



SinglFuse™ SF-3812F-T Series Features

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

SF-3812F-T Series – Fast Acting SMD Fuses

Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time at 25 °C | |
|---------------------|------------------------|------------|
| | Min. | Max. |
| 100 % | 4 hours | — |
| 200 % | — | 60 seconds |

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Electrical Characteristics

| Model | Rated Current (A) | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating | Typical I ² t (A ² s) **** | Certifications |
|-----------------|-------------------|------------------------|---------------|---|--|------------------------------|
| | | | | | | cUL: E198545 |
| SF-3812F1000T-2 | 10 | 0.0067 | 250 VAC | 100 A @ 250 VAC 150 A @ 125 VAC 50 A @ 250 VDC 130 A @ 80 VDC 300 A @ 72 VDC | 75 | ✓ |
| SF-3812F1500T-2 | 15 | 0.005 | | | 141.75 | ✓ |
| SF-3812F2000T-2 | 20 | 0.003 | | | 356 | ✓ |
| SF-3812F2500T-2 | 25 | 0.0024 | | 100 A @ 250 VAC 150 A @ 125 VAC 130 A @ 80 VDC 300 A @ 72 VDC | 625 | ✓ |
| SF-3812F3000T-2 | 30 | 0.0018 | | | 900 | ✓ |
| SF-3812F3500T-2 | 35 | 0.0014 | | | 1320 | ✓ |
| SF-3812F4000T-2 | 40 | 0.00126 | | 100 A @ 250 VAC 150 A @ 125 VAC 300 A @ 65 VAC 100 A @ 100 VDC 200 A @ 75 VDC 600 A @ 60 VDC | 1897.6 | ✓ |
| SF-3812F5000T-2 | 50 | 0.00108 | | | 3150 | ✓ |
| SF-3812F6000T-2 | 60 | 0.0009 | | | 4224 | ✓ |

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

**** Melting I²t 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 |



WARNING Cancer and Reproductive Harm

www.P65Warnings.ca.gov

* 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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Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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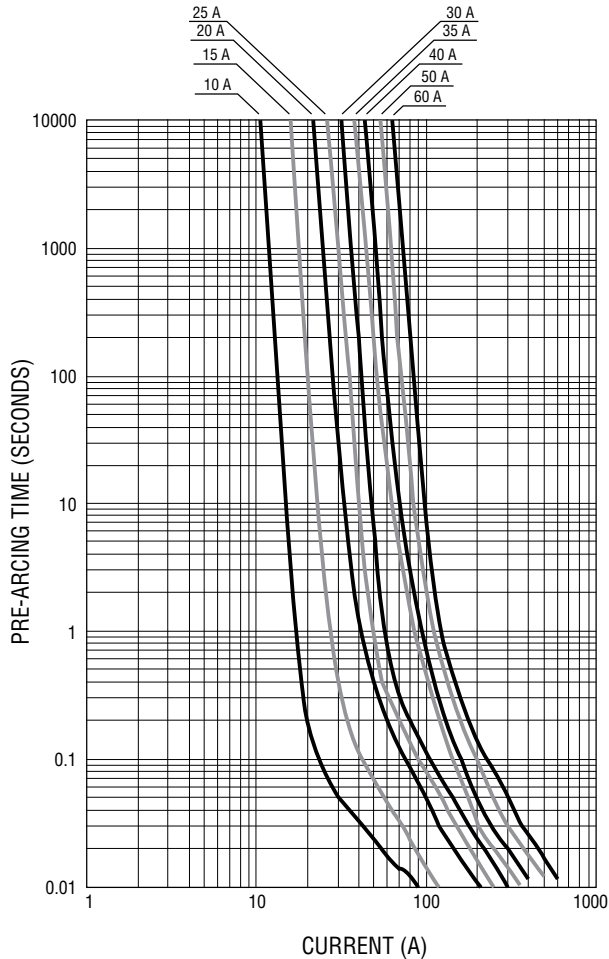
SinglFuse™ SF-3812F-T Series Applications

- Battery Management Systems
- Blade Computing
- PC Servers
- POE, POE+
- Voltage Regulator Modules
- Power Supplies
- Advanced Telecommunication Computing Architecture (ATCA) Applications

