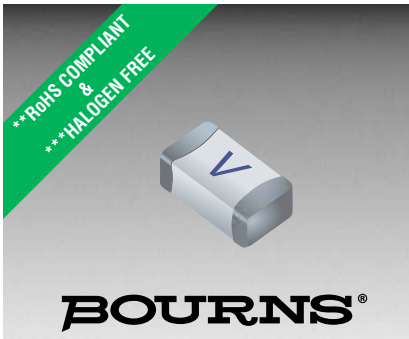




**THE DATASHEET OF  
SF-1206HV20M-2**





## SinglFuse™ SF-1206HV-M Series Features

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

### SF-1206HV-M Series - High Voltage & High Current Multilayer Surface Mount Fuses

#### Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
350 %	—	5 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-1206HV10M-2	10.0	0.0055	35 VDC	150 A @ 35 VDC	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		200 A @ 35 VDC 300 A @ 26 VDC	80.0	✓
SF-1206HV25M-2	25.0	0.0016			120.0	✓
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. Tolerance ±25 %.

\*\*\*\* Melting I<sup>2</sup>t calculated at 1000 % of current rating.



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[www.bourns.com](http://www.bourns.com)



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

\* Meets Bourns' internal AEC-Q200 equivalent test plan.

\*\* 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.

"SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

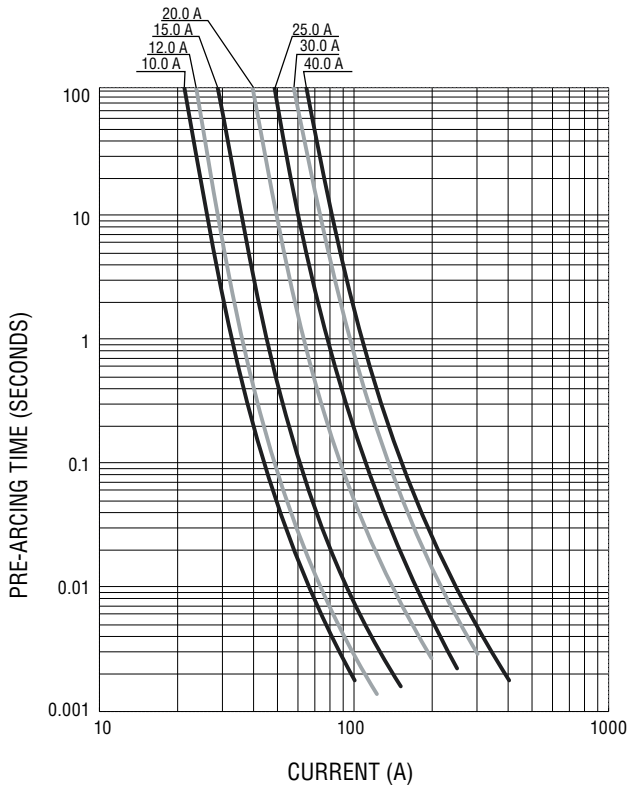
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# SinglFuse™ SF-1206HV-M Series Applications

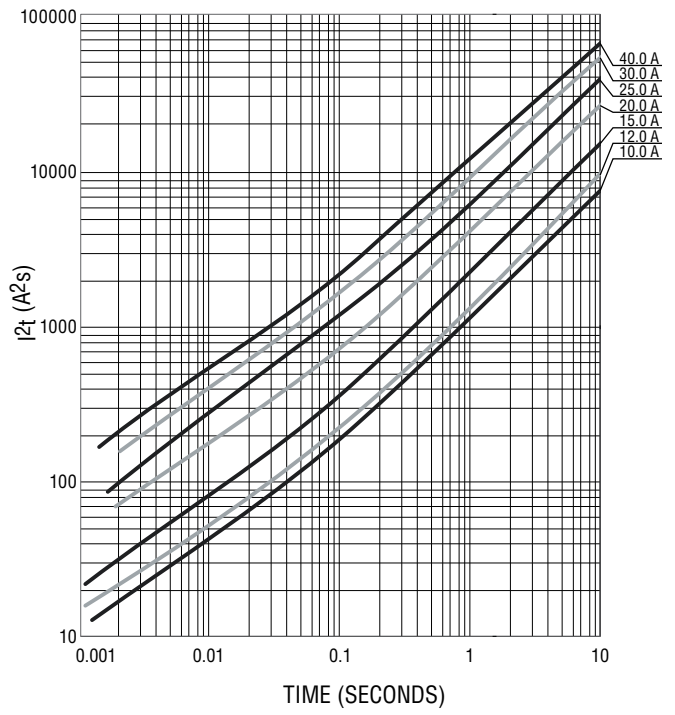
- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

