BOURNS®

Features

- High-inrush current withstand capability
- EIA 0603 (1608 metric) footprint
- AEC-Q200 compliant*
- UL 248-14 listed
- RoHS compliant** and halogen free***

SF-0603HIA-M Series - Automotive Grade High-Inrush SMD Fuses

Clearing Time Characteristics for Series

% of Current Rating	Clearing Time @ 25 °C	
	Min.	Max.
100 %	4 hours	—
200 %	1 second	60 seconds

Additional Information

Click these links for more information:

PRODUCT | TECHNICAL LIBRARY | INVENTORY | SAMPLES

Electrical Characteristics

Model	Rated Current (A)	Resistance (Ω) Typ.*****	Rated Voltage	Interrupting Rating	Typical I^2t (A^2s) ******	Certifications cUL: E198545
SF-0603HIA100M-2	1.0	0.24	32 VDC	50 A @ 32 VDC	0.082	✓
SF-0603HIA150M-2	1.5	0.115			0.112	✓
SF-0603HIA200M-2	2.0	0.06			0.245	✓
SF-0603HIA300M-2	3.0	0.032			0.74	✓
SF-0603HIA350M-2	3.5	0.022			1.12	✓
SF-0603HIA400M-2	4.0	0.018			2.1	✓
SF-0603HIA450M-2	4.5	0.015			2.68	✓
SF-0603HIA500M-2	5.0	0.013			3.3	✓

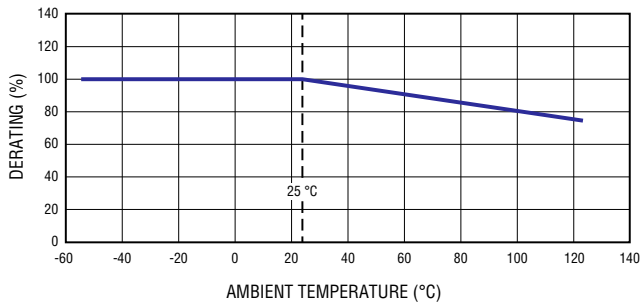
***** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ± 25 %.
****** Melting I^2t calculated at 1000 % of current rating.

Environmental Characteristics

Operating Temperature	-55 °C to + 125 °C
Storage Conditions	
Temperature	+5 °C to +35 °C
Humidity	40 % to 75 %
Moisture Sensitivity Level	1
ESD Classification[1]	Class 6

[1]per AEC-Q200-2, HBM

Current Rating Thermal Derating Curve



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

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

Typical Part Marking

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

Rated Current	Part Marking
1 A	E
1.5 A	G
2 A	I
3 A	K

Rated Current	Part Marking
3.5 A	L
4 A	M
4.5 A	T
5 A	N

How to Order

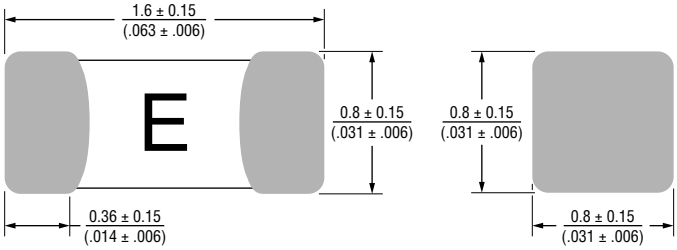
SF - 0603 HI A 100 M - 2

- SinglFuse™ Product Designator
- SMD Footprint
  0603 = EIA 0603 (1608 metric)
- Fuse Blow Type
  HI = High Inrush Current Withstand
- Automotive Grade
- Rated Current
  100 ~ 500 = 1 A ~ 5 A
- Structure Type
  M = Ceramic Multilayer
- Packaging Type
  - 2 = Tape & Reel

Packaging

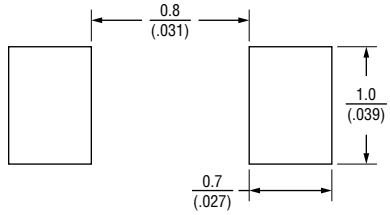
Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	4,000 pieces
Packaging Code	-2

