



## SinglFuse™ SF-1206SP Series Features

- Time lag thin film chip fuse for overcurrent protection
- 3216 (EIA 1206) miniature footprint
- Surface mount packaging for automated assembly
- UL listed (UL 248-14)
- RoHS compliant\* and halogen free\*\*

## SF-1206SP Series - Time Lag Surface Mount Fuses

### Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (mΩ) Typ.***	Rated Voltage	Breaking Capacity	Typical I <sup>2</sup> t (A <sup>2</sup> s) ****
SF-1206SP050	0.50	Open within 1~120 sec. at 200 % rated current	738.5	DC 63 V	DC 63 V 50 A	0.027
SF-1206SP080	0.80		215			0.072
SF-1206SP100	1.00		163.5			0.134
SF-1206SP125	1.25		100			0.233
SF-1206SP150	1.50		68.5			0.305
SF-1206SP200	2.00		48.5			0.509
SF-1206SP250	2.50		35	DC 32 V	DC 32 V 50 A	0.777
SF-1206SP300	3.00		27			1.285
SF-1206SP400	4.00		14			2.374
SF-1206SP500	5.00		11			5.510
SF-1206SP700	7.00		7.5			10.170

\*\*\* Resistance value measured with less than 10 % of rated current. Resistance tolerance  $\pm 25\%$ .

\*\*\*\*Typical I<sup>2</sup>t value measured at 10x rated current.

### Reliability Testing

No.	Test	Requirement	Test Condition
1	Carrying Capacity	No fusing	Rated current, 4 hours
2	Fusing Time	Within 120 seconds	200 % of its rated current
3	Interrupting Ability	No mechanical damages	After the fuse is interrupted, rated voltage applied for 30 seconds again
4	Bending Test	No mechanical damages	Distance between holding points: 90 mm, Bending: 3 mm, 1 time, 30 seconds
5	Resistance to Solder Heat	$\pm 20\%$	260 °C $\pm 5$ °C, 10 seconds $\pm 1$ second
6	Solderability	95 % coverage minimum	235 °C $\pm 5$ °C, 2 $\pm 0.5$ second 245 °C $\pm 5$ °C, 2 $\pm 0.5$ second (lead free)
7	Temperature Rise	<75 °C	100 % of its rated current, measure of surface temperature
8	Resistance to Dry Heat	$\pm 20\%$	105 °C $\pm 5$ °C, 1000 hours
9	Resistance to Solvent	No evident damage on protective coating and marking	23 °C $\pm 5$ °C of isopropyl alcohol, 90 seconds
10	Residual Resistance	10k ohms or more	Measure DC resistance after fusing
11	Thermal Shock	$\Delta R < 10\%$	-20 °C / +25 °C / +125 °C / +25 °C, 10 cycles

### Agency Recognition

UL File Number ..... E198545

### Environmental Characteristics

Operating Temperature.....-20 °C to +105 °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



**WARNING Cancer and Reproductive Harm**

[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\* 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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## SinglFuse™ SF-1206SP Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- DVDs
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set top boxes
- Industrial controllers

## SF-1206SP Series - Time Lag Surface Mount Fuses

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### Typical Part Marking

Represents total content. Layout may vary.



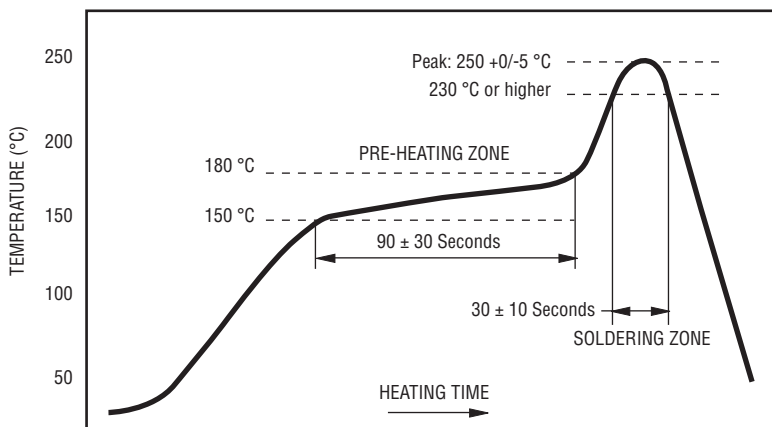
RATED CURRENT (A)	
F = 0.50	T = 2.50
K = 0.80	3 = 3.00
L = 1.00	W = 4.00
M = 1.25	Y = 5.00
P = 1.50	Z = 7.00
S = 2.00	

### How to Order

SinglFuse™ Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 3216 (EIA 1206) size  
 Fuse Blow Type \_\_\_\_\_  
 SP = Time Lag  
 Rated Current \_\_\_\_\_  
 050-700 (500 mA - 7.00 A)  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel (5,000 pcs./reel)

