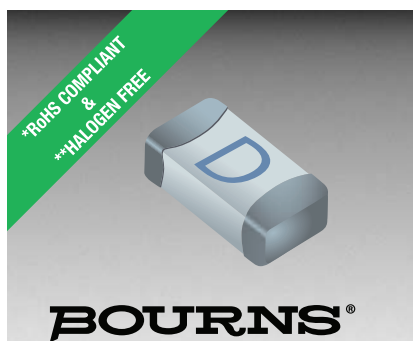




SinglFuse™ SF-0603FPxxxM Series Features

- Single blow fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- Fast-acting precision fuse
- UL 248-14 listed
- RoHS compliant* and halogen free**
- Multilayer SMD design
- Surface mount packaging for automated assembly

SF-0603FPxxxM 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-0603FP050M-2	0.50	Open within 5 sec. at 200 % rated current	0.995	DC 32 V	DC 32 V 50 A	0.0094
SF-0603FP075M-2	0.75		0.448			0.0194
SF-0603FP100M-2	1.00		0.2786			0.0365
SF-0603FP125M-2	1.25		0.2040			0.0636
SF-0603FP150M-2	1.50		0.1423		DC 32 V 35 A	0.0960
SF-0603FP175M-2	1.75		0.0945			0.141
SF-0603FP200M-2	2.00		0.0726			0.212
SF-0603FP250M-2	2.50		0.0458			0.303
SF-0603FP300M-2	3.00		0.0388			0.465
SF-0603FP350M-2	3.50		0.0279			0.737
SF-0603FP400M-2	4.00		0.0229			1.162
SF-0603FP450M-2	4.50		0.0189			1.697
SF-0603FP500M-2	5.00		0.0149			2.646

*** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±30 %.

**** Melting I²t calculated at 0.001 second pre-arcing time.

Reliability Testing

No.	Test	Requirement	Test Condition	Test Reference
1	Soldering heat resistance	DCR change ≤ ±10 % No mechanical damage	One dip at 260 °C for 60 seconds	MIL-STD-202 Method 210
2	Solderability	Minimum 95 % coverage	One dip at 245 °C for 5 seconds	MIL-STD-202 Method 208
3	Thermal shock	DCR change ≤ ±10 % No mechanical damage	100 cycles between -65 °C and +125 °C	MIL-STD-202 Method 107
4	Moisture resistance	DCR change ≤ ±15 % 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 ±20 % of initial value	80 % rated current (75 % for < 1 A fuses) 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.

"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-0603FPxxxM Series Applications

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

SF-0603FPxxxM Series - Fast Acting Precision Surface Mount Fuses

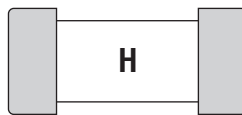
BOURNS®

Environmental Characteristics

Operating Temperature.....	-55 °C to +125 °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.



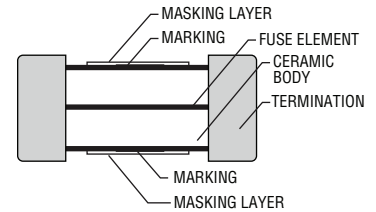
RATED CURRENT (A)	
C = 0.50	J = 2.50
D = 0.75	K = 3.00
E = 1.00	L = 3.50
F = 1.25	M = 4.00
G = 1.50	T = 4.50
H = 1.75	N = 5.00
I = 2.00	

How to Order

SF - 0603 FP 050 M - 2

SinglFuse™
 Product Designator
 SMD Footprint
 0603 = 1608 (EIA 0603) size
 Fuse Blow Type
 FP = Fast acting precision
 Rated Current
 050 ~ 500 (500 mA ~ 5.00 A)
 Structure Type
 M = Multilayer
 Packaging Type
 - 2 = Tape & Reel

