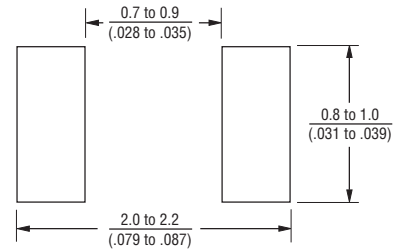
DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

PACKAGING: 5,000 pcs./reel

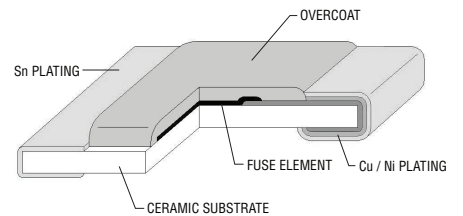
Thermal Derating Curve



Recommended Pad Layout

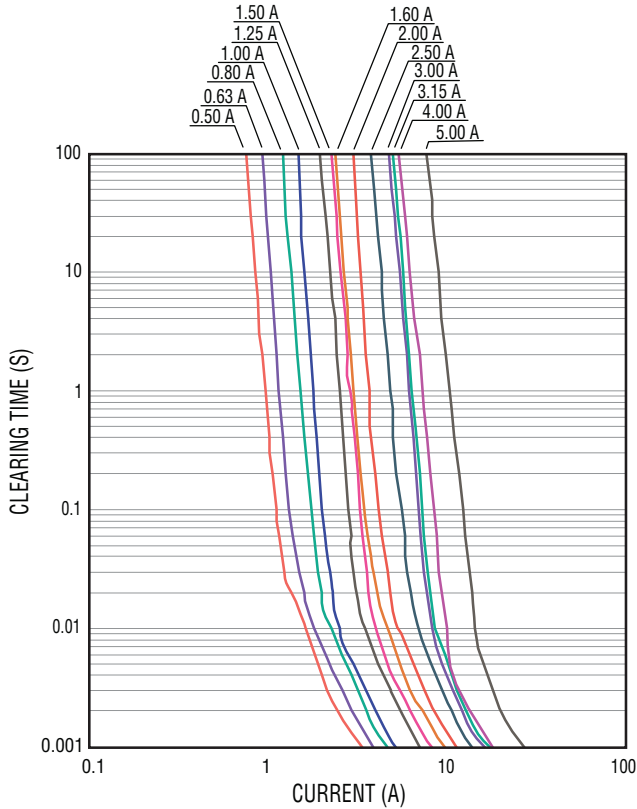


Construction & Material Content

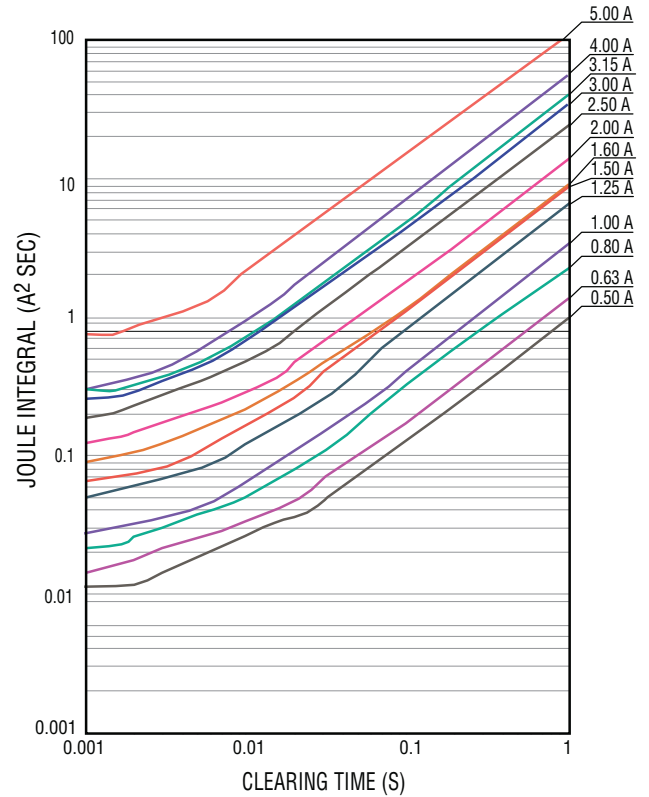


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Average Time Current Curves



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
P = 1.50	Y = 5.00
N = 1.60	

How to Order

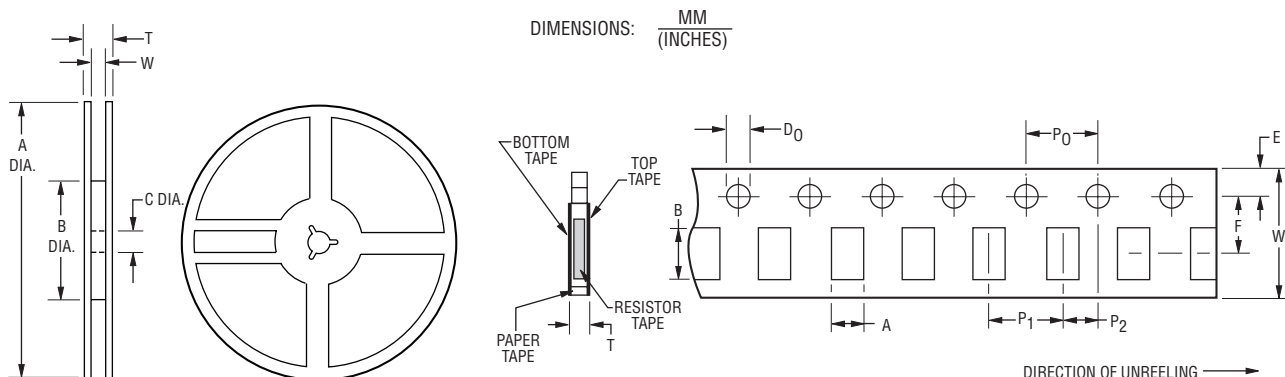
SF - 0603 FP 050 - 2

SinglFuse™
 Product Designator _____
 SMD Footprint _____
 1608 (EIA 0603) size
 Fuse Blow Type _____
 FP = Fast acting precision
 Rated Current _____
 050-500 (500 mA - 5.00 A)
 Packaging Type _____
 - 2 = Tape & Reel (5,000 pcs./reel)

SF-0603FP Series Tape and Reel Specifications

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Tape Dimensions	SF-0603FP 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	$\frac{180 +0/-3.0}{(7.087 +0/-1.18)}$
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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