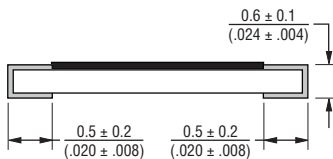
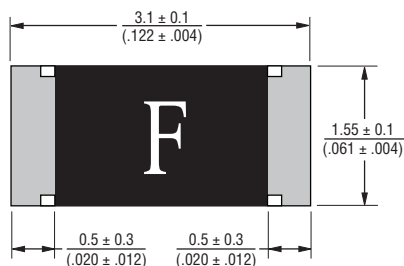
SF - 1206 SP 050 - 2

### Solder Reflow Recommendations



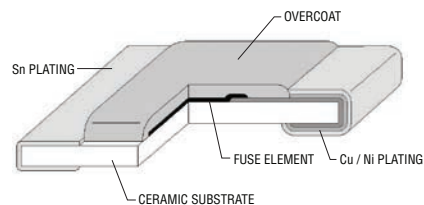
PEAK: 250 +0/-5 °C, 5 seconds  
 PRE-HEATING ZONE: 150 to 180 °C, 90 ± 30 seconds  
 SOLDERING ZONE: 230 °C or higher, 30 ± 10 seconds

### Product Dimensions



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

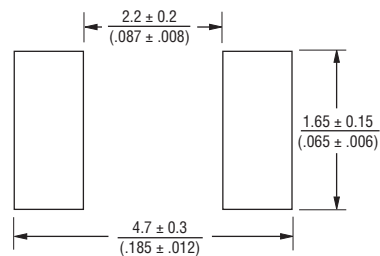
### Construction & Material Content



### Packaging Quantity

5,000 pieces per 7-inch reel

### Recommended Pad Layout



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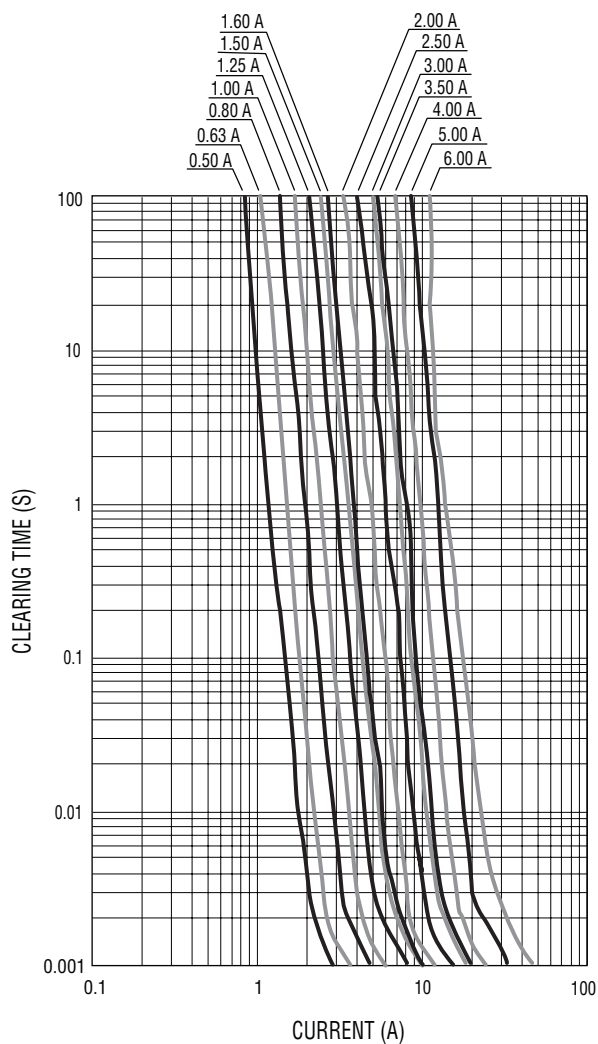
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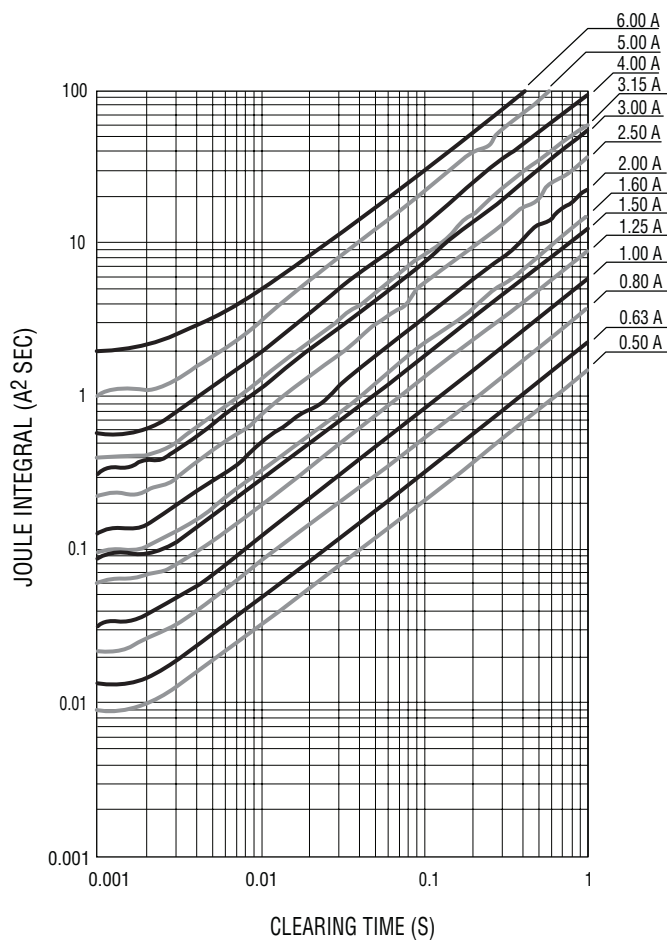
# SF-1206SP Series - Time Lag Surface Mount Fuses

