

Features

- High-inrush current withstand capability
- EIA 1206 (3216 metric) footprint
- AEC-Q200 compliant*
- UL 248-14 listed
- RoHS compliant** and halogen free***

SF-1206HIA-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 - 6 A)	1 second	60 seconds
350 % (0.5 - 0.75 A)	—	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)*****	Certifications
						cUL: E198545
SF-1206HIA050M-2	0.5	0.98	65 VDC	50 A @ 65 VDC	0.035	✓
SF-1206HIA075M-2	0.75	0.42			0.1	✓
SF-1206HIA100M-2	1.0	0.37			0.112	✓
SF-1206HIA150M-2	1.5	0.165	63 VDC	50 A @ 63 VDC	0.336	✓
SF-1206HIA200M-2	2.0	0.089			0.82	✓
SF-1206HIA300M-2	3.0	0.039			1.36	✓
SF-1206HIA350M-2	3.5	0.03	32 VDC	50 A @ 32 VDC	1.89	✓
SF-1206HIA400M-2	4.0	0.025			2.78	✓
SF-1206HIA450M-2	4.5	0.023			3.25	✓
SF-1206HIA600M-2	6.0	0.013	24 VDC	80 A @ 24 VDC	12.8	✓

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

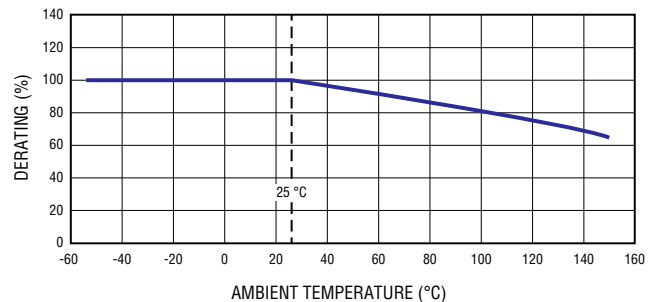
***** Melting I²t calculated at 1000 % of current rating.

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



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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Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

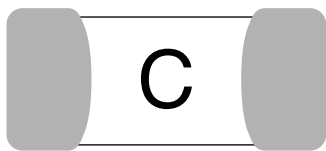
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SF-1206HIA-M Series – Automotive Grade High-Inrush SMD Fuses



Typical Part Marking

Represents total content. Layout may vary.
Markings in green 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
1.5 A	G	4.5 A	T
2 A	I	6 A	O

How to Order

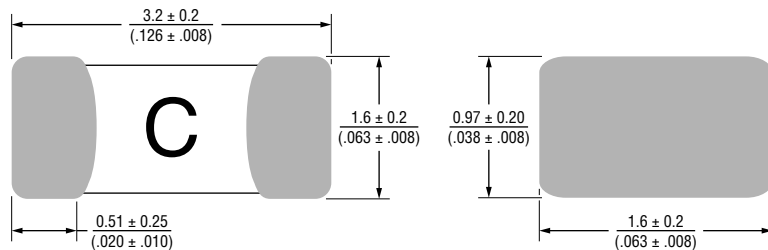
SF - 1206 HI A 050 M - 2

SinglFuse™ _____
 Product Designator _____
 SMD Footprint _____
 1206 = EIA 1206
 (3216 metric) _____
 Fuse Blow Type _____
 HI = High Inrush
 Current Withstand _____
 Automotive Grade _____
 Rated Current _____
 050 ~ 600 = 0.5 A ~ 6 A _____
 Structure Type _____
 M = Ceramic Multilayer _____
 Packaging Type _____
 - 2 = Tape & Reel _____

Packaging

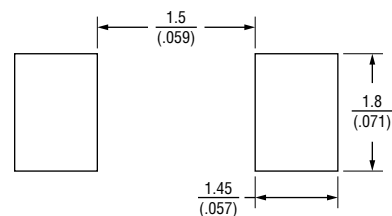
Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	3,000 pieces
Packaging Code	-2

