

SinglFuse™ SF-1206HVxxM Series Features

- Single blow fuse for overcurrent protection
- 3216 (EIA 1206) footprint
- High voltage rating applications
- High current rating applications
- UL 248-14 listed
- RoHS compliant* and halogen free**
- Multilayer SMD design
- Surface mount packaging for automated assembly

SF-1206HVxxM Series - High Voltage & High Current Multilayer Surface Mount Fuses

Electrical Characteristics

| Model | Rated Current (Amps) | Fusing Time | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating | Typical I ² t (A ² s) **** |
|----------------|----------------------|---|------------------------|---------------|---------------------|--|
| SF-1206HV10M-2 | 10.0 | Open within 5 sec. at 350 % rated current | 0.0055 | DC 35 V | DC 35 V 150 A | 15.0 |
| SF-1206HV12M-2 | 12.0 | | 0.0045 | | | 20.0 |
| SF-1206HV15M-2 | 15.0 | | 0.0032 | | | 35.0 |
| SF-1206HV20M-2 | 20.0 | | 0.0023 | | | 80.0 |
| SF-1206HV25M-2 | 25.0 | | 0.0016 | | 120.0 | DC 35 V 200A DC 35 V 200 A DC 26 V 300 A |
| SF-1206HV30M-2 | 30.0 | | 0.0012 | | 180.0 | |
| SF-1206HV40M-2 | 40.0 | | 0.0009 | | 240.0 | |

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

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

Reliability Testing

| 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 ≤ 10 % No mechanical damage | One dip at 260 °C for 60 seconds | MIL-STD-202 Method 210 |
| 3 | Moisture resistance | DCR change ≤ ±15 % No excessive corrosion | 10 cycles | MIL-STD-202 Method 106 |
| 4 | Salt spray | DCR change ≤ ±10 % No excessive corrosion | 48 hour exposure, 5 % salt solution | MIL-STD-202 Method 101 |
| 5 | Mechanical vibration | DCR change ≤ ±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 ≤ ±10 % No mechanical damage | 1500 G, 0.5 ms, half-sine shocks | MIL-STD-202 Method 213 |
| 7 | Thermal Shock | DCR change ≤ ±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 ±20 % 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 |

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.

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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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SingIFuse™ SF-1206HVxxM Series Applications

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

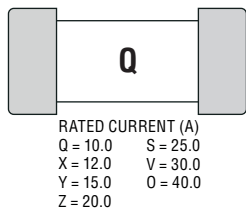
SF-1206HVxxM Series - High Voltage & High Current Multilayer Surface Mount Fuses **BOURNS®**

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.

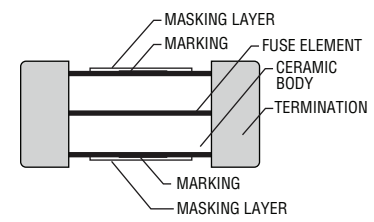


How to Order

SF - 1206 HV 10 M - 2

SingIFuse™
 Product Designator
 SMD Footprint
 1206 = 3216 (EIA 1206) size
 Fuse Blow Type
 HV = High Voltage & High Current
 Rated Current
 10 ~ 40 (10.0 A ~ 40.0 A)
 Structure Type
 M = Multilayer
 Packaging Type
 - 2 = Tape & Reel