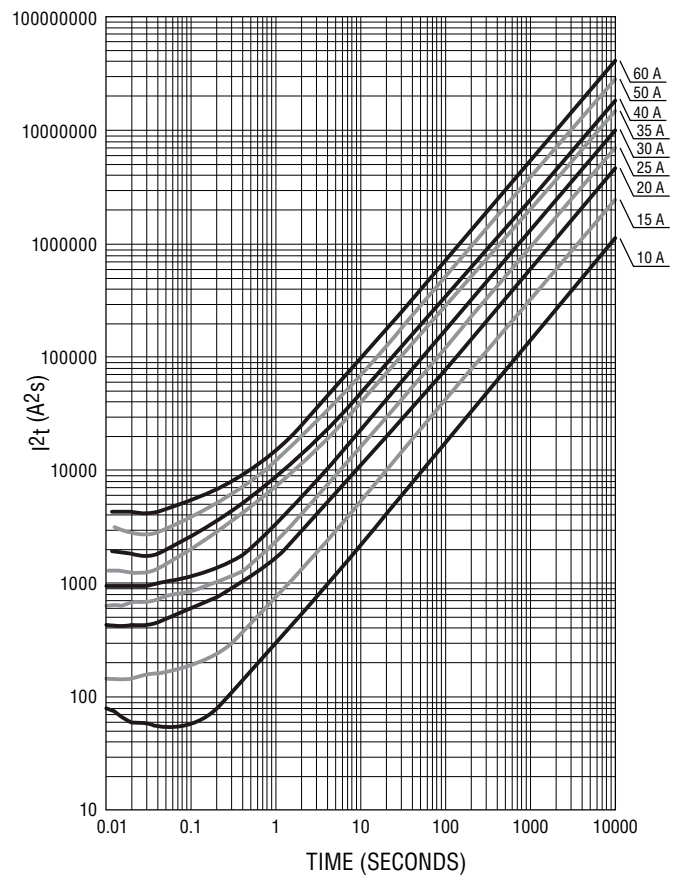
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Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves



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Typical Part Marking

Represents total content. Layout may vary.



| Rated Current | Part Marking |
|---------------|--------------|
| 10 A | L 10 A |
| 15 A | L 15 A |
| 20 A | L 20 A |
| 25 A | L 25 A |
| 30 A | L 30 A |
| 35 A | L 35 A |
| 40 A | L 40 A |
| 50 A | L 50 A |
| 60 A | L 60 A |

How to Order

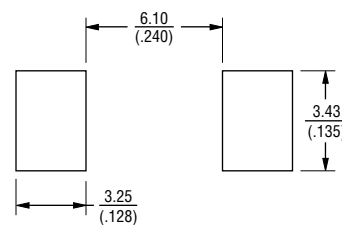
SF - 3812 F 1000 T - 2

SinglFuse™ _____
 Product Designator _____
 SMD Footprint _____
 3812 = EIA 3812
 (10030 metric)
 Fuse Blow Type _____
 F = Fast Acting
 Rated Current _____
 1000 ~ 6000 (10 A ~ 60 A)
 Structure Type _____
 T = Ceramic Tube
 Packaging Type _____
 - 2 = Tape & Reel

Packaging

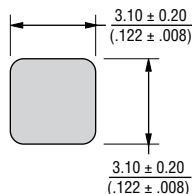
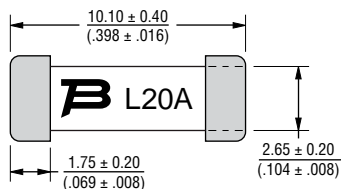
| | |
|----------------|-----------------------|
| Reel Dimension | 13-inch Tape and Reel |
| Specification | EIA 481-2 |
| Quantity | 2,500 pieces |
| Packaging Code | -2 |

Recommended Pad Layout



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

Product Dimensions



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

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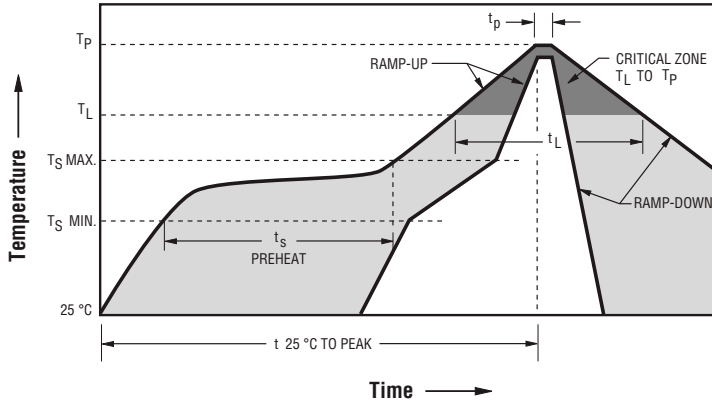
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Solder Reflow Recommendations

