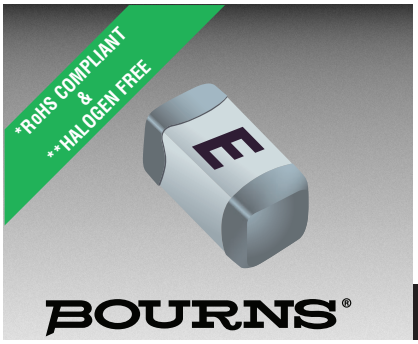


## SingIFuse™ SF-0603SxxxM Series Features

- 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.
****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 %<br>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 %<br>No mechanical damage | 100 cycles between -65 °C and +125 °C | MIL-STD-202 Method 107 |
| 4 | Moisture resistance | DCR change ≤ ±15 %<br>No excessive corrosion | 10 cycles | MIL-STD-202 Method 106 |
| 5 | Salt spray | DCR change ≤ ±10 %<br>No excessive corrosion | 48 hour exposure, 5 % salt solution | MIL-STD-202 Method 101 |
| 6 | Mechanical vibration | DCR change ≤ ±10 %<br>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 %<br>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 |

## 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

* 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.

"SingIFuse" is a trademark of Bourns, Inc.
Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.

## Agency Recognition

UL File Number ..... E198545

http://www.ul.com/ Follow link to Online Certificates Directory, then enter UL File No. E198545, or click here

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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

### 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

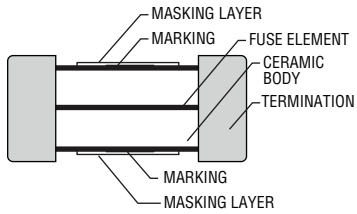
Fuse Blow Type
S = Slow blow

Rated Current
050-600 (0.50 A - 6.00 A)

Structure
M = Multilayer

Packaging Type
- 2 = Tape & Reel

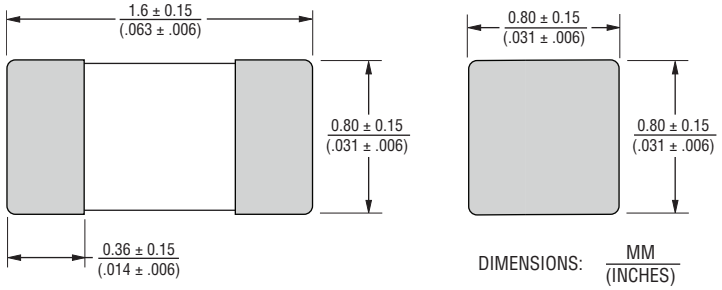
### Construction



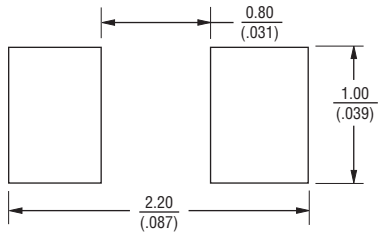

### Packaging Quantity

.....4,000 pieces per 7 inch reel

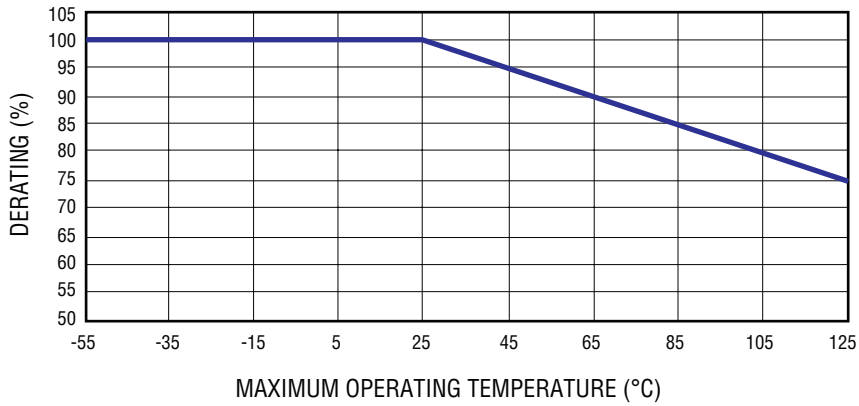
### Product Dimensions




### Recommended Pad Layout




### Current Rating Thermal Derating Curve

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