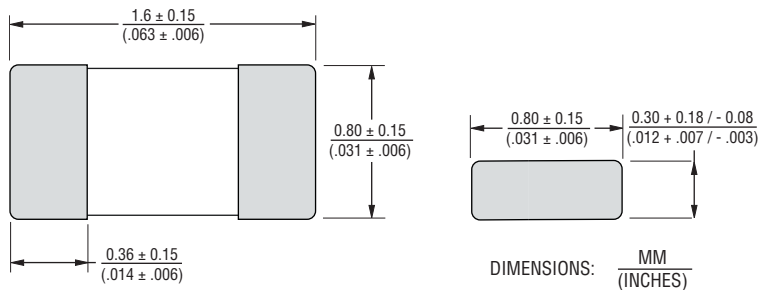
Construction



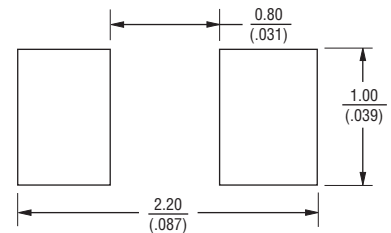
Packaging Quantity

6,000 pieces per 7-inch reel

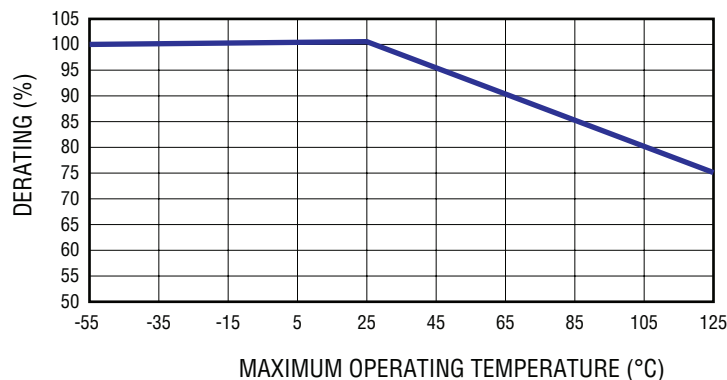
Product Dimensions



Recommended Pad Layout



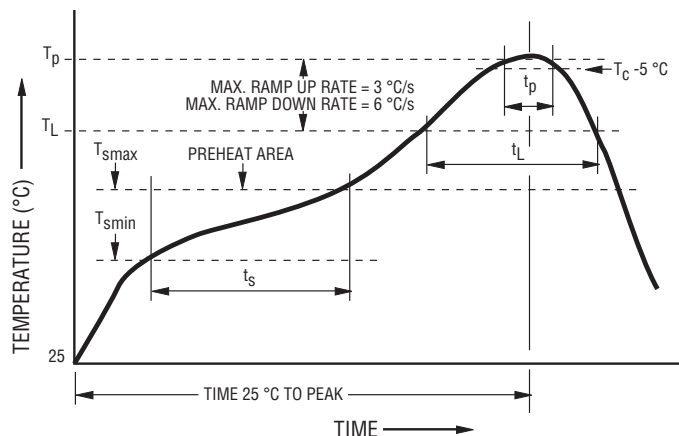
Current Rating Thermal Derating Curve



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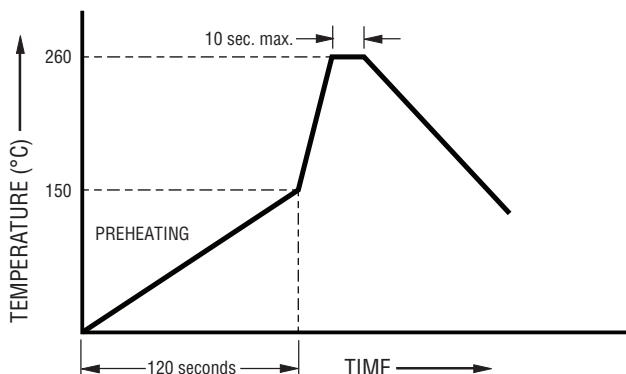
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Solder Reflow Recommendations

