



## SinglFuse™ SF-1206SPxxxM Series Features

- Single blow fuse for overcurrent protection
- 3216 (EIA 1206) footprint
- Time Lag fuse
- UL 248-14 listed
- RoHS compliant\* and halogen free\*\*
- Multilayer SMD design
- Surface mount packaging for automated assembly

## SF-1206SPxxxM Series - Time Lag Multilayer Surface Mount Fuses

### Electrical Characteristics

| Model           | Rated Current (Amps) | Fusing Time                                 | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating | Typical I <sup>2</sup> t (A <sup>2</sup> s) **** |
|-----------------|----------------------|---|------------------------|---------------|---------------------|--|
| SF-1206SP100M-2 | 1.00                 | Open within 120 sec. at 200 % rated current | 0.360                  | DC 63 V       | DC 63 V<br>50 A     | 0.11   |
| SF-1206SP125M-2 | 1.25                 |   | 0.200                  |               |                     | 0.22   |
| SF-1206SP150M-2 | 1.50                 |   | 0.150                  |               |                     | 0.23   |
| SF-1206SP200M-2 | 2.00                 |   | 0.088                  |               |                     | 0.63   |
| SF-1206SP250M-2 | 2.50                 |   | 0.065                  | DC 32V        | DC 32 V<br>50 A     | 0.90   |
| SF-1206SP300M-2 | 3.00                 |   | 0.034                  |               |                     | 1.20   |
| SF-1206SP350M-2 | 3.50                 |   | 0.028                  |               |                     | 1.60   |
| SF-1206SP400M-2 | 4.00                 |   | 0.024                  |               |                     | 2.20   |
| SF-1206SP450M-2 | 4.50                 |   | 0.020                  | DC 24V        | DC 24 V<br>60 A     | 3.60   |
| SF-1206SP500M-2 | 5.00                 |   | 0.018                  |               |                     | 5.30   |
| SF-1206SP550M-2 | 5.50                 |   | 0.014                  |               |                     | 6.40   |
| SF-1206SP600M-2 | 6.00                 |   | 0.011                  |               |                     | 8.50   |
| SF-1206SP700M-2 | 7.00                 |   | 0.010                  | DC 24V        | DC 24 V<br>60 A     | 10.0   |
| SF-1206SP800M-2 | 8.00                 |   | 0.009                  |               |                     | 16.9   |

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

\*\*\*\* Melting I<sup>2</sup>t calculated at 0.001 second pre-arcing time.

### Reliability Testing

| No. | Test                      | Requirement   | Test Condition  | Test Reference            |
|-----|---------------------------|---|---|---------------------------|
| 1   | Soldering heat resistance | DCR change ≤ ±10 %<br>No mechanical damage  | One dip at 260 °C for 60 seconds  | MIL-STD-202<br>Method 210 |
| 2   | Solderability             | Minimum 95 % coverage   | One dip at 245 °C for 5 seconds   | MIL-STD-202<br>Method 208 |
| 3   | Thermal shock             | DCR change ≤ ±10 %<br>No mechanical damage  | 100 cycles between -65 °C and +125 °C   | MIL-STD-202<br>Method 107 |
| 4   | Moisture resistance       | DCR change ≤ ±15 %<br>No excessive corrosion  | 10 cycles   | MIL-STD-202<br>Method 106 |
| 5   | Salt spray                | DCR change ≤ ±10 %<br>No excessive corrosion  | 48 hour exposure, 5 % salt solution   | MIL-STD-202<br>Method 101 |
| 6   | Mechanical vibration      | DCR change ≤ ±10 %<br>No mechanical damage  | 0.4 inch D.A. or 30 G between<br>5-3000 Hz  | MIL-STD-202<br>Method 204 |
| 7   | Mechanical shock          | DCR change ≤ ±10 %<br>No mechanical damage  | 1500 G, 0.5 ms, half-sine shocks  | MIL-STD-202<br>Method 213 |
| 8   | Life                      | No electrical "opens" during testing<br>Voltage drop change shall be less than ±20 % of initial value | 80 % rated current (75 % for < 1 A fuses)<br>for 2000 hours at ambient temperature<br>between +20 °C and +30 °C | Refer to STP<br>document  |

### Agency Recognition

UL File Number ..... E198545

<http://www.ul.com/> Follow link to Online Certificates Directory, then enter UL File No. E198545, or [click here](#)

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\* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

\*\* 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.

"SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

# SingIFuse™ SF-1206SPxxxM Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

## SF-1206SPxxxM Series - Time Lag Multilayer Surface Mount Fuses **BOURNS®**

### Environmental Characteristics

|                                 |                                 |
|---------------------------------|---------------------------------|
| Operating Temperature.....      | -55 °C to +150 °C               |
| Storage Conditions              |                                 |
| Temperature .....               | +5 °C to +35 °C                 |
| Humidity.....                   | 40 % to 75 %                    |
| Shelf Life.....                 | 2 years from manufacturing date |
| Moisture Sensitivity Level..... | 1                               |
| ESD Classification (HBM).....   | Class 6                         |

### Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)

|          |          |
|----------|----------|
| E = 1.00 | M = 4.00 |
| F = 1.25 | T = 4.50 |
| G = 1.50 | N = 5.00 |
| I = 2.00 | U = 5.50 |
| J = 2.50 | O = 6.00 |
| K = 3.00 | P = 7.00 |
| L = 3.50 | R = 8.00 |

