SingIFuse™ SF-0603SxxxM Series Features

- Single blow fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- Slow blow fuse (Fusing time ≤5 seconds at 250 % rated current)
- UL 248-14 listed
- Surface mount packaging for automated assembly
- Multilayer SMD design
- RoHS compliant* and halogen free**

SF-0603SxxxM Series - Slow Blow Multilayer Surface Mount Fuses

Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I^2t (A^2s) ****
SF-0603S050M-2	0.50	Open within 5 sec. at 250 % rated current	0.485	DC 63 V	DC 63 V 35 A	0.003
SF-0603S075M-2	0.75		0.254			0.006
SF-0603S100M-2	1.00		0.147			0.013
SF-0603S150M-2	1.50		0.059			0.030
SF-0603S200M-2	2.00		0.044	DC 32 V	DC 32 V 35 A	0.060
SF-0603S250M-2	2.50		0.032			0.100
SF-0603S300M-2	3.00		0.025			0.180
SF-0603S350M-2	3.50		0.024			0.300
SF-0603S400M-2	4.00		0.018			0.500
SF-0603S500M-2	5.00		0.013			0.800
SF-0603S600M-2	6.00		0.010	DC 24 V	DC 24 V 35 A	1.100

*** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±25 %.
****Melting I^2t 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 +20 °C ~ +30 °C	Refer to STP document
9	Terminal strength	No mechanical damage	0.5 Kg pushing force	Refer to STP document

Agency Recognition

UL File Number E198545

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

WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.
** 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-0603SxxxM Series Applications

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

SF-0603SxxxM Series - Slow Blow Multilayer Surface Mount Fuses

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Typical Part Marking

Represents total content. Layout may vary.

RATED CURRENT (A)

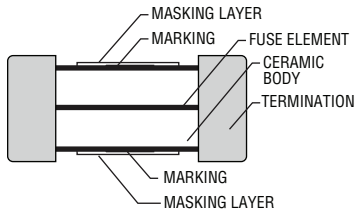
C = 0.50	K = 3.00
D = 0.75	L = 3.50
E = 1.00	M = 4.00
G = 1.50	N = 5.00
I = 2.00	O = 6.00
J = 2.50	

How to Order

SF - 0603 S 100 M - 2

- SingIFuse™ Product Designator
- SMD Footprint
  0603 = 1608 (EIA 0603) size
- Fuse Blow Type
  S = Slow blow
- Rated Current
  050-600 (0.50 A - 6.00 A)
- Structure
  M = Multilayer
- Packaging Type
  - 2 = Tape & Reel