## SF-1206HV-M Series - High Voltage & High Current Multilayer Surface Mount Fuses BOURNS®

**Average Pre-Arcing Time vs. Current Curves**



**Average I²t vs. t Curves**



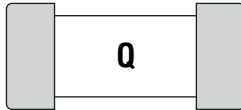
### Environmental Characteristics

Operating Temperature.....	-55 °C to +125 °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

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**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**

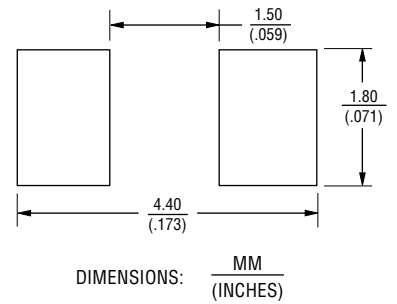
**SF - 1206 HV 10 M - 2**

SinglFuse™  
 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

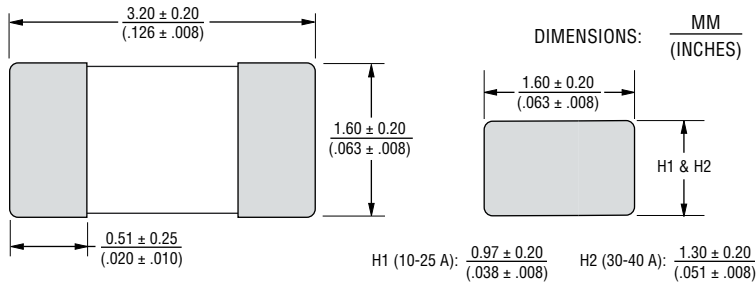
**Packaging**

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

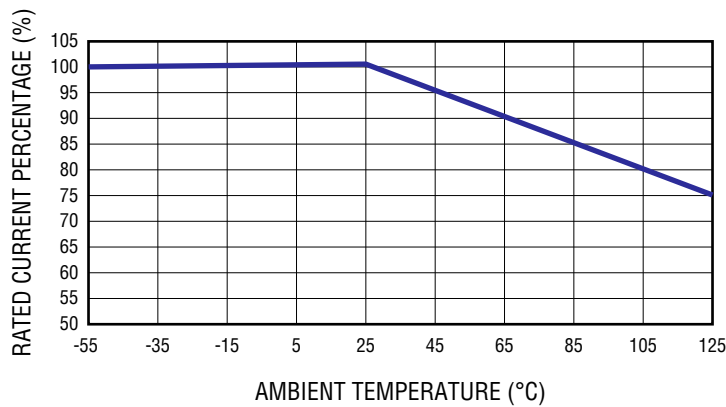
**Recommended Pad Layout**



**Product Dimensions**



**Current Rating Thermal Derating Curve**



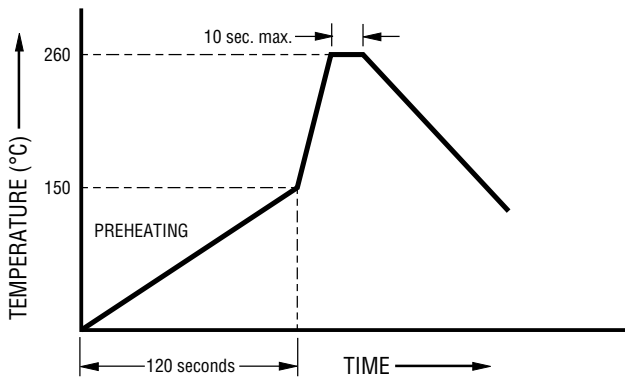
**Solder Reflow Recommendations**



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.

**Recommended Temperature Profile for Wave Soldering**



Wave soldering is suitable for 1206 size models.

**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 $\leq$ 10 % No mechanical damage	One dip at 260 °C for 60 seconds	MIL-STD-202 Method 210
3	Moisture resistance	DCR change $\leq$ $\pm$ 15 % No excessive corrosion	10 cycles	MIL-STD-202 Method 106
4	Salt spray	DCR change $\leq$ $\pm$ 10 % No excessive corrosion	48 hour exposure, 5 % salt solution	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 $\pm$ 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

REV. C 03/21

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