Product Dimensions



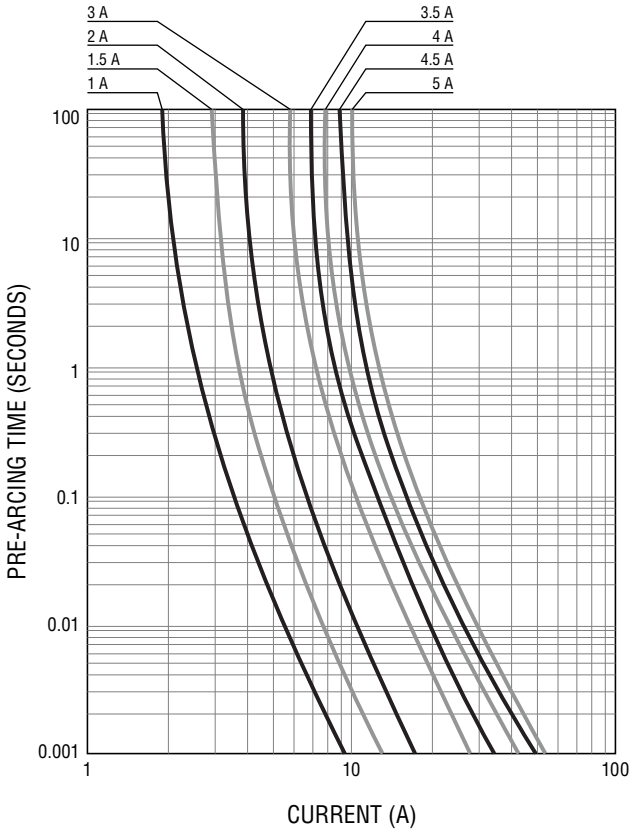
DIMENSIONS: MM / (INCHES)

Recommended Pad Layout

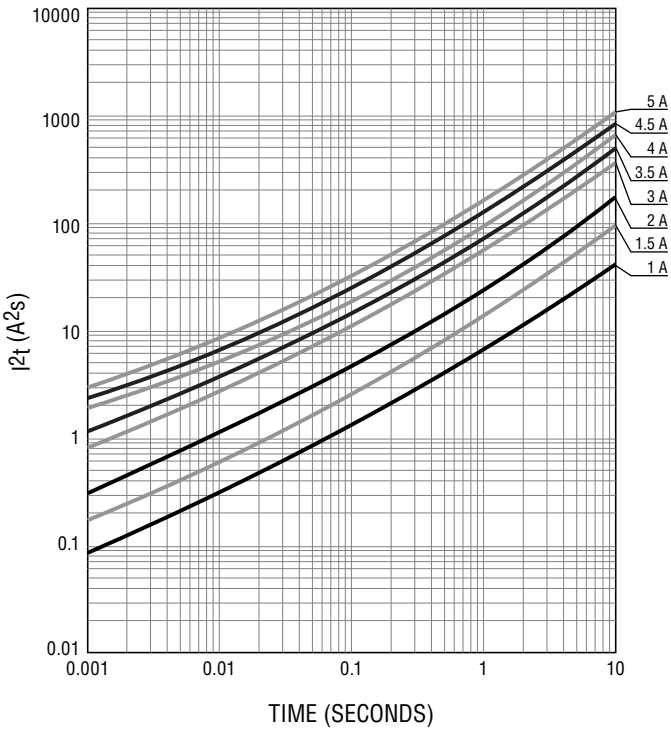


DIMENSIONS: MM / (INCHES)

Average Pre-Arcing Time vs. Current Curves



Average I²t vs. t Curves



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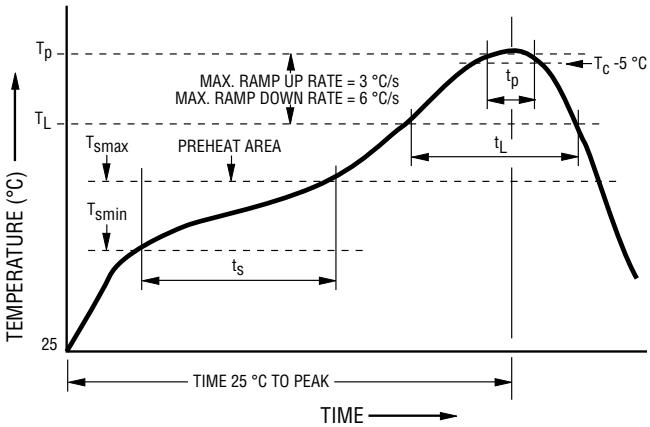
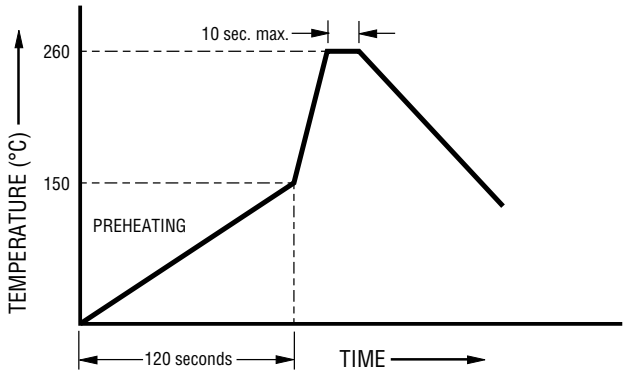
Solder Reflow Recommendations



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 (Tp) is defined as a supplier minimum and a user maximum.

Solder Wave Recommendations



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
Pull Test	MIL-STD-202 Method 211
Electrical Characterization	Bourns Specification

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