Product Dimensions



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

Recommended Pad Layout



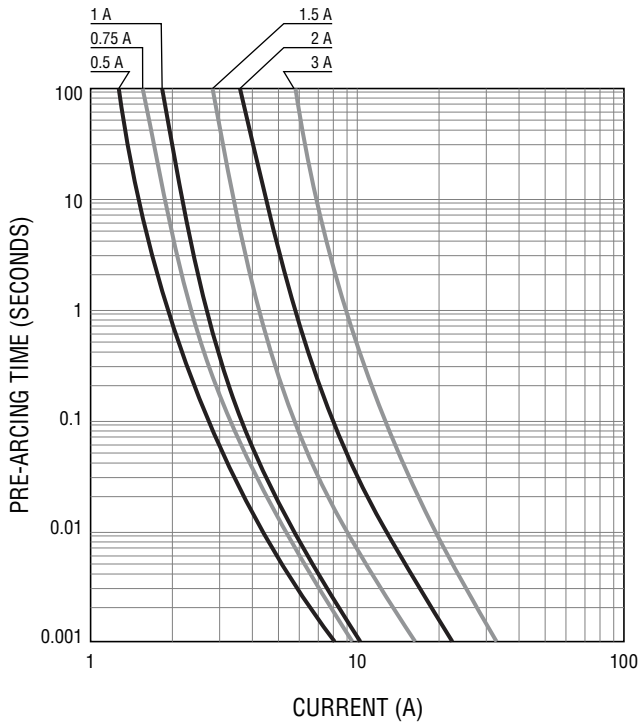
DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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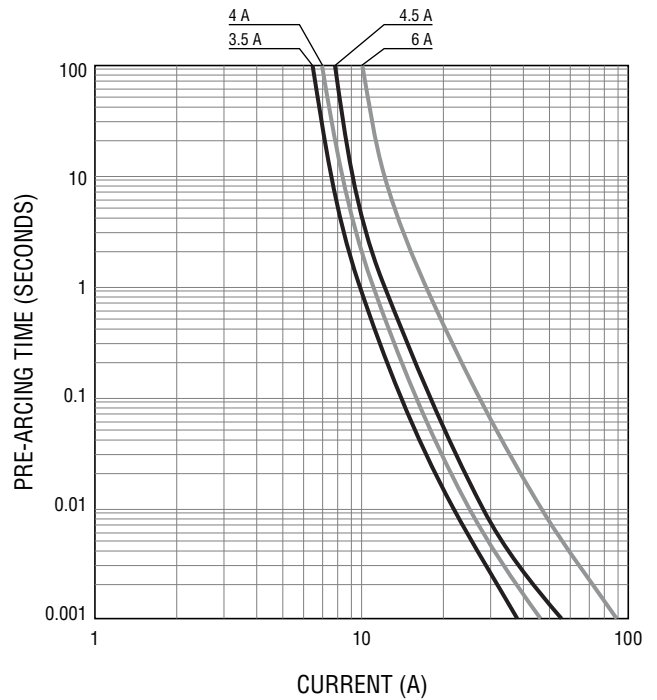
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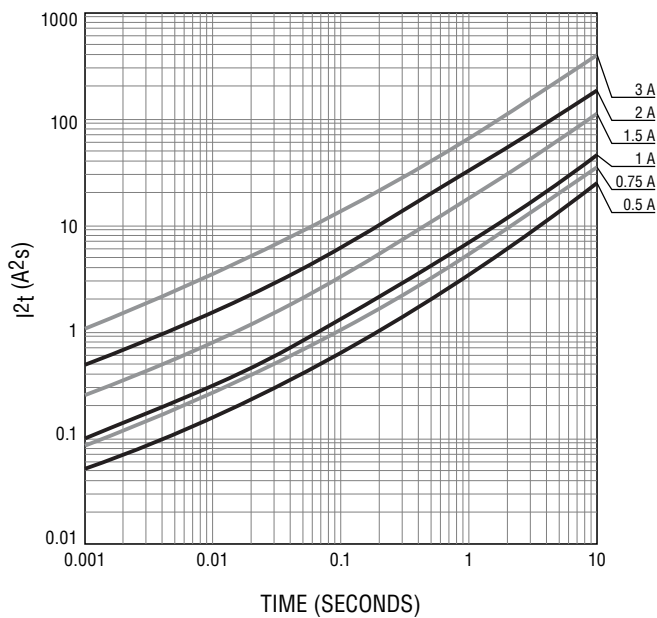
Average Pre-Arcing Time vs. Current Curves (0.5 - 3 A)



