

Features

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

BOURNS®

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	✓

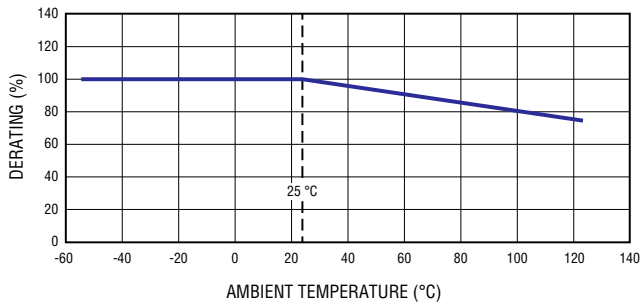
***** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ± 25 %.
****** Melting I^2t calculated at 1000 % of current rating.

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.

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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

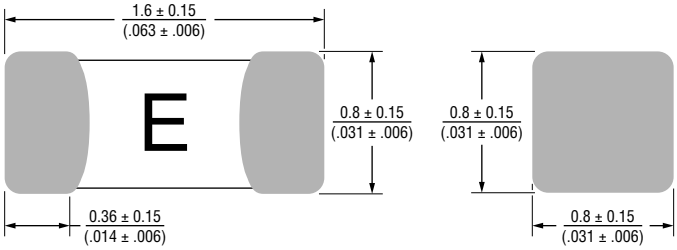
SF - 0603 HI A 100 M - 2

- 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

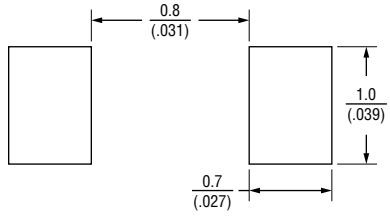
Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	4,000 pieces
Packaging Code	-2

Product Dimensions



DIMENSIONS: MM / (INCHES)

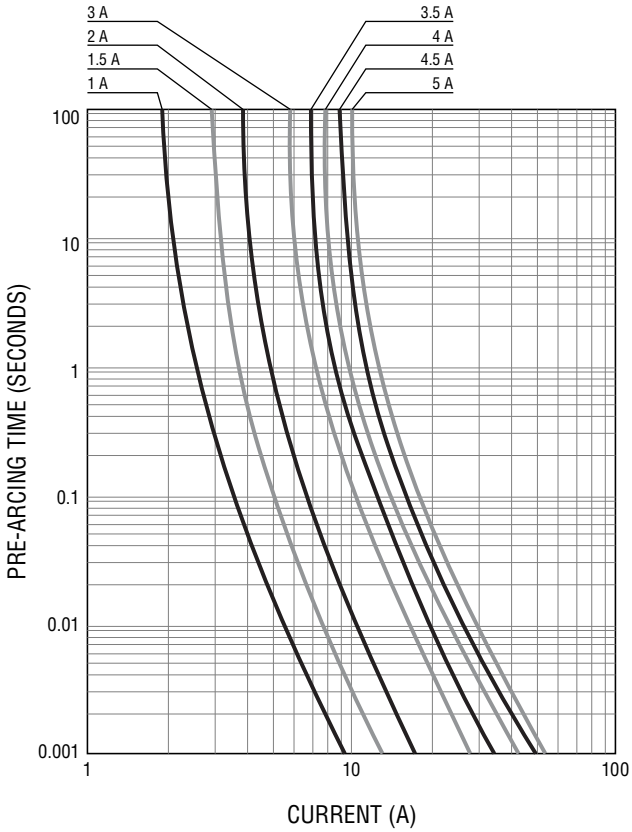
Recommended Pad Layout



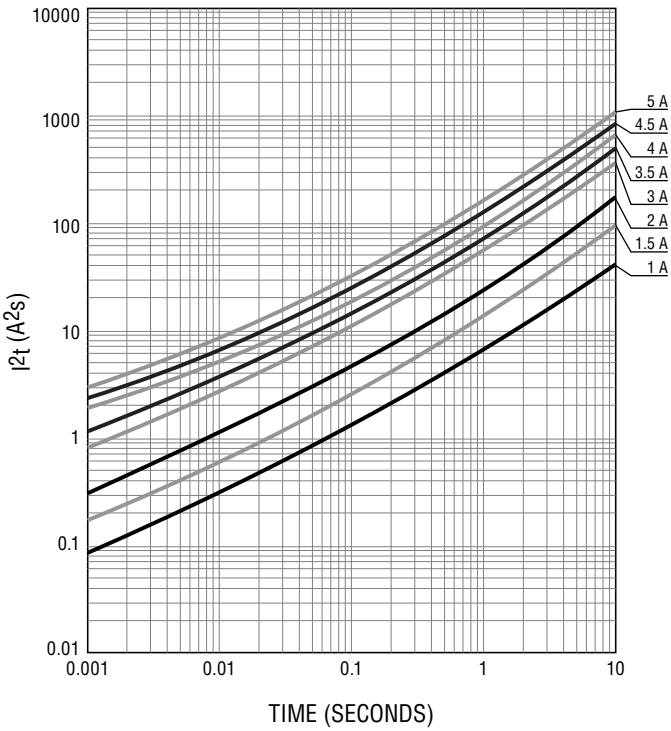
DIMENSIONS: MM / (INCHES)

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Average Pre-Arcing Time vs. Current Curves



Average I²t vs. t Curves

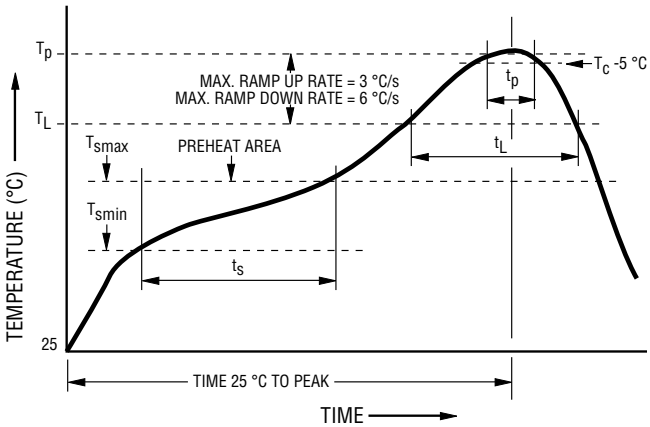


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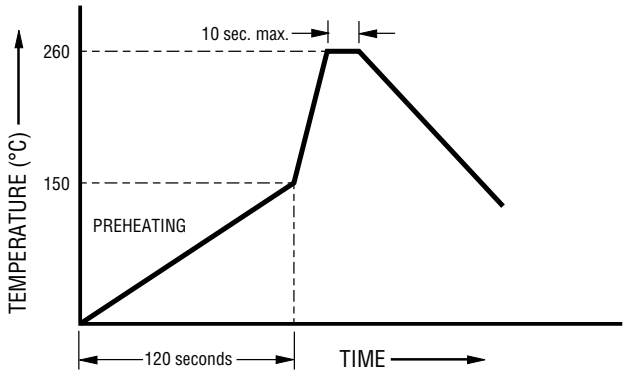
Solder Reflow Recommendations



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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