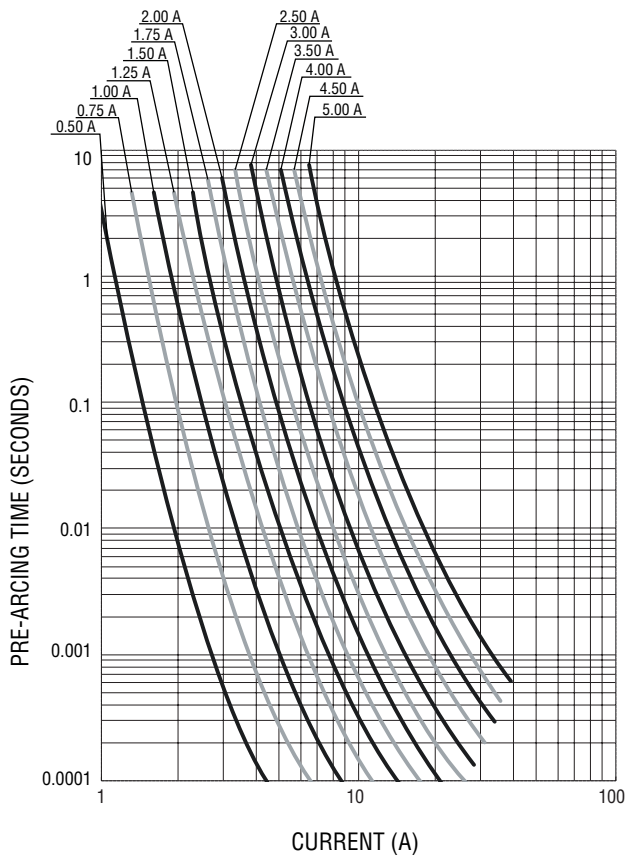
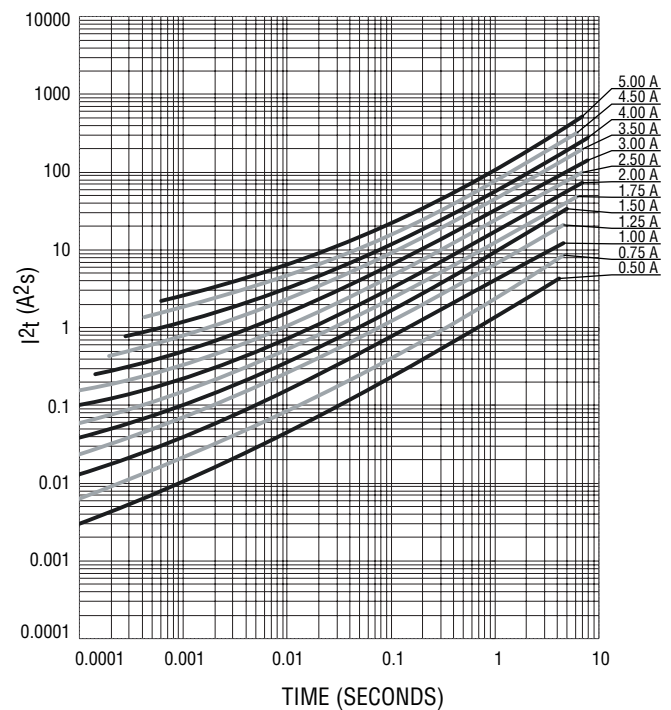
Profile Feature	Pb-Free Assembly
Preheat / Soak:	
Temperature Min. (T_{smin})	150 °C
Temperature Max. (T_{smax})	200 °C
Time (t_s) from (T_{smin} to T_{smax})	60~120 seconds
Ramp Up Rate (T_L to T_p)	3 °C / second max.
Liquidous Temperature (T_L)	217 °C
Time (t_L) maintained above T_L	60~150 seconds
Peak Package Body Temperature (T_p)	260 °C
Time (t_p)* within 5 °C of the specified classification temperature (T_c)	30 seconds*
Ramp Down Rate (T_p 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-0603FPxxxM Series Tape and Reel Packaging Specifications

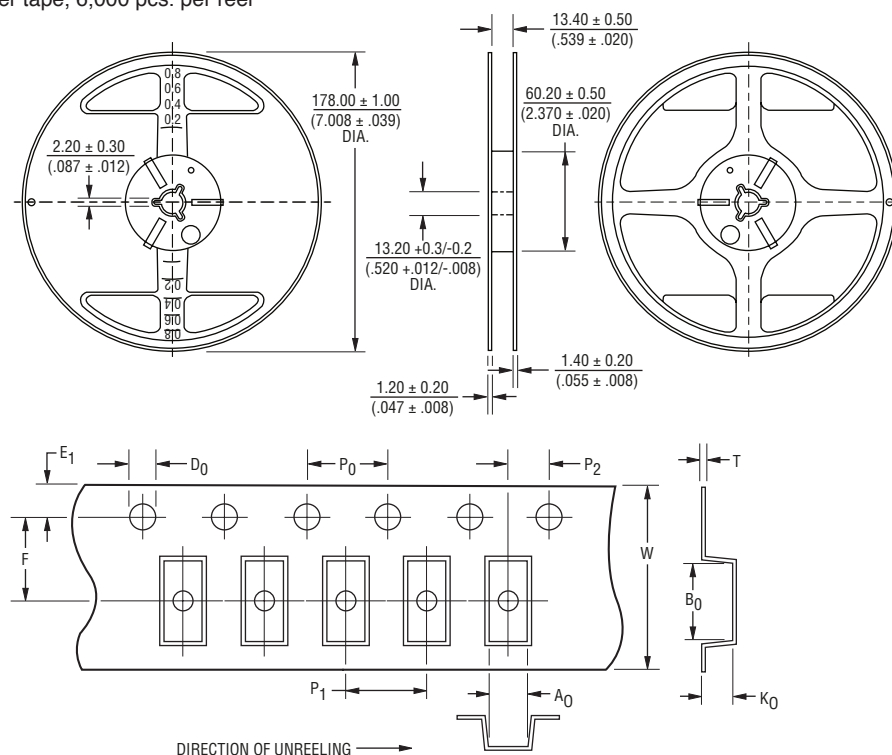
BOURNS®

SF-0603FPxxxM Series per EIA 481-2

Tape Dimensions

W	$\frac{8.00 \pm 0.10}{(.315 \pm .004)}$
P ₀	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P ₁	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
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	$\frac{3.5 \pm 0.05}{(.138 \pm .002)}$
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, 6,000 pcs. per reel



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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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