



SinglFuse™ SF-3812TL-T Series Features

- Single blow fuse for overcurrent protection
- EIA 3812 (10030 metric) footprint
- Ceramic tube design for time lag fusing speed and low power applications
- UL 248-14 listed
- Meets IEC 60127-1 and IEC 60127-7 requirements
- Surface mount packaging for automated assembly
- RoHS compliant* and halogen free**

SF-3812TL-T Series – Time Lag & Low Power SMD Fuses

Electrical Characteristics

| Model | Rated Current (A) | Fusing Time | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating | Typical I ² t (A ² s) **** | Certifications | |
|-----------------|-------------------|---|------------------------|---------------|---------------------|--|----------------|----------------|
| | | | | | | | UL | TUV |
| SF-3812TL050T-2 | 0.5 | Open within 120 sec. at 250 % rated current | 0.5479 | 250 VAC | 50 A @ 250 VAC | 1.963 | • | <i>pending</i> |
| SF-3812TL075T-2 | 0.75 | | 0.26 | | | 3.375 | • | <i>pending</i> |
| SF-3812TL100T-2 | 1 | | 0.18 | | | 11.22 | • | • |
| SF-3812TL150T-2 | 1.5 | | 0.1027 | | | 14.85 | • | • |
| SF-3812TL200T-2 | 2 | | 0.0504 | | | 19.84 | • | • |
| SF-3812TL250T-2 | 2.5 | | 0.037 | | | 20.5 | • | • |
| SF-3812TL300T-2 | 3 | | 0.028 | | | 54 | • | • |
| SF-3812TL350T-2 | 3.5 | | 0.0199 | | | 57.82 | • | • |
| SF-3812TL400T-2 | 4 | | 0.0158 | | | 125.6 | • | • |
| SF-3812TL500T-2 | 5 | | 0.012 | | | 185 | • | • |

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

**** Melting I²t calculated at 10 times rated current.

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 |



WARNING Cancer and Reproductive Harm - 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-3812TL-T Series Applications

- Lighting systems
- Power adaptors
- Power supplies
- AC/DC converters
- Telecom equipment system power

SF-3812TL-T Series – Time Lag & Low Power SMD Fuses **BOURNS®**

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

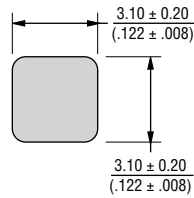
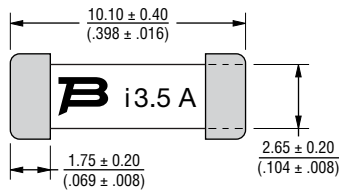
Typical Part Marking

Represents total content. Layout may vary.



| Rated Current | Part Marking |
|---------------|--------------|
| 0.50 A | i 0.5 A |
| 0.75 A | i 0.75 A |
| 1.00 A | i 1 A |
| 1.50 A | i 1.5 A |
| 2.00 A | i 2 A |
| 2.50 A | i 2.5 A |
| 3.00 A | i 3 A |
| 3.50 A | i 3.5 A |
| 4.00 A | i 4 A |
| 5.00 A | i 5 A |

Product Dimensions



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

Agency Recognition

UL File Number E198545
 TUV File Number..... R 50421699

Construction



Packaging Quantity

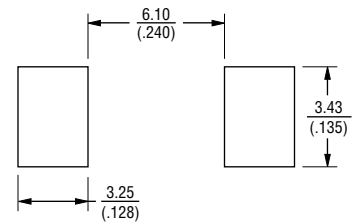
2,500 pieces per 13-inch reel

How to Order

SF - 3812 TL 050 T - 2

SinglFuse™ _____
 Product Designator _____
 SMD Footprint _____
 3812 = EIA 3812
 (10030 metric)
 Fuse Blow Type _____
 TL = Time Lag & Low Power
 Rated Current _____
 050 - 500 (0.50 A ~ 5.00 A)
 Structure Type _____
 T = Ceramic Tube
 Packaging Type _____
 - 2 = Tape & Reel

