

## 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 <sup>2</sup> t (A <sup>2</sup> 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		DC 35 V 200A	120.0
SF-1206HV30M-2	30.0		0.0012		DC 35 V 200 A	180.0
SF-1206HV40M-2	40.0		0.0009		DC 26 V 300 A	240.0

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

\*\*\*\* Melting I<sup>2</sup>t 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](#)

## BOURNS®

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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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# SingIFuse™ SF-1206HVxxM 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

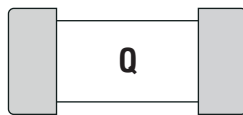
SF-1206HVxxM Series - High Voltage & High Current Multilayer Surface Mount Fuses BOURNS®

**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.



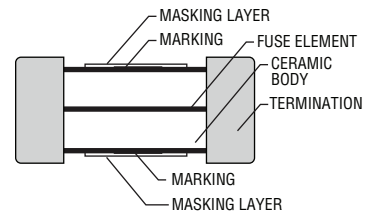
RATED CURRENT (A)  
 Q = 10.0    S = 25.0  
 X = 12.0    V = 30.0  
 Y = 15.0    O = 40.0  
 Z = 20.0

**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

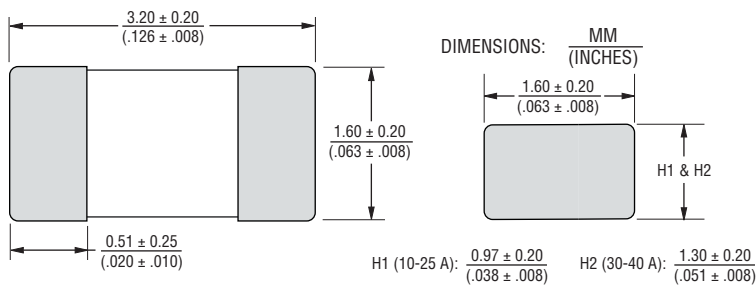
**Construction**



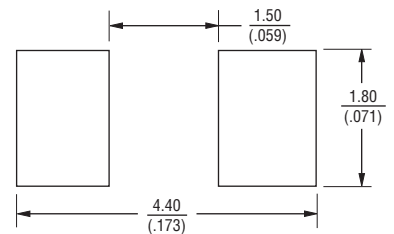
**Packaging Quantity**

3,000 pieces per 7-inch reel

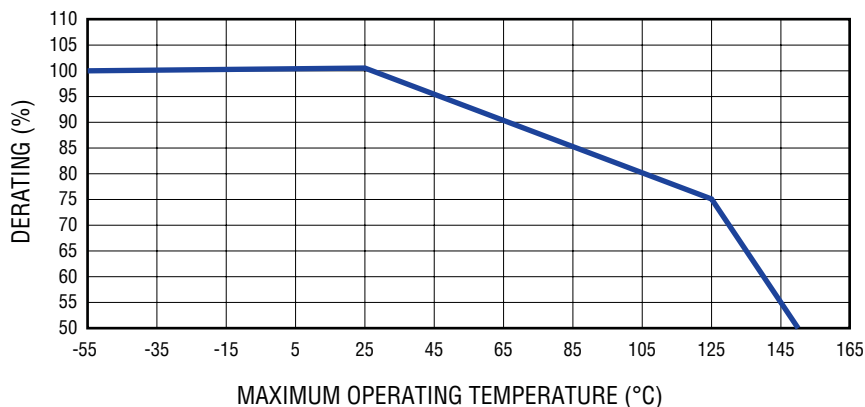
**Product Dimensions**



**Recommended Pad Layout**

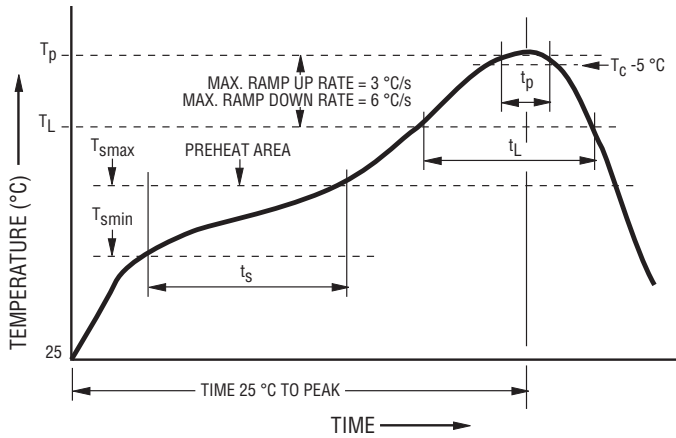


**Current Rating Thermal Derating Curve**



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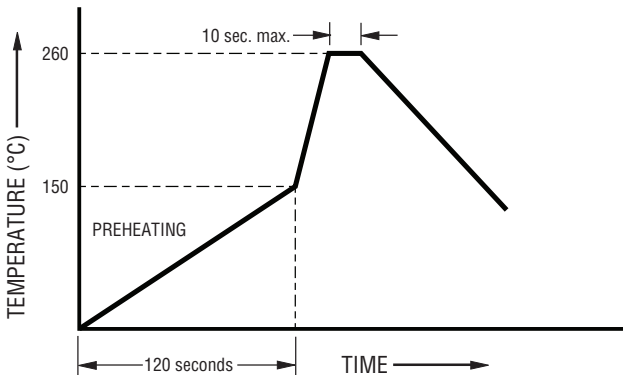
**Solder Reflow Recommendations**



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.

