

Features

- Slow blow fusing speed
- EIA 0603 (1608 metric) footprint
- Designed to UL 248-14
- RoHS* compliant and halogen free**
- AEC-Q200-equivalent compliant***

SF-0603SA-M Series - Automotive Grade Slow Blow SMD Fuses

Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
250 %	—	5 seconds

Additional Information

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Electrical Characteristics

Model	Rated Current (A)	Resistance (Ω) Typ.****	Rated Voltage	Interrupting Rating	Typical I ² t (A ² s)*****	Agency Recognition
						cUL: E198545
SF-0603SA050M-2	0.50	0.827	65 VDC	50 A @ 65 VDC	0.0040	✓
SF-0603SA075M-2	0.75	0.374			0.0121	✓
SF-0603SA100M-2	1.00	0.238			0.0303	✓
SF-0603SA125M-2	1.25	0.154			0.0657	✓
SF-0603SA150M-2	1.50	0.116			0.101	✓
SF-0603SA200M-2	2.00	0.067	35 VDC	50 A @ 35 VDC	0.182	✓
SF-0603SA250M-2	2.50	0.039			0.222	✓
SF-0603SA300M-2	3.00	0.030			0.343	✓
SF-0603SA350M-2	3.50	0.024			0.394	✓
SF-0603SA400M-2	4.00	0.020			0.535	✓
SF-0603SA500M-2	5.00	0.012			0.889	✓
SF-0603SA600M-2	6.00	0.011	24 VDC	80 A @ 24 VDC	1.101	✓
SF-0603SA700M-2	7.00	0.008			1.879	✓
SF-0603SA800M-2	8.00	0.007			2.727	✓

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

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

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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.

***Meets Bourns' internal AEC-Q200-equivalent test plan.

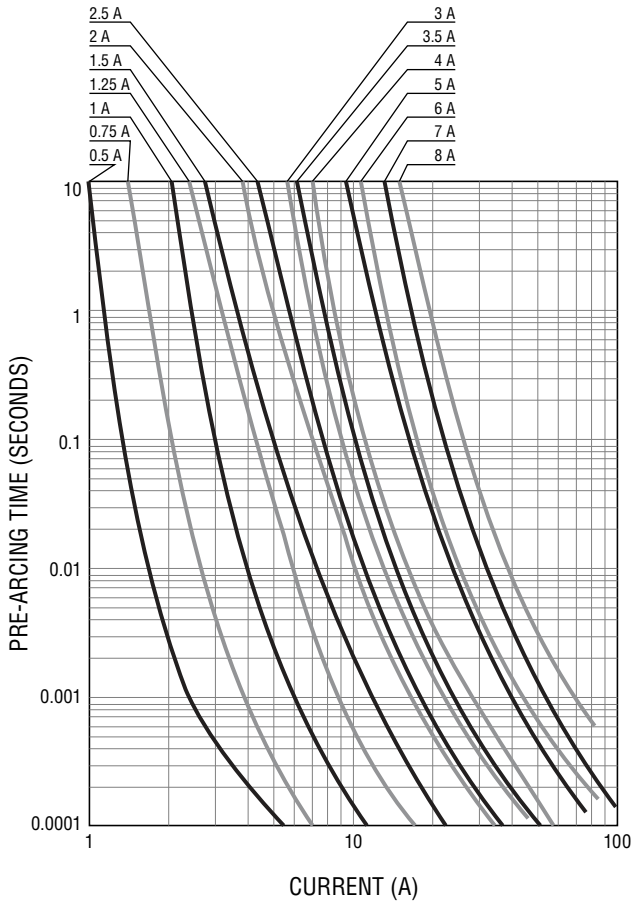
"SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

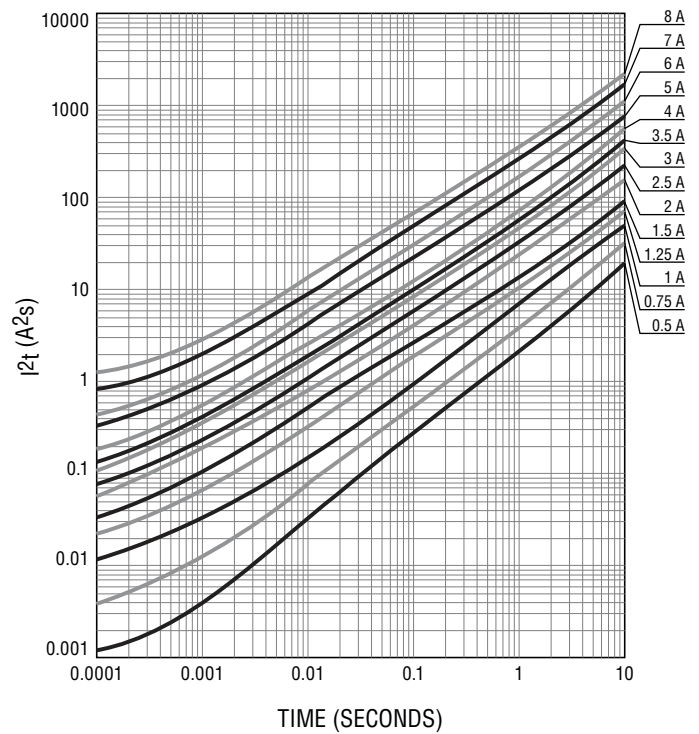
Users should verify actual device performance in their specific applications.