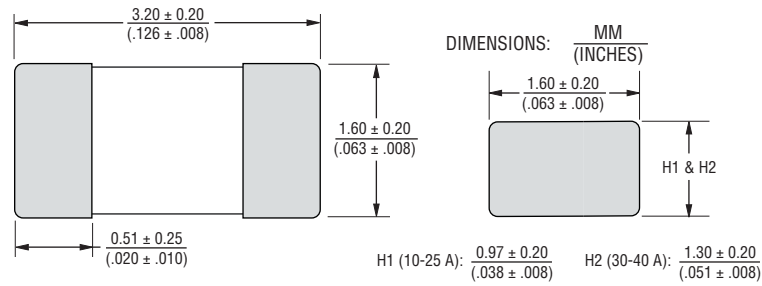
Construction



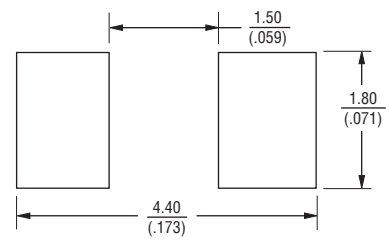
Packaging Quantity

3,000 pieces per 7-inch reel

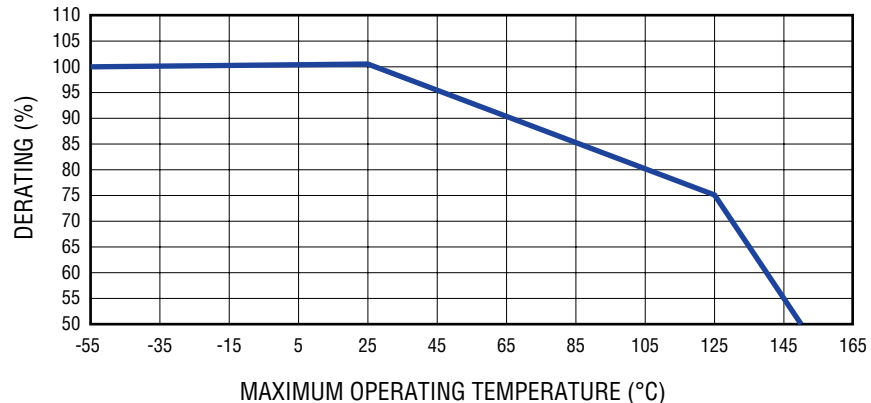
Product Dimensions



Recommended Pad Layout



Current Rating Thermal Derating Curve



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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_d) | 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_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. |

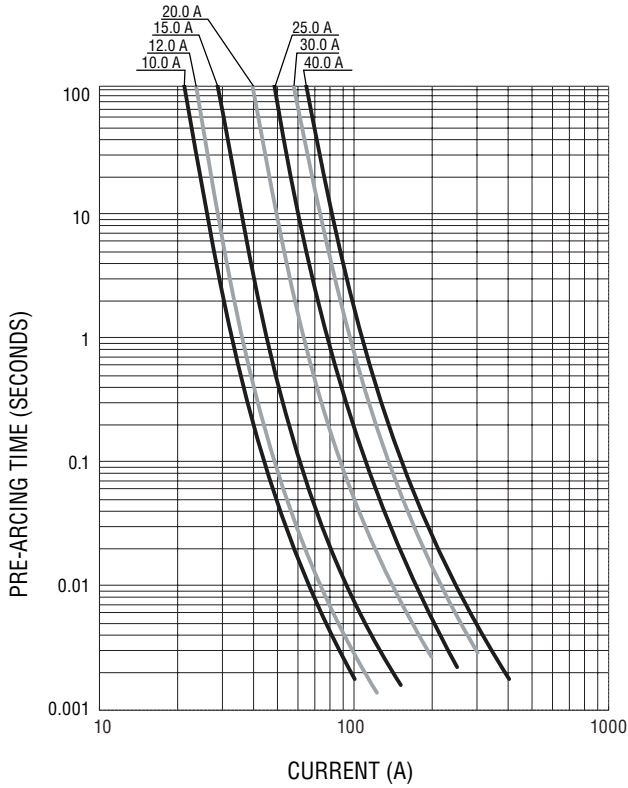
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Recommended Temperature Profile for Wave Soldering