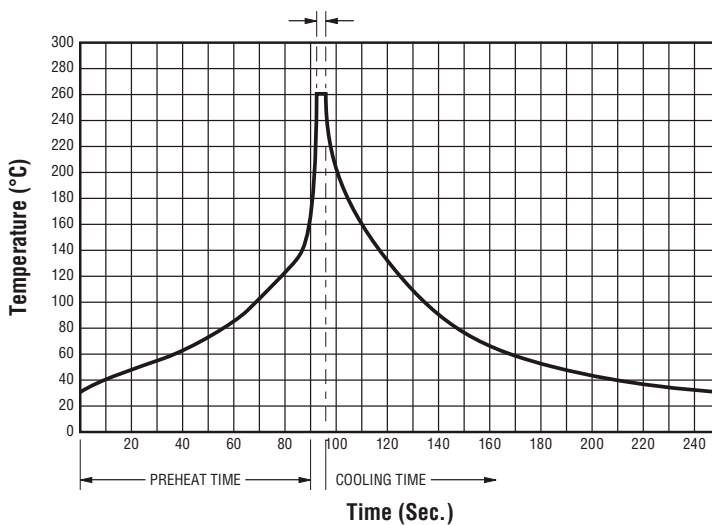


| Profile Feature | Pb-Free Assembly |
|---|------------------------------------|
| Preheat / Soak: Temperature Min. (T_{smin}) Temperature Max. (T_{smax}) Time (t_s) from (T_{smin} to T_{smax}) | 150 °C 200 °C 60~180 seconds |
| Ramp Up Rate (T_L to T_P) | 3 °C / second max. |
| Ramp Up Rate (T_{smax} 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_{smax}) 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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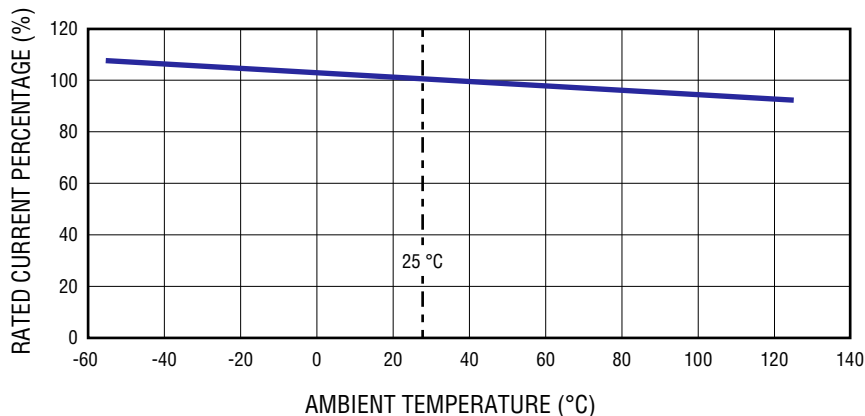
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Current Rating Thermal Derating Curve



Reliability Testing

| No. | Test | Test Condition | Requirement | Test Reference |
|-----|------------------------------|--|--|---|
| 1 | Solderability | Temperature setup: 235 \pm 5 °C Time setup: 10 \pm 1 sec. | After test terminal electrode wetting area must be greater than 95 % | IEC 60068-2-58 |
| 2 | Resistance to soldering heat | Temperature setup: 260 \pm 0/-5 °C Time setup: 10 sec. max. | DCR change \leq \pm 15 % | IEC 60068-2-58 |
| 3 | Thermal shock | Temperature setup: 25 °C \sim -65 °C \sim 25 °C \sim 125 °C Time setup: -65 °C (30 min) \sim 25 °C (5 min) \sim 125 °C (30 min) \sim 25 °C (5 min), 5 cycles | DCR change \leq \pm 15 % No mechanical damage | MIL-STD-202G Method 107G Test Condition B |
| 4 | Humidity unload | Heat (85 \pm 0.5 °C) High Humidity (85 \pm 1 % RH) 240 hours | DCR change \leq \pm 15 % No mechanical damage | MIL-STD-202G Method 103B Test Condition A |
| 5 | Salt spray | Salt spray concentration: 5 \pm 1 % Test liquid temperature: 35 \pm 0.5 °C 96 hours | DCR change \leq \pm 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 \leq \pm 15 % | IEC 60127-4 |
| 7 | Vibration | Frequency setup: 10 \sim 55 \sim 10 Hz Time setup: 1 Minute/cycle (X-Y-Z, 120 cycles, 6 hours) | DCR change \leq \pm 15 % No mechanical damage | MIL-STD-202G Method 201A |

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REV. 04/21

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