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Average Pre-Arcing Time vs. Current Curves



Average I²t vs. t Curves

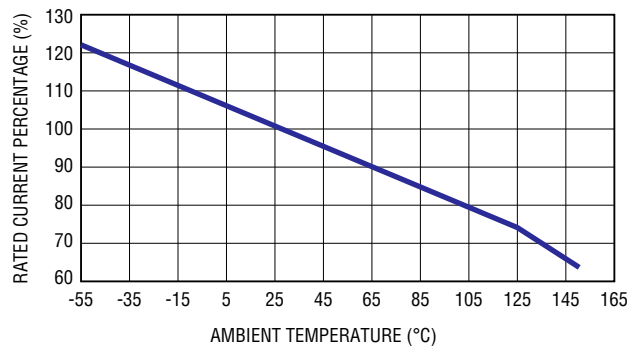


Environmental Characteristics

Operating Temperature	-55 °C to +150 °C
Storage Conditions	
Temperature	+5 °C to +35 °C
Humidity	40 % to 75 %
Moisture Sensitivity Level	1
ESD Classification ¹	Class 6

¹per AEC-Q200-2, HBM

Current Rating Thermal Derating Curve



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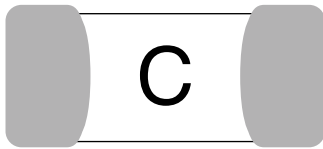
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SF-0603SA-M Series - Automotive Grade Slow Blow SMD Fuses



Typical Part Marking

Represents total content. Layout may vary. Markings in cyan color.



Rated Current	Part Marking	Rated Current	Part Marking
0.5 A	C	3 A	K
0.75 A	D	3.5 A	L
1 A	E	4 A	M
1.25 A	F	5 A	N
1.5 A	G	6 A	O
2 A	I	7 A	P
2.5 A	J	8 A	R

How to Order

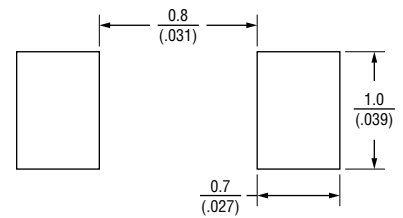
SF - 0603 S A 050 M - 2

SinglFuse™ _____
 Product Designator _____
 SMD Footprint _____
 0603 = EIA 0603 (1608 metric) _____
 Fuse Blow Type _____
 S = Slow Blow _____
 Automotive Grade _____
 Rated Current _____
 050 ~ 800 = 0.5 A ~ 8 A _____
 Structure Type _____
 M = Ceramic Multilayer _____
 Packaging Type _____
 - 2 = Tape & Reel _____

Packaging

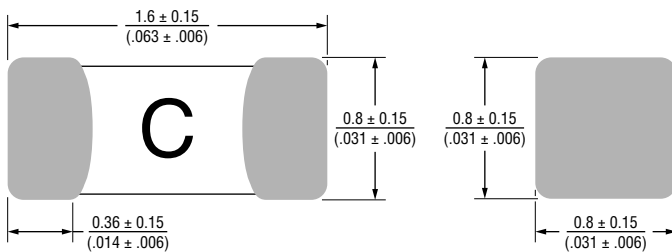
Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	4,000 pieces
Packaging Code	-2

Recommended Pad Layout



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

Product Dimensions



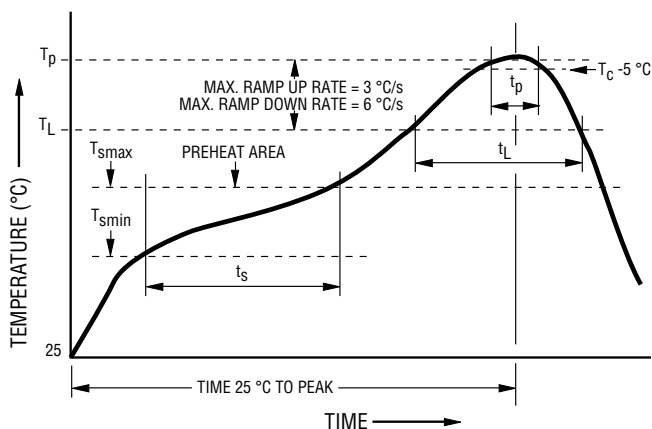
DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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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.

Reliability Tests

Test Items	Reference Standard
Visual Inspection	MIL-STD-883 Method 2009
High Temperature Storage	MIL-STD-202 Method 108
Low Temperature Storage	IEC 60068-2-1
Temperature Cycling	JESD22 Method JA-104
Biased Humidity	MIL-STD-202 Method 103
High Temperature Operating Life	MIL-STD-202 Method 108
Physical Dimension	JESD22 Method JB-100
Mechanical Vibration	MIL-STD-202 Method 204
Mechanical Shock	MIL-STD-202 Method 213
Resistance to Soldering Heat	MIL-STD-202 Method 210
Salt Spray	MIL-STD-202 Method 101
Solderability	MIL-STD-202 Method 208
Terminal Strength	AEC-Q200-006
Board Flex	AEC-Q200-005
Electrical Characterization	Bourns Specification

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