



## Features

- Fast acting fusing speed
- EIA 1206 (3216 metric) footprint
- UL 248-14 compliant
- RoHS\* compliant and halogen free\*\*

## SF-1206F-M Series - Fast Acting SMD Fuses

### Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
200 % (2.5 A - 5 A)	—	60 seconds
350 % (6 A - 8 A)	—	5 seconds
1000 %	0.0002 seconds	0.02 seconds

### Additional Information

Click these links for more information:



### Electrical Characteristics

Model	Rated Current (A)	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I <sup>2</sup> t (A <sup>2</sup> s)****	Certifications
						cUL: <a href="#">E198545</a>
SF-1206F250M-2	2.5	0.065	65 VDC	60 A @ 65 VDC 80 A @ 48 VDC 100 A @ 32 VDC	1.162	✓
SF-1206F300M-2	3.0	0.042			2.424	✓
SF-1206F350M-2	3.5	0.033			2.828	✓
SF-1206F400M-2	4.0	0.026			3.838	✓
SF-1206F450M-2	4.5	0.024			3.939	✓
SF-1206F500M-2	5.0	0.018			4.44	✓
SF-1206F600M-2	6.0	0.011	48 VDC	80 A @ 48 VDC 100 A @ 32 VDC	13.13	✓
SF-1206F700M-2	7.0	0.009			19.2	✓
SF-1206F800M-2	8.0	0.007			20.2	✓

\*\*\* Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±30 %.

\*\*\*\*Melting I<sup>2</sup>t calculated at 10 times of rated current.



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**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://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.

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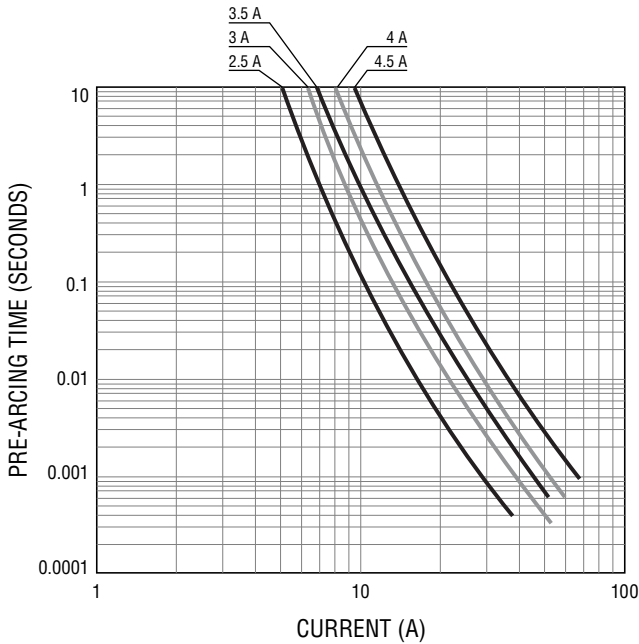
Users should verify actual device performance in their specific applications.

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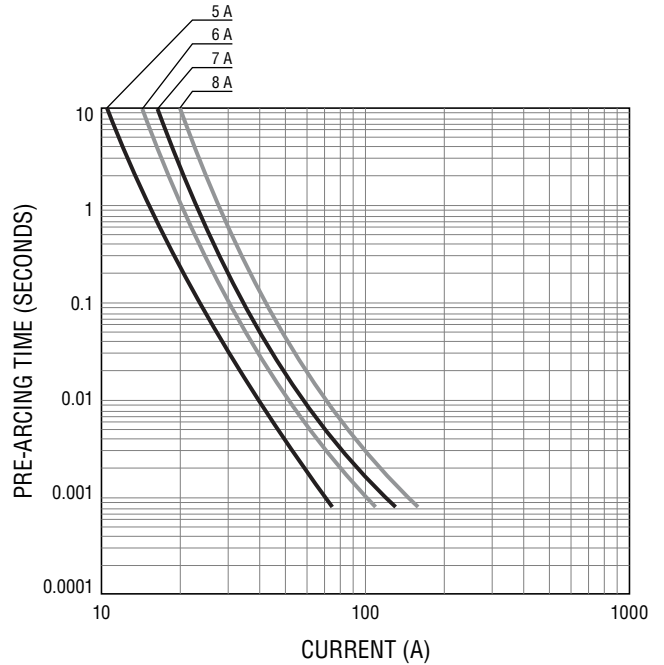
# SF-1206F-M Series - Fast Acting SMD Fuses



