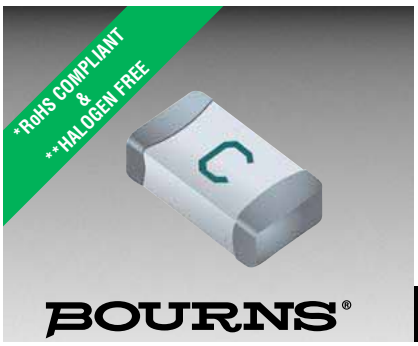
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## Features

- Slow blow fusing speed
- EIA 1206 (3216 metric) footprint
- AEC-Q200 compliant***
- UL 248-14 compliant
- RoHS* compliant and halogen free**

# SF-1206SA-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

Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

### Electrical Characteristics

| Model | Rated Current (A) | Resistance (Ω) Typ.**** | Rated Voltage | Interrupting Rating | Typical $I^2t$ ($A^2s$)***** | Certifications |
|---|---|---|---|---|---|---|
| | | | | | | cUL: E198545 |
| SF-1206SA050M-2 | 0.50 | 1.080 | 65 VDC | 50 A @ 65 VDC | 0.006 | ✓ |
| SF-1206SA075M-2 | 0.75 | 0.514 | | | 0.016 | ✓ |
| SF-1206SA100M-2 | 1.00 | 0.420 | | | 0.048 | ✓ |
| SF-1206SA150M-2 | 1.50 | 0.210 | | | 0.121 | ✓ |
| SF-1206SA200M-2 | 2.00 | 0.140 | | | 0.333 | ✓ |
| SF-1206SA250M-2 | 2.50 | 0.071 | | | 0.485 | ✓ |
| SF-1206SA300M-2 | 3.00 | 0.051 | | | 0.606 | ✓ |
| SF-1206SA350M-2 | 3.50 | 0.039 | | | 0.758 | ✓ |
| SF-1206SA400M-2 | 4.00 | 0.032 | | | 0.909 | ✓ |
| SF-1206SA450M-2 | 4.50 | 0.027 | | | 1.131 | ✓ |
| SF-1206SA500M-2 | 5.00 | 0.023 | | | 1.515 | ✓ |

**** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±25 %.
*****Melting $I^2t$ calculated at 0.001 second pre-arcing time.

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

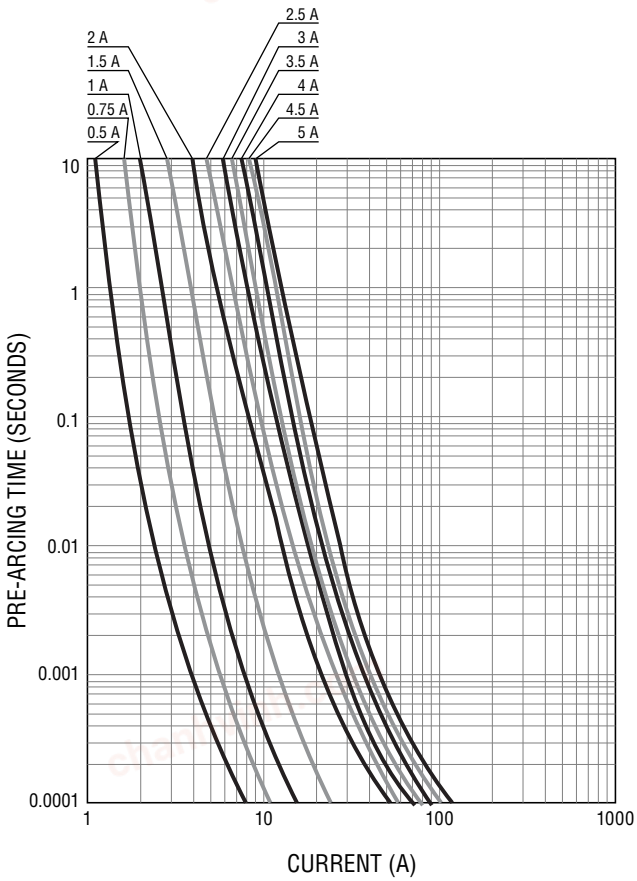
*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.
***Meets Bourns internal AEC-Q200 test plan.

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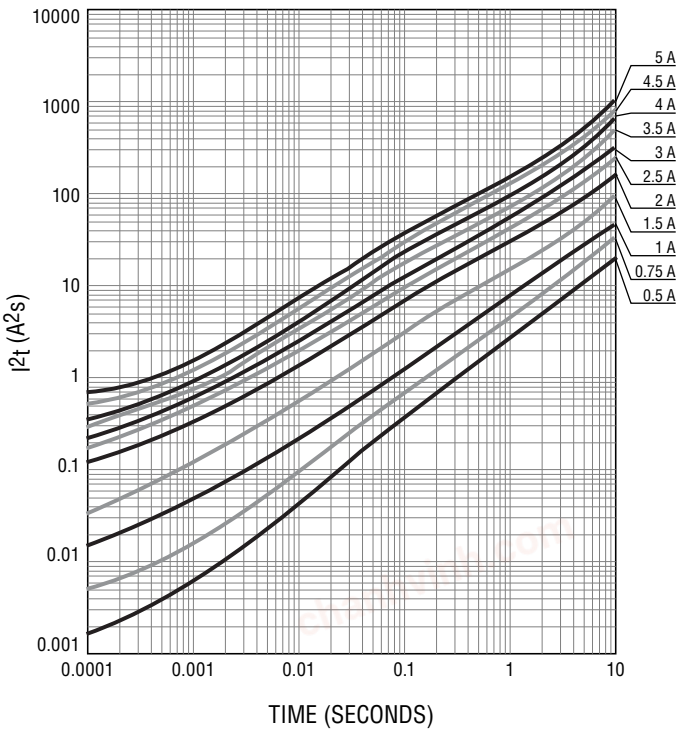
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## Average Pre-Arcing Time vs. Current Curves