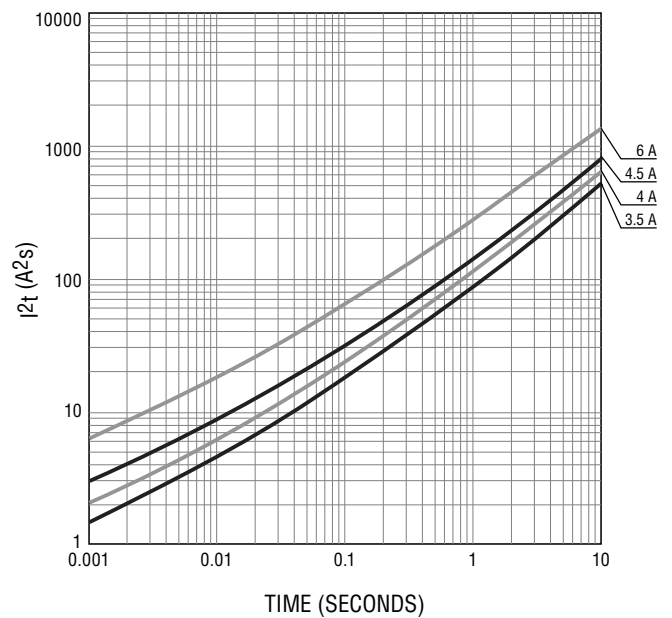
Average Pre-Arcing Time vs. Current Curves (3.5 - 6 A)



Average I^2t vs. t Curves (0.5 - 3 A)



Average I^2t vs. t Curves (3.5 - 6 A)

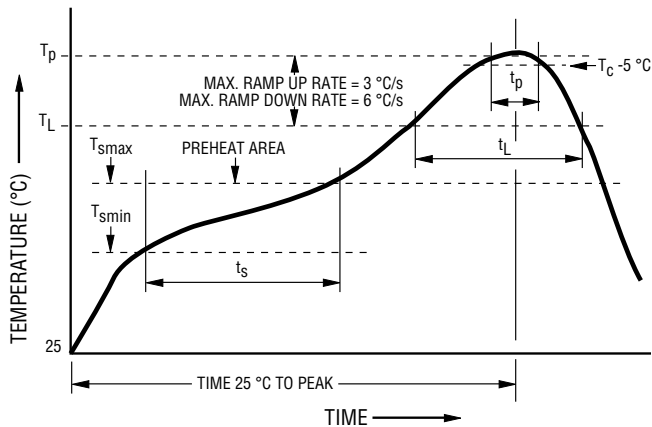


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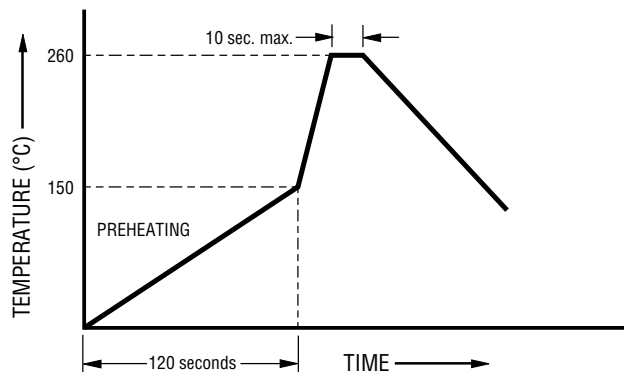
Solder Reflow Recommendations



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.

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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