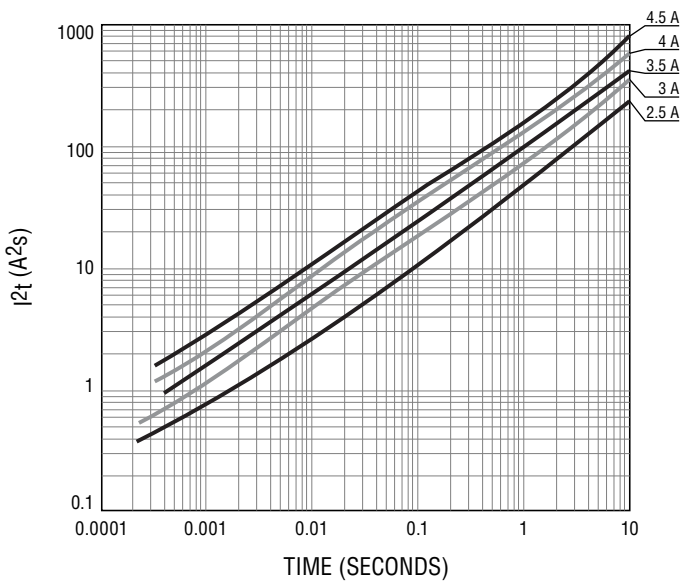
Average Pre-Arcing Time vs. Current Curves (2.5 A – 4.5 A)



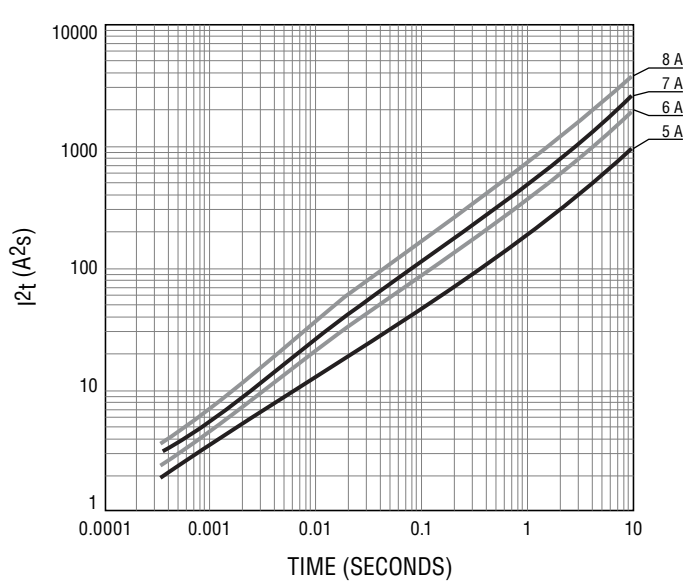
Average Pre-Arcing Time vs. Current Curves (5 A – 8 A)



Average  $I^2t$  vs.  $t$  Curves (2.5 A – 4.5 A)



Average  $I^2t$  vs.  $t$  Curves (5 A – 8 A)



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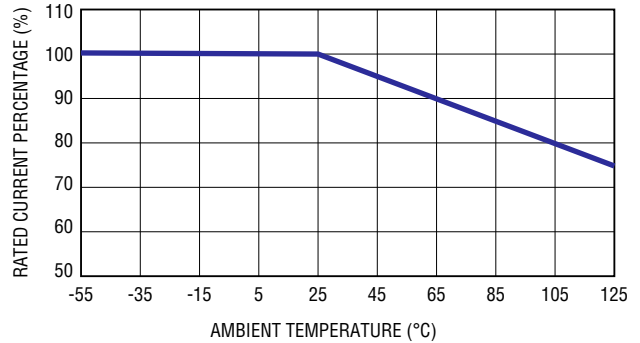


## Environmental Characteristics

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 <sup>1</sup>	Class 6

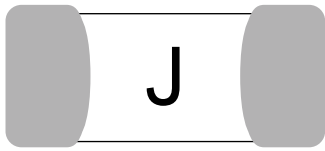
<sup>1</sup>per AEC-Q200-2, HBM

## Current Rating Thermal Derating Curve



## Typical Part Marking

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



Rated Current	Part Marking	Rated Current	Part Marking
2.5 A	J	5 A	N
3 A	K	6 A	+
3.5 A	L	7 A	-
4 A	M	8 A	=
4.5 A	T		