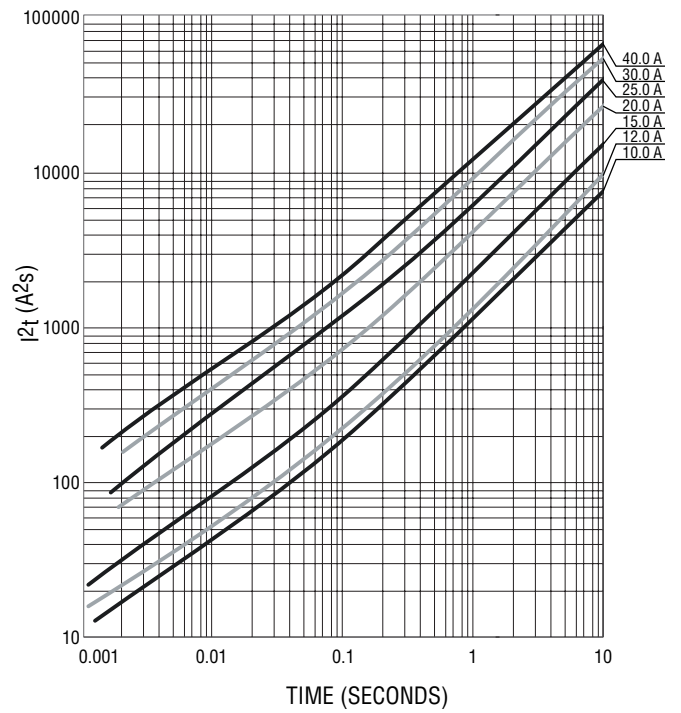


Wave soldering is suitable for 1206 size models.

Average Pre-Arcing Time vs. Current Curves



Average I²t vs. t Curves



SF-1206HVxxM Series Tape and Reel Packaging Specifications

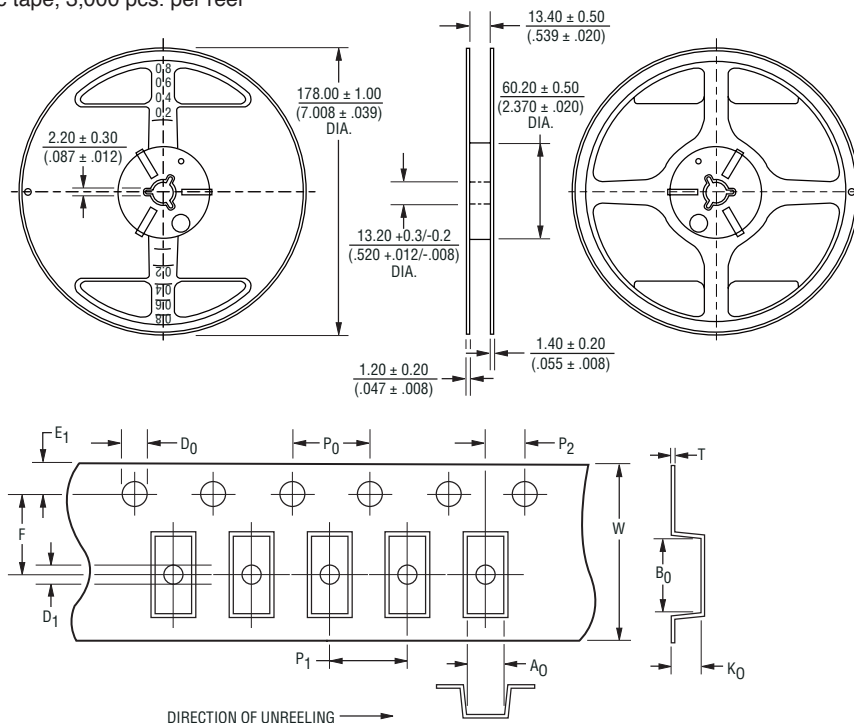
BOURNS®

Tape Dimensions

SF-1206HVxxM Series
per EIA 481-2

| | |
|--|----------------------------------|
| W | 8.00 ± 0.10 (.315 ± .004) |
| P ₀ | 4.00 ± 0.10 (.157 ± .004) |
| P ₁ | 4.00 ± 0.10 (.157 ± .004) |
| P ₂ | 2.00 ± 0.05 (.079 ± .002) |
| A ₀ | 1.80 ± 0.20 (.071 ± .008) |
| B ₀ | 3.50 ± 0.20 (.138 ± .008) |
| F | 3.50 ± 0.05 (.138 ± .002) |
| E ₁ | 1.75 ± 0.10 (.069 ± .004) |
| D ₀ | 1.50 ± 0.10 (.059 ± .004) |
| K ₀ (SF-1206HV10M ~ SF-1206HV25M) | 1.27 ± 0.20 (.050 ± .008) |
| K ₀ (SF-1206HV30M ~ SF-1206HV40M) | 1.40 ± 0.20 (.055 ± .008) |
| T | 0.23 ± 0.02 (.009 ± .001) |

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



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

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