



## SinglFuse™ SF-3812FG-T Series Features

- Single blow fuse for overcurrent protection
- EIA 3812 (10030 metric) footprint
- Ceramic tube design for fast acting fusing speed and low voltage applications
- UL 248-14 compliant
- Surface mount packaging for automated assembly
- RoHS compliant\* and halogen free\*\*

## SF-3812FG-T Series – Fast Acting & Low Voltage SMD Fuses

### Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
200 %	—	60 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-3812FG2000T-2	20	0.0033	125 VAC	100 A @ 125 VAC 300 A @ 100 VDC	18	✓
SF-3812FG2500T-2	25	0.0022		100 A @ 125 VAC 100 A @ 100 VDC	45	✓
SF-3812FG3000T-2	30	0.0016		101	✓	

\*\*\* Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ± 30 %.

\*\*\*\* Melting I<sup>2</sup>t calculated at 10 times rated current.

### Environmental Characteristics

Operating Temperature.....	-55 °C to +125 °C
Storage Conditions	
Temperature .....	+15 °C to +30 °C
Humidity.....	20 % to 70 %
Shelf Life.....	2 years from manufacturing date
Moisture Sensitivity Level.....	1
ESD Classification (HBM).....	Class 6

\*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.

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

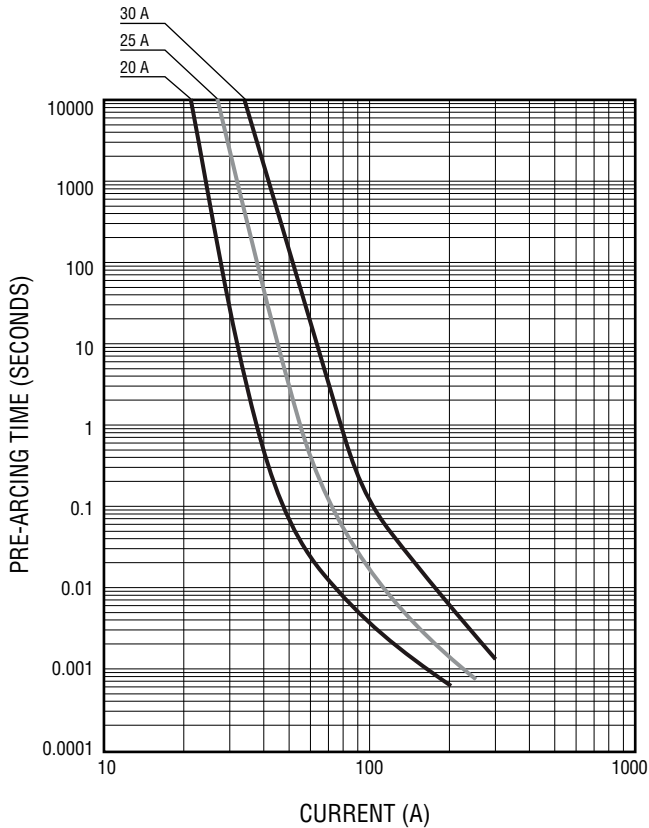
# SinglFuse™ SF-3812FG-T Series Applications

- Storage Systems
- PC Servers
- Voltage Regulator Modules
- Power Supplies

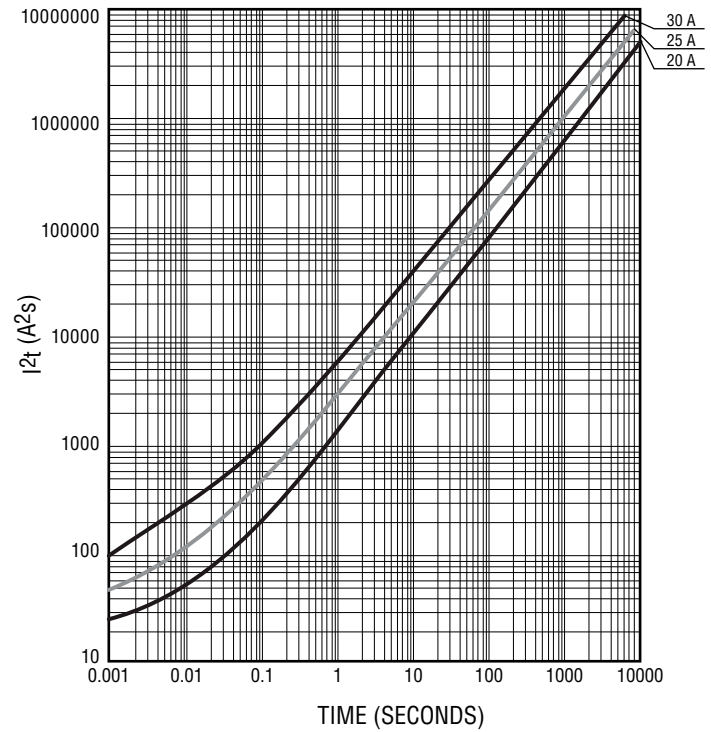
## SF-3812FG-T Series – Fast Acting & Low Voltage SMD Fuses