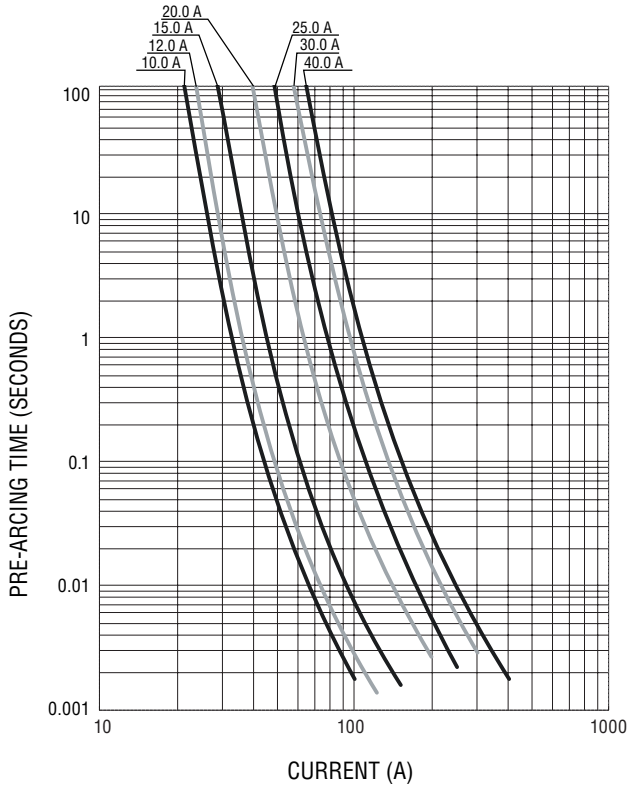
\* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

**Recommended Temperature Profile for Wave Soldering**

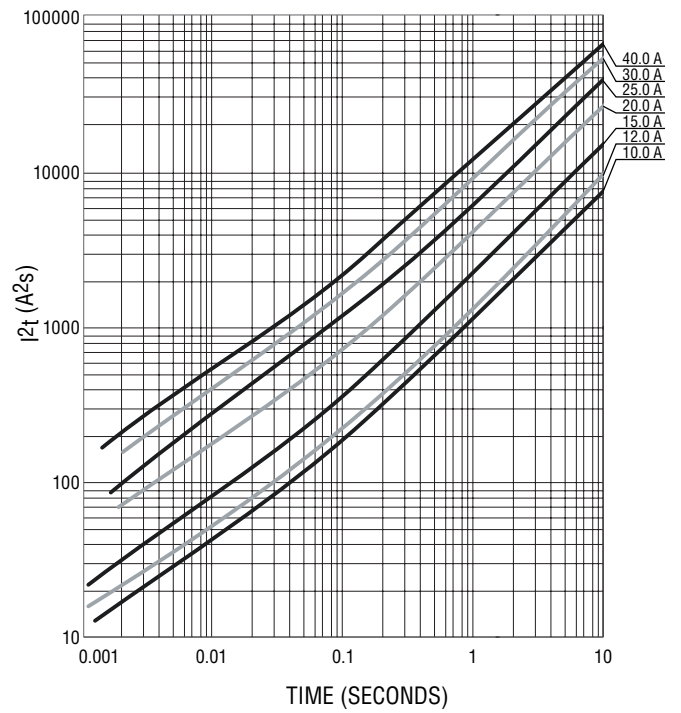


Wave soldering is suitable for 1206 size models.

Average Pre-Arcing Time vs. Current Curves



Average  $I^2t$  vs. t Curves



# SF-1206HVxxM Series Tape and Reel Packaging Specifications

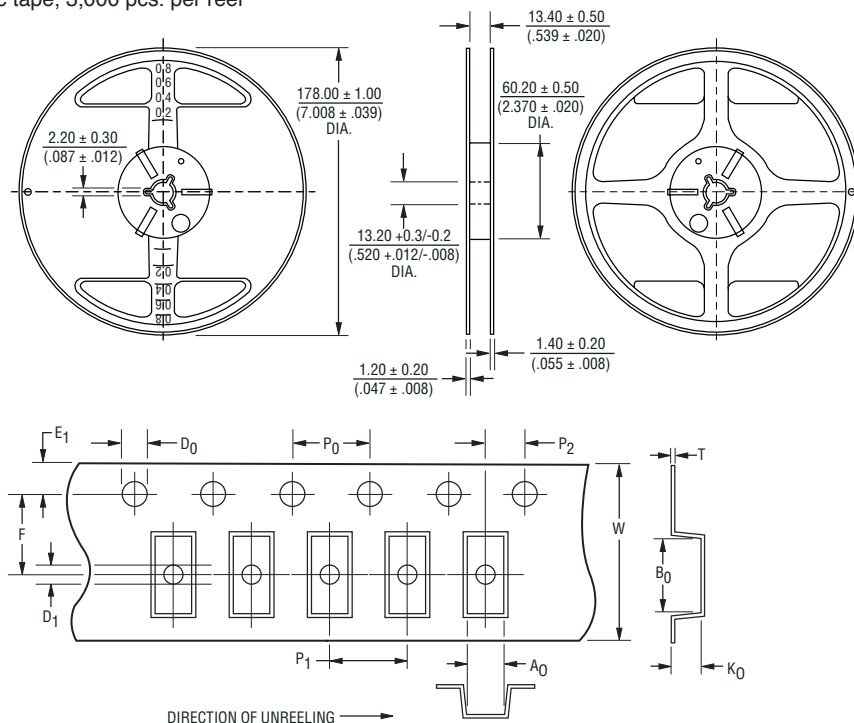
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## Tape Dimensions

SF-1206HVxxM Series  
per EIA 481-2

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

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



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

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