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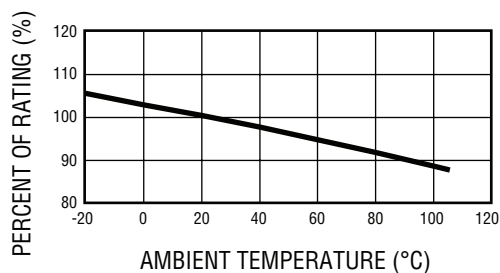
**Average Time Current Curves**



**Minimum I<sup>2</sup>T V Clear Time Curves**



**Thermal Derating Curve**



REV. D 01/19

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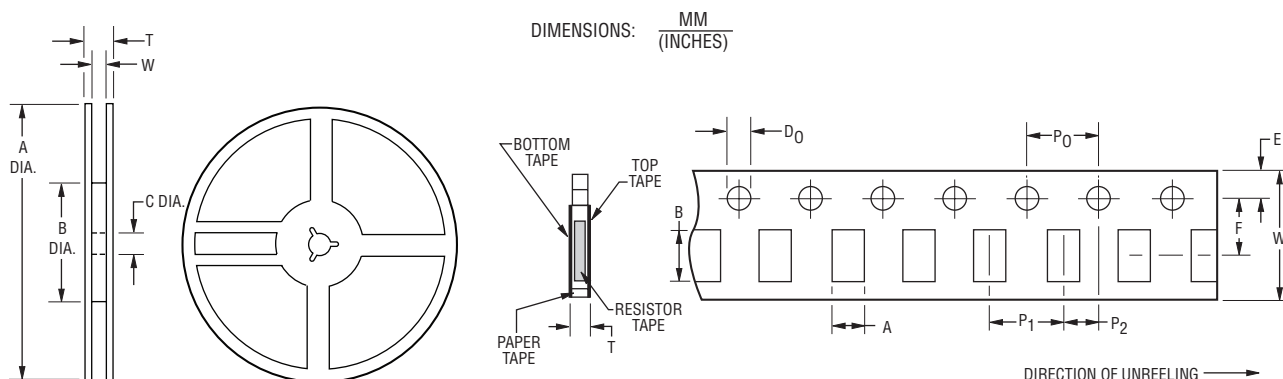
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**SF-1206SP Series**  
**per EIA 481-2**

W	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$
P <sub>0</sub>	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
P <sub>1</sub>	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
P <sub>2</sub>	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
A	$\frac{2.0 \pm 0.15}{(.079 \pm .006)}$
B	$\frac{3.6 \pm 0.2}{(.142 \pm .008)}$
F	$\frac{3.5 \pm 0.05}{(.138 \pm .002)}$
E	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$
D <sub>0</sub>	$\frac{1.5 + 0.1/-0}{(.059 + .004/-0)}$
T	$\frac{0.84 \pm 0.1}{(.033 \pm .004)}$

A	$\frac{178 \pm 0.2}{(7.087 \pm .079)}$
B Min.	$\frac{60.0 \pm 1.0}{(2.362 \pm .039)}$
C	$\frac{13.0 \pm 1.0}{(.512 \pm .039)}$
W	$\frac{9.0 \pm 1.0}{(.354 \pm .039)}$
T	$\frac{11.4 \pm 2.0}{(.449 \pm .079)}$



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