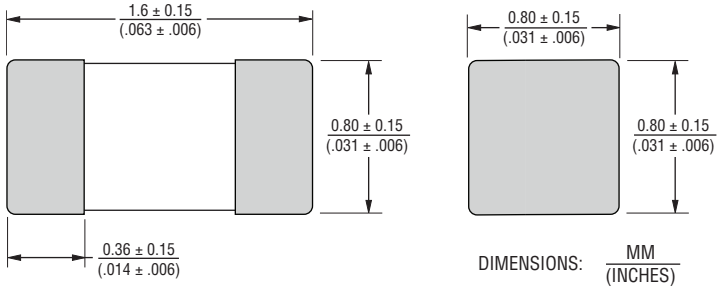
Construction



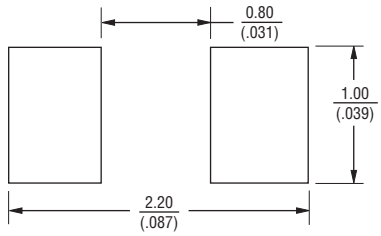
Packaging Quantity

4,000 pieces per 7 inch reel

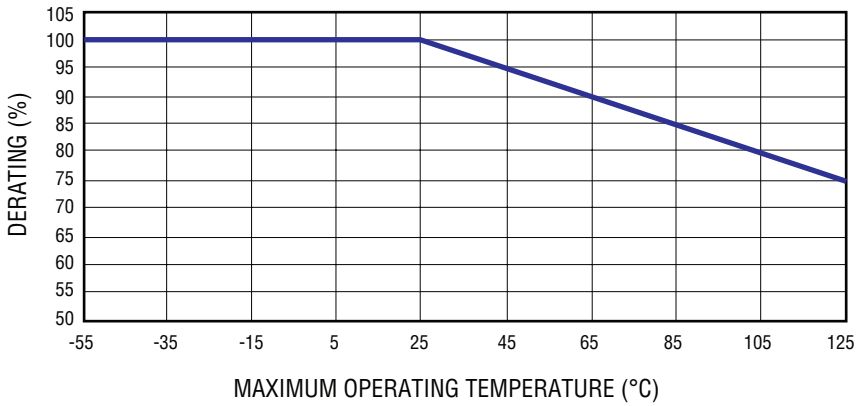
Product Dimensions



Recommended Pad Layout



Current Rating Thermal Derating Curve



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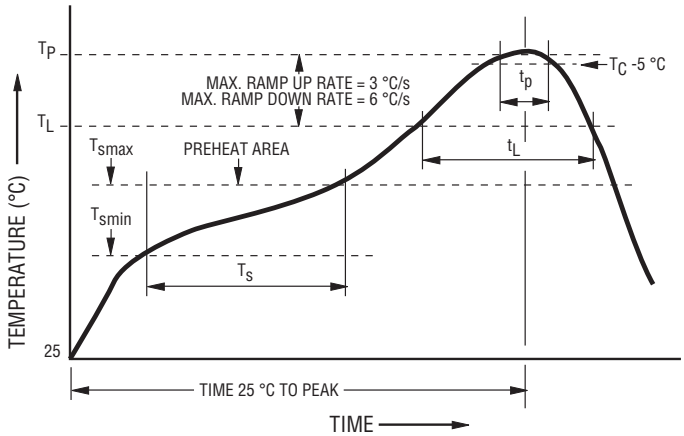
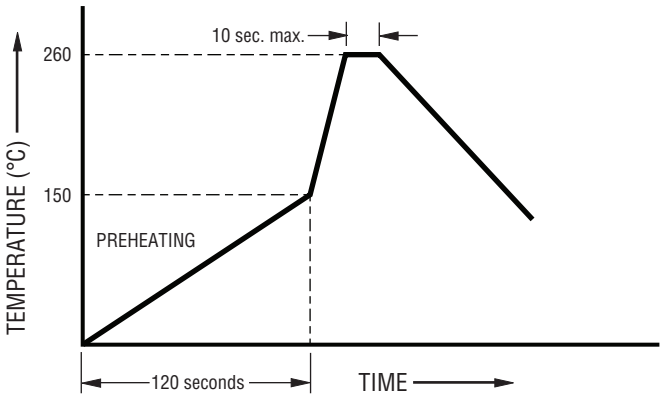
Solder Reflow Recommendations



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_p)	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_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.

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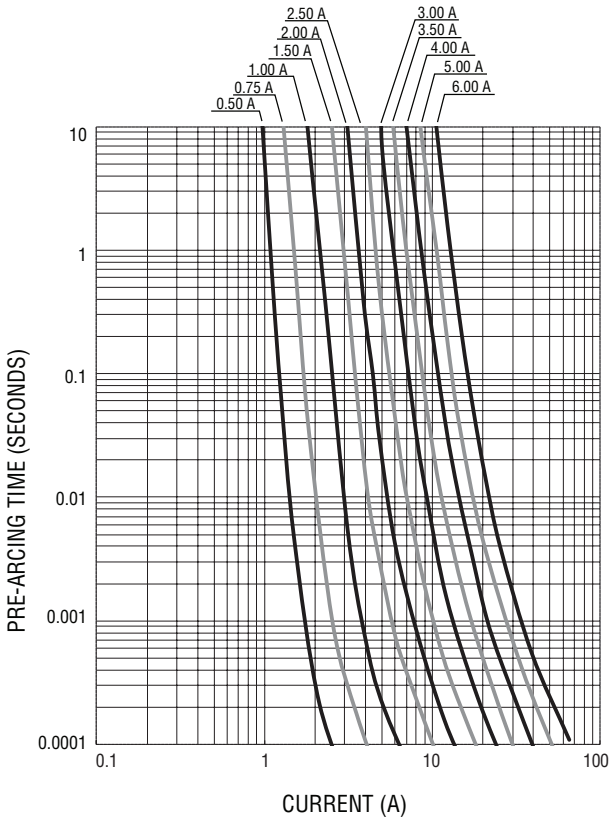
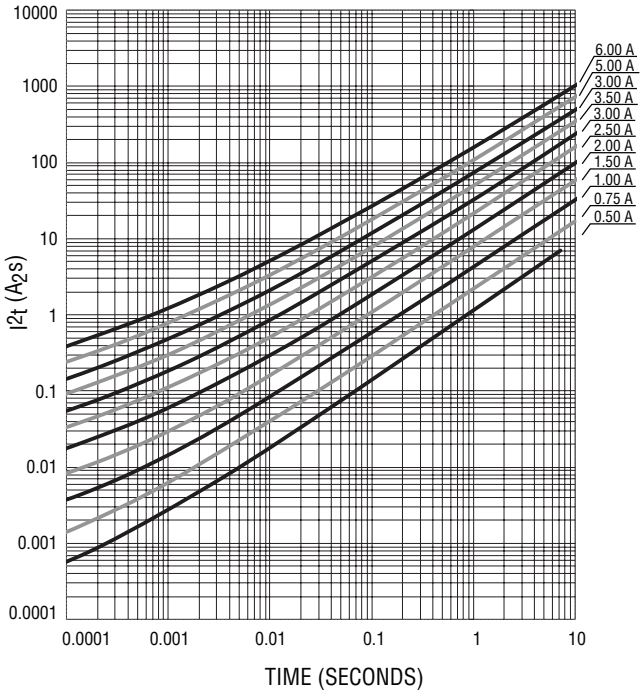
Average Pre-Arcing Time Curves