**BOURNS®**

Average Pre-Arcing Time vs. Current Curves



Average  $I^2t$  vs. t Curves



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# SF-3812FG-T Series – Fast Acting & Low Voltage SMD Fuses



## Typical Part Marking

Represents total content. Layout may vary.



Rated Current	Part Marking
20 A	H 20 A
25 A	H 25 A
30 A	H 30 A

## How to Order

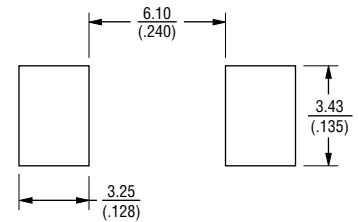
**SF - 3812 FG 2000 T - 2**

SinglFuse™ \_\_\_\_\_  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 3812 = EIA 3812  
 (10030 metric) \_\_\_\_\_  
 Fuse Blow Type \_\_\_\_\_  
 FG = Fast Acting & Low Voltage \_\_\_\_\_  
 Rated Current \_\_\_\_\_  
 2000 ~ 3000 (20 A ~ 30 A) \_\_\_\_\_  
 Structure Type \_\_\_\_\_  
 T = Ceramic Tube \_\_\_\_\_  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel \_\_\_\_\_

## Packaging

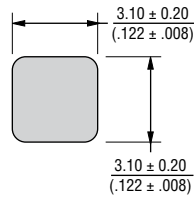
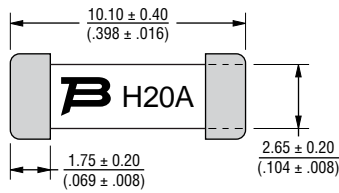
Reel Dimension	13-inch Tape and Reel
Specification	EIA 481-2
Quantity	2,500 pieces
Packaging Code	-2

## Recommended Pad Layout



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

## Product Dimensions



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

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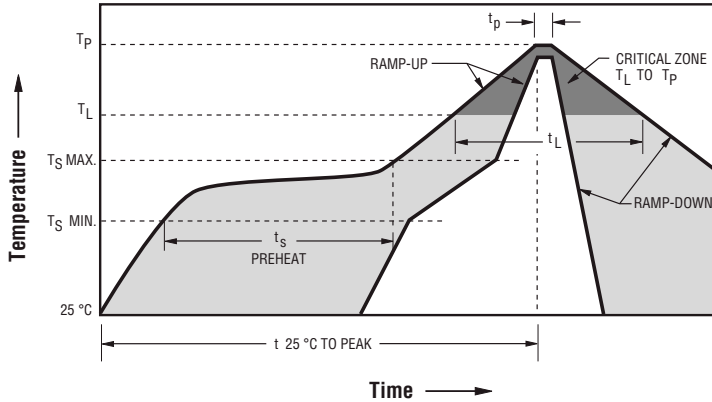
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# SF-3812FG-T Series – Fast Acting & Low Voltage SMD Fuses