### How to Order

**SF - 1206 SP 100 M - 2**

SingIFuse™  
 Product Designator  
 SMD Footprint  
 1206 = 3216 (EIA 1206) size  
 Fuse Blow Type  
 SP = Time Lag  
 Rated Current  
 100 ~ 800 (1.00 A ~ 8.00 A)  
 Structure Type  
 M = Multilayer  
 Packaging Type  
 - 2 = Tape & Reel

### Construction



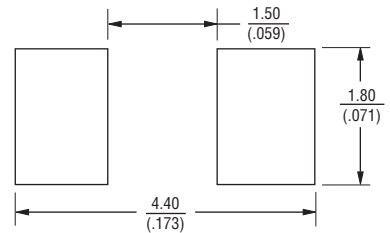
### Packaging Quantity

3,000 pieces per 7-inch reel

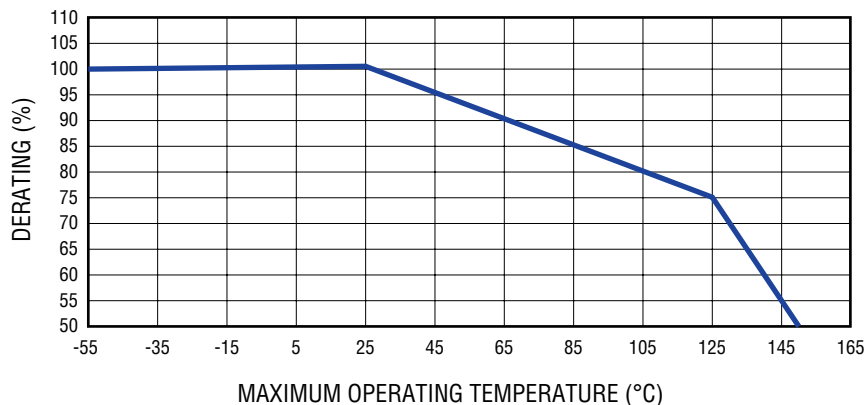
### Product Dimensions



### Recommended Pad Layout



### Current Rating Thermal Derating Curve



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# SF-1206SPxxxM Series - Time Lag Multilayer Surface Mount Fuses



## 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 $T_{smax}$ ) | 150 °C<br>200 °C<br>60~120 seconds |
| Ramp Up Rate ( $T_l$ to $T_d$ )   | 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 ( $T_d$ )   | 260 °C                             |
| Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_c$ )   | 30 seconds*                        |
| Ramp Down Rate ( $T_d$ 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.

## Recommended Temperature Profile for Wave Soldering

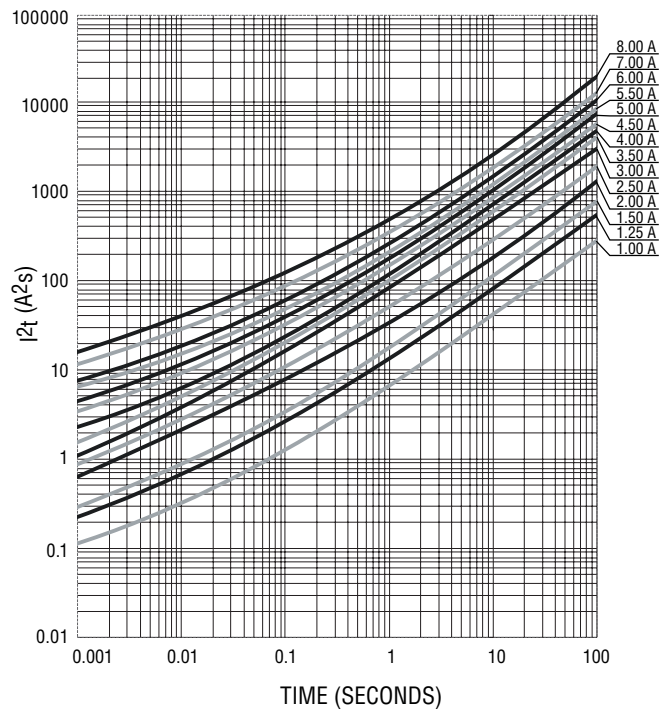


Wave soldering is suitable for 1206 size models.

Average Pre-Arcing Time vs. Current Curves



Average  $I^2t$  vs. t Curves



REV. B 03/18

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# SF-1206SPxxxM Series Tape and Reel Packaging Specifications

# BOURNS®

## SF-1206SPxxxM Series per EIA 481-2

### Tape Dimensions

|                |   |
|----------------|---|
| W              | $\frac{8.00 \pm 0.10}{(.315 \pm .004)}$ |
| P <sub>0</sub> | $\frac{4.0 \pm 0.10}{(.157 \pm .004)}$  |
| P <sub>1</sub> | $\frac{4.0 \pm 0.10}{(.157 \pm .004)}$  |
| P <sub>2</sub> | $\frac{2.0 \pm 0.05}{(.079 \pm .002)}$  |
| A <sub>0</sub> | $\frac{1.80 \pm 0.10}{(.071 \pm .004)}$ |
| B <sub>0</sub> | $\frac{3.50 \pm 0.10}{(.138 \pm .004)}$ |
| F              | $\frac{3.50 \pm 0.05}{(.138 \pm .002)}$ |
| E <sub>1</sub> | $\frac{1.75 \pm 0.10}{(.069 \pm .004)}$ |
| D <sub>0</sub> | $\frac{1.50 \pm 0.10}{(.059 \pm .004)}$ |
| K <sub>0</sub> | $\frac{1.10 \pm 0.10}{(.043 \pm .004)}$ |
| T              | $\frac{0.23 \pm 0.02}{(.009 \pm .001)}$ |

PACKAGING: Plastic tape, 3,000 pcs. per reel



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

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Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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