## How to Order

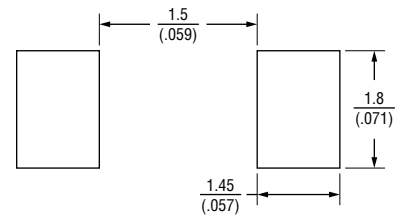
**SF - 1206 F 250 M - 2**

SinglFuse™ \_\_\_\_\_  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 1206 = EIA 1206  
 (3216 metric) \_\_\_\_\_  
 Fuse Blow Type \_\_\_\_\_  
 F = Fast Acting \_\_\_\_\_  
 Rated Current \_\_\_\_\_  
 250 ~ 800 = 2.5 A ~ 8 A \_\_\_\_\_  
 Structure Type \_\_\_\_\_  
 M = Ceramic Multilayer \_\_\_\_\_  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel \_\_\_\_\_

## Packaging

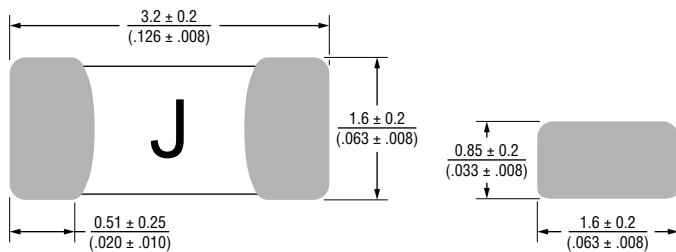
Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	3,000 pieces
Packaging Code	-2

## Recommended Pad Layout



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

## Product Dimensions



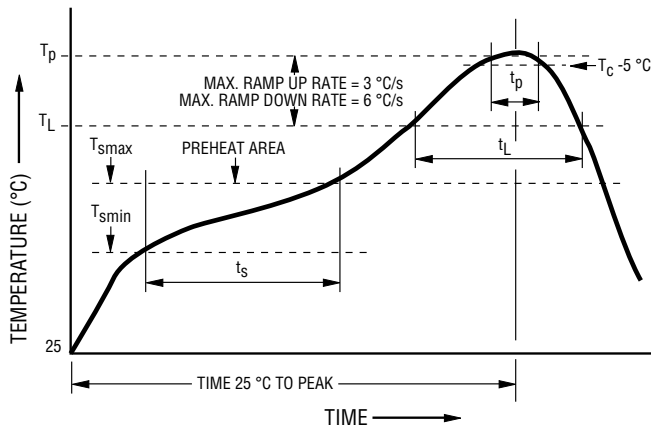
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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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

No.	Test	Requirement	Test Condition	Test Reference
1	Solderability	Minimum 95 % coverage	One dip at 245 °C for 5 seconds	MIL-STD-202 Method 208
2	Soldering Heat Resistance	DCR change $\leq$ 10 % No mechanical damage	One dip at 260 °C for 60 seconds	MIL-STD-202 Method 210
3	Moisture Resistance	DCR change $\leq$ $\pm$ 10 % No excessive corrosion	10 cycles	MIL-STD-202 Method 106
4	Salt Spray	DCR change $\leq$ $\pm$ 10 % No excessive corrosion	48 hour exposure	MIL-STD-202 Method 101
5	Mechanical Vibration	DCR change $\leq$ $\pm$ 10 % No mechanical damage	0.4 inch D.A. or 30 G between 5-3000 Hz	MIL-STD-202 Method 204
6	Mechanical Shock	DCR change $\leq$ $\pm$ 10 % No mechanical damage	1500 G, 0.5 ms, half-sine shocks	MIL-STD-202 Method 213
7	Thermal Shock	DCR change $\leq$ $\pm$ 10 % No mechanical damage	100 cycles between -65 °C and +125 °C	MIL-STD-202 Method 107
8	Life	No electrical "opens" during testing voltage drop change shall be less than $\pm$ 10 % of initial value	80 % rated current (75 % for < 1 A fuses) for 2000 hours at ambient temperature between +20 °C and +30 °C	Refer to STP document

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