



SinglFuse™ SF-0603FPxxxF Series Features

- Single blow fuse for overcurrent protection
- 1608 (EIA 0603) 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-0603FPxxxF Series - Fast Acting Precision Surface Mount Fuses

Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I ² t (A ² s) ****
SF-0603FP015F-2	0.15	Open within 5 sec. at 200 % rated current	2.189	DC 65 V	AC/DC 35 V 50 A DC 65 V 13 A	0.00061
SF-0603FP020F-2	0.20		1.294			0.00142
SF-0603FP025F-2	0.25		1.095			0.00162
SF-0603FP0375F-2	0.375		0.478			0.0041
SF-0603FP050F-2	0.50		0.184			0.0122
SF-0603FP075F-2	0.75		0.111			0.0213
SF-0603FP100F-2	1.00		0.0687			0.0426
SF-0603FP125F-2	1.25		0.0478			0.0525
SF-0603FP150F-2	1.50		0.0368	0.0717		
SF-0603FP175F-2	1.75		0.0308	DC 35 V	AC/DC 35 V 35 A AC/DC 24 V 50 A	0.101
SF-0603FP200F-2	2.00		0.0259			0.141
SF-0603FP250F-2	2.50		0.0209			0.242
SF-0603FP300F-2	3.00		0.0175			0.333
SF-0603FP350F-2	3.50		0.0147			0.495
SF-0603FP400F-2	4.00		0.0124			0.636
SF-0603FP500F-2	5.00		0.0095			1.11

*** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±25 %.

**** Melting I²t 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	MIL-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

Agency Recognition

UL File Number E198545



WARNING Cancer and Reproductive Harm
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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Users should verify actual device performance in their specific applications.

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SinglFuse™ SF-0603FPxxx F Series Applications

- Portable memory
- Cellphones
- LED lighting
- LCD monitors
- Rechargeable battery packs
- Power tools
- Disk drives
- Battery chargers
- Set-top boxes
- Digital cameras
- Industrial controllers
- Battery Management Systems (BMS)
- MP3 players

SF-0603FPxxx F 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

Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)	
· = 0.150	II = 1.500
.. = 0.200	= = 1.750
· · = 0.250	≡ = 2.000
·· · = 0.375	H = 2.500
I = 0.500	III = 3.000
— = 0.750	HH = 3.500
+ = 1.000	□ = 4.000
x = 1.250	○ = 5.000

How to Order

SF - 0603 FP 015 F - 2

- SinglFuse™ Product Designator
- SMD Footprint 1608 = (EIA 0603) size
- Fuse Blow Type FP = Fast acting precision
- Rated Current 015 ~ 500 (150 mA ~ 5.0 A)
- Structure Type F = Thin film
- Packaging Type - 2 = Tape & Reel

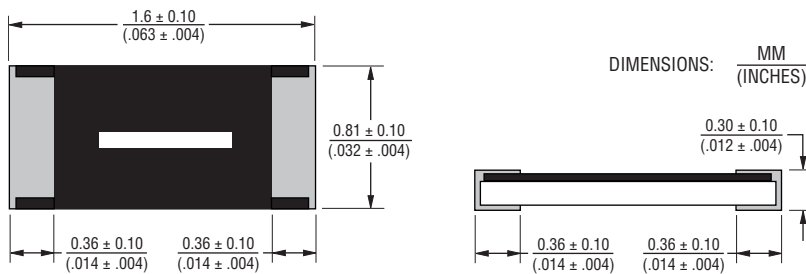
Construction



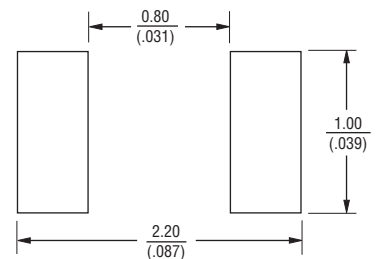
Packaging Quantity

8,000 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_d)	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_d)	260 °C
Time (t_p)* within 5 °C of the specified classification temperature (T_c)	30 seconds*
Ramp Down Rate (T_d to T_l)	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

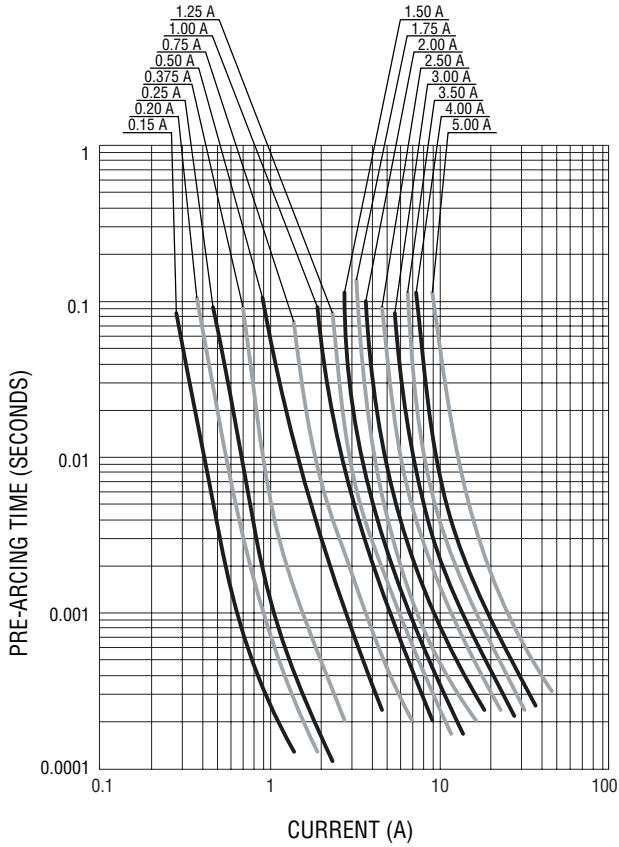
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Recommended Temperature Profile for Wave Soldering