Average I^2t vs. t Curves



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SF-0603SxxxM Series Tape and Reel Specifications

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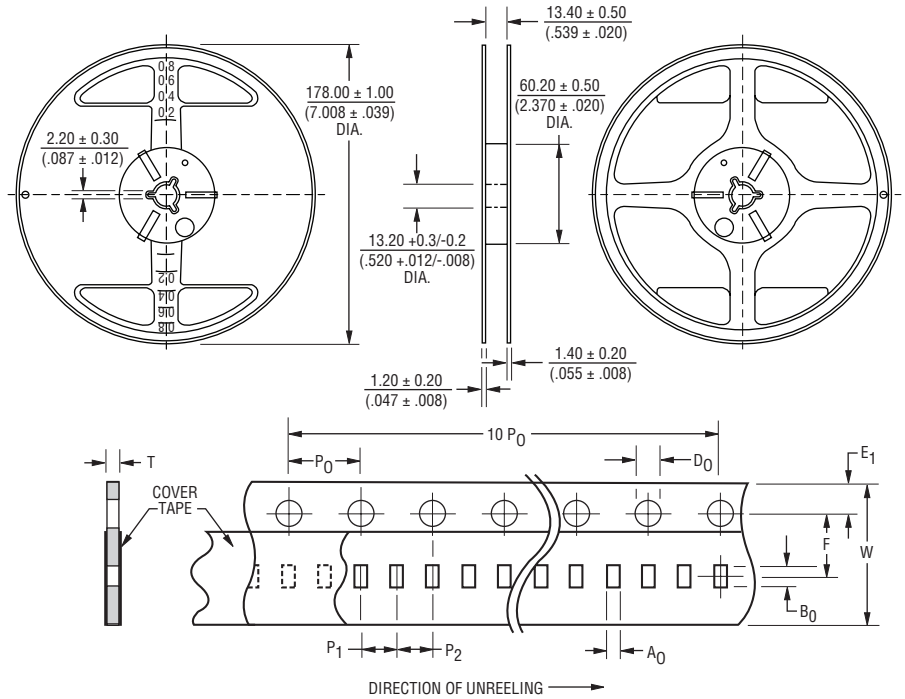
Tape Dimensions	SF-0603SxxxM Series per EIA 481-2
W	8.00 ± 0.10 (.315 ± .004)
P_0	4.0 ± 0.10 (.157 ± .004)
P_1	2.0 ± 0.05 (.079 ± .002)
P_2	2.0 ± 0.05 (.079 ± .002)
A_0	1.00 ± 0.10 (.039 ± .004)
B_0	1.80 ± 0.10 (.071 ± .004)
F	3.5 ± 0.05 (.138 ± .002)
E_1	1.75 ± 0.10 (.069 ± .004)
D_0	1.50 + 0.10 (.059 + .004)
T	0.95 ± 0.08 (.037 ± .003)

DIMENSIONS: MM (INCHES)

PACKAGING: Paper tape, 4,000 pcs. per reel



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