## Solder Reflow Recommendations

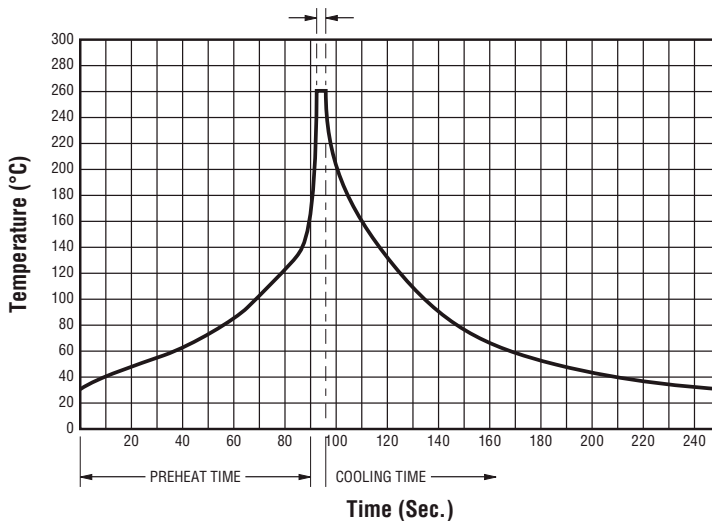


Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. ( $T_{S\text{min}}$ ) Temperature Max. ( $T_{S\text{max}}$ ) Time ( $t_s$ ) from ( $T_{S\text{min}}$ to $T_{S\text{max}}$ )	150 °C 200 °C 60~180 seconds
Ramp Up Rate ( $T_L$ to $T_p$ )	3 °C / second max.
Ramp Up Rate ( $T_{S\text{max}}$ to $T_L$ )	5 °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 +0/-5 °C
Time within 5 °C of actual peak temperature ( $T_p$ )	10~30 seconds*
Ramp Down Rate ( $T_p$ to $T_L$ )	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.
Do not exceed	260 °C

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

## Solder Wave Recommendations

Peak Temperature (Dwell Time)



Profile Feature	Pb-Free Assembly
Preheat: Temperature Max. ( $T_{S\text{max}}$ ) Time (Min. to Max.)	150 °C 60~90 seconds
Solder Pot Temperature	260 °C max.
Solder Dwell Time	2~3 seconds

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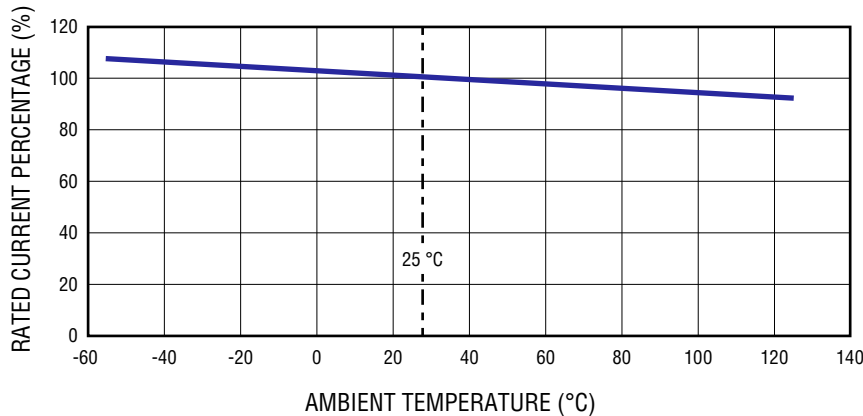
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## Current Rating Thermal Derating Curve



## Reliability Testing

No.	Test	Test Condition	Requirement	Test Reference
1	Solderability	Temperature setup: 235 ±5 °C Time setup: 10 ±1 sec.	After test terminal electrode wetting area must be greater than 95 %	IEC 60068-2-58
2	Resistance to soldering heat	Temperature setup: 235 ±5 °C Time setup: 30 ±5 sec.	DCR change ≤ ±15 %	IEC 60068-2-58
3	Thermal shock	Temperature setup: 25 °C ~ -65 °C ~ 25 °C ~ 125 °C Time setup: -65 °C (30 min) ~ 25 °C (5 min) ~ 125 °C (30 min) ~ 25 °C (5 min), 5 cycles	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 107G Test Condition B
4	Humidity unload	Heat (85 ±0.5 °C) High Humidity (85 ±1 % RH) 240 hours	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 103B Test Condition A
5	Salt spray	Salt spray concentration: 5 ±1 % Test liquid temperature: 35 ±0.5 °C 96 hours	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 101E Test Condition A
6	Bending	The board shall be bent by 1 mm at a rate of 1 mm/sec.	DCR change ≤ ±15 %	IEC 60127-4
7	Vibration	Frequency setup: 10 ~ 55 ~ 10 Hz Time setup: 1 Minute/cycle (X-Y-Z, 120 cycles, 6 hours)	DCR change ≤ ±15 % No mechanical damage	MIL-STD-202G Method 201A



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