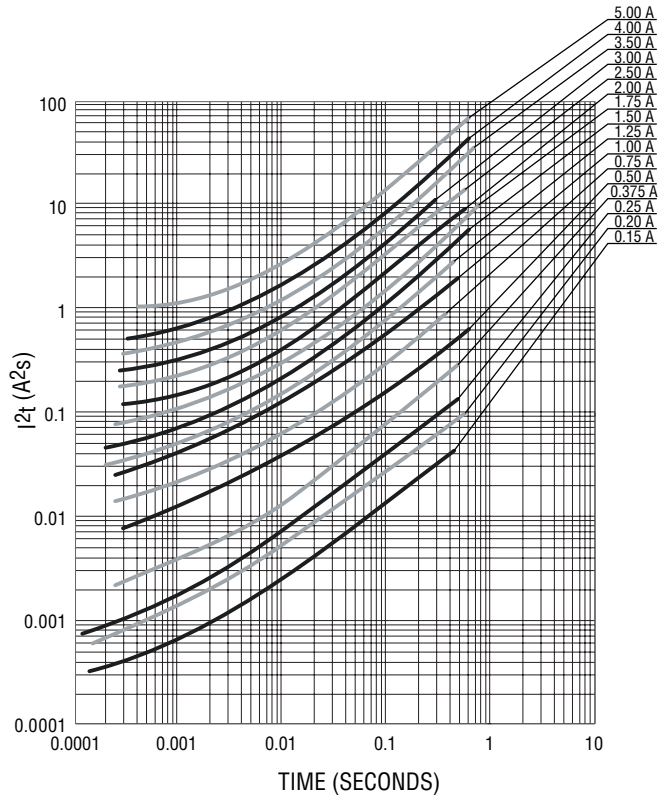


Wave soldering is suitable for 0603 size models.

Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves



SF-0603FPxxxF Series Tape and Reel Packaging Specifications

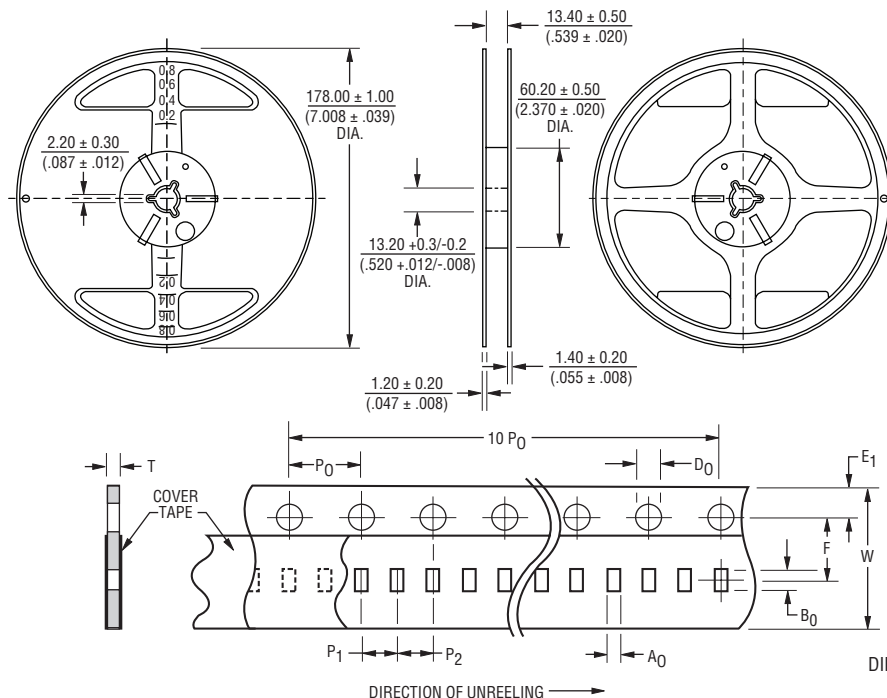


SF-0603FPxxxF Series
per EIA 481-2

Tape Dimensions

W	$\frac{8.10 \pm 0.20}{(.319 \pm .008)}$
P ₀	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P ₁	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
P ₂	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
A ₀	$\frac{1.00 \pm 0.10}{(.039 \pm .004)}$
B ₀	$\frac{1.80 \pm 0.10}{(.071 \pm .004)}$
F	$\frac{3.50 \pm 0.05}{(.138 \pm .002)}$
E ₁	$\frac{1.75 \pm 0.10}{(.069 \pm .004)}$
D ₀	$\frac{1.55 \pm 0.05}{(.061 \pm .002)}$
T	$\frac{0.60 \pm 0.08}{(.024 \pm .003)}$

PACKAGING: Paper tape, 8,000 pcs. per reel



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