## Average $I^2t$ vs. t Curves




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# SF-1206SA-M Series - Automotive Grade Slow Blow SMD Fuses

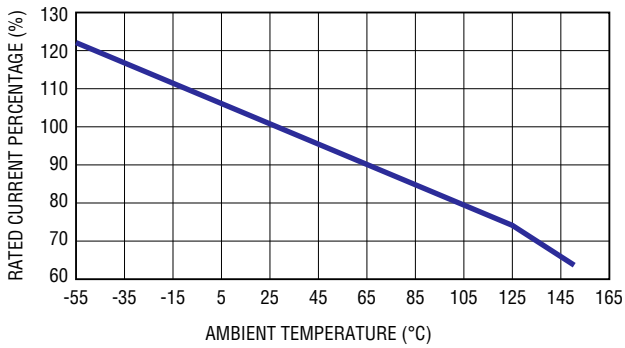
BOURNS®

## 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 |

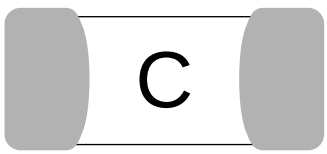
[1]per AEC-Q200-2, HBM

## Current Rating Thermal Derating Curve




## Typical Part Marking

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




| Rated Current | Part Marking |
|---|---|
| 0.5 A | C |
| 0.75 A | D |
| 1 A | E |
| 1.5 A | G |
| 2 A | I |
| 2.5 A | J |

| Rated Current | Part Marking |
|---|---|
| 3 A | K |
| 3.5 A | L |
| 4 A | M |
| 4.5 A | T |
| 5 A | N |

## How to Order

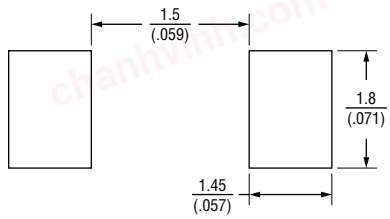
**SF - 1206 S A 050 M - 2**

- SinglFuse™ Product Designator
- SMD Footprint
  1206 = EIA 1206 (3216 metric)
- Fuse Blow Type
  S = Slow Blow
- Automotive Grade
- Rated Current
  050 ~ 500 = 0.5 A ~ 5 A
- Structure Type
  M = Ceramic Multilayer
- Packaging Type
  - 2 = Tape & Reel

## Packaging

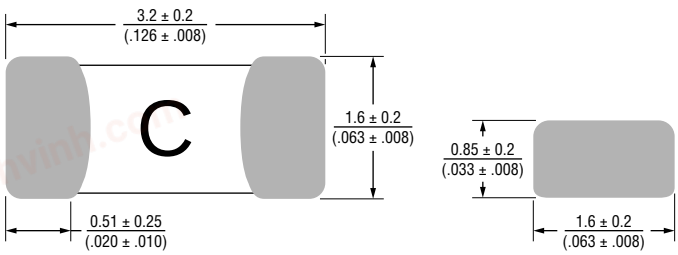
| | |
|---|---|
| **Reel Dimension** | 7-inch Tape and Reel |
| **Specification** | EIA 481-2 |
| **Quantity** | 3,000 pieces |
| **Packaging Code** | -2 |

## Recommended Pad Layout




DIMENSIONS: MM / (INCHES)

## Product Dimensions



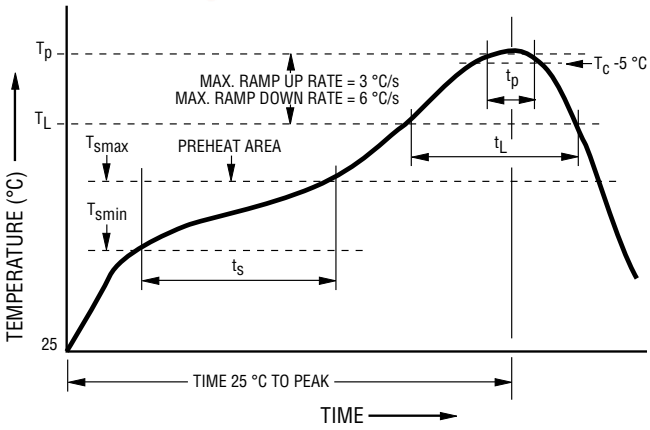

DIMENSIONS: MM / (INCHES)

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## Solder Reflow Recommendations




| Profile Feature | Pb-Free Assembly |
|---|---|
| Preheat / Soak:<br>Temperature Min. ($T_{smin}$)<br>Temperature Max. ($T_{smax}$)<br>Time ($t_s$) from ($T_{smin}$ to $T_{smax}$) | <br>150 °C<br>200 °C<br>60~120 seconds |
| Ramp Up Rate ($T_L$ to $T_p$) | 3 °C / second max. |
| Liquidous Temperature ($T_L$)<br>Time ($t_L$) maintained above $T_L$ | 217 °C<br>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.

## Reliability Tests

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



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