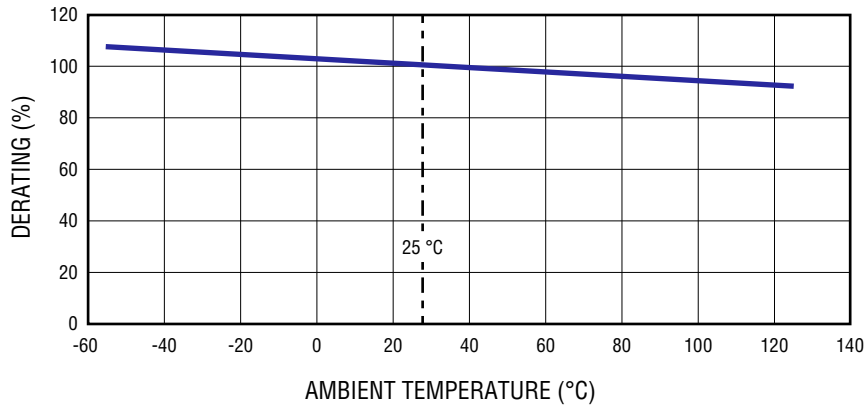
Recommended Pad Layout



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

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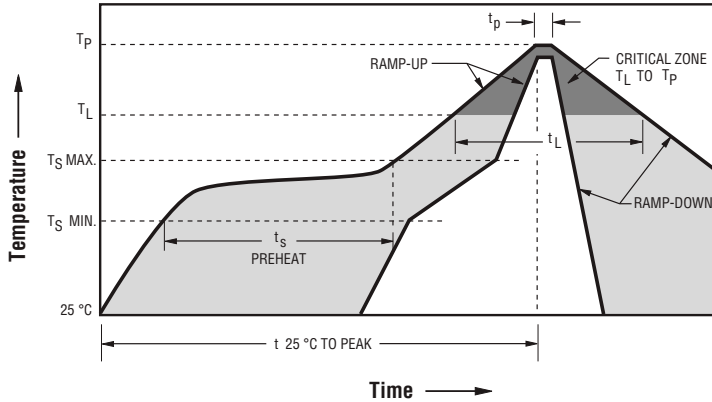
Current Rating Thermal Derating Curve



Pulse Cycle Withstand Capability



Solder Reflow Recommendations

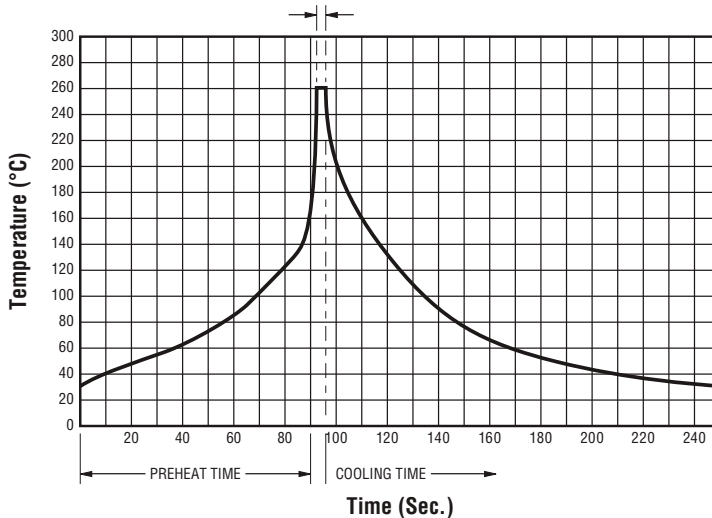


| Profile Feature | Pb-Free Assembly |
|---|------------------------------------|
| Preheat / Soak: Temperature Min. (T_{smin}) Temperature Max. (T_{smax}) Time (t_s) from (T_{smin} to T_{smax}) | 150 °C 200 °C 60~180 seconds |
| Ramp Up Rate (T_L to T_p) | 3 °C / second max. |
| Ramp Up Rate (T_{smax} to T_L) | 5 °C / second max. |
| Liquidous Temperature (T_L) Time (t_L) maintained above T_L | 217 °C 60~90 seconds |
| Peak Package Body Temperature (T_p) | 235 °C ± 5 °C |
| Time within 5 °C of actual peak temperature (T_p) | 20~30 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 | 240 °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)



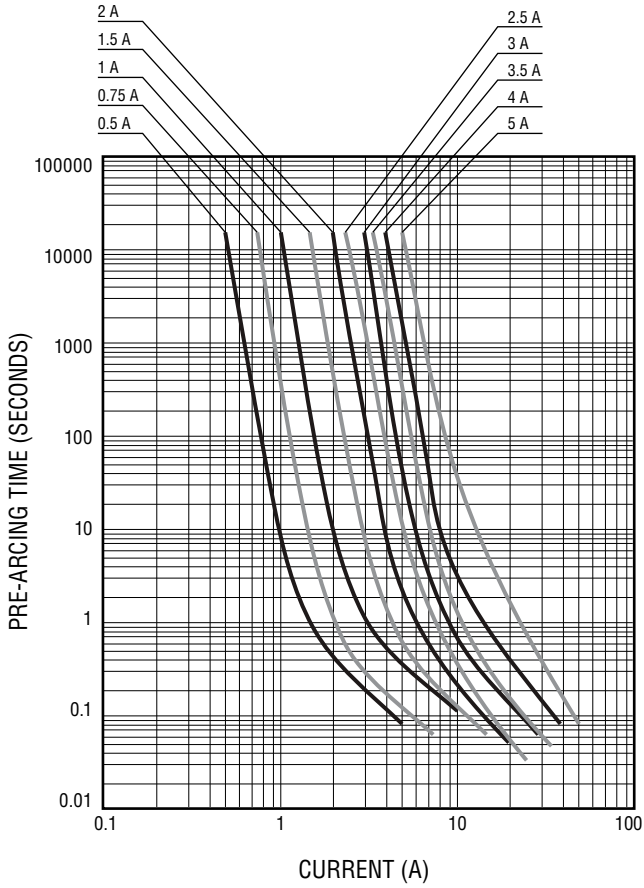
| Profile Feature | Pb-Free Assembly |
|--|-------------------------|
| Preheat: Temperature Max. (T_{smax}) Time (Min. to Max.) | 150 °C 60~90 seconds |
| Solder Pot Temperature | 260 °C max. |
| Solder Dwell Time | 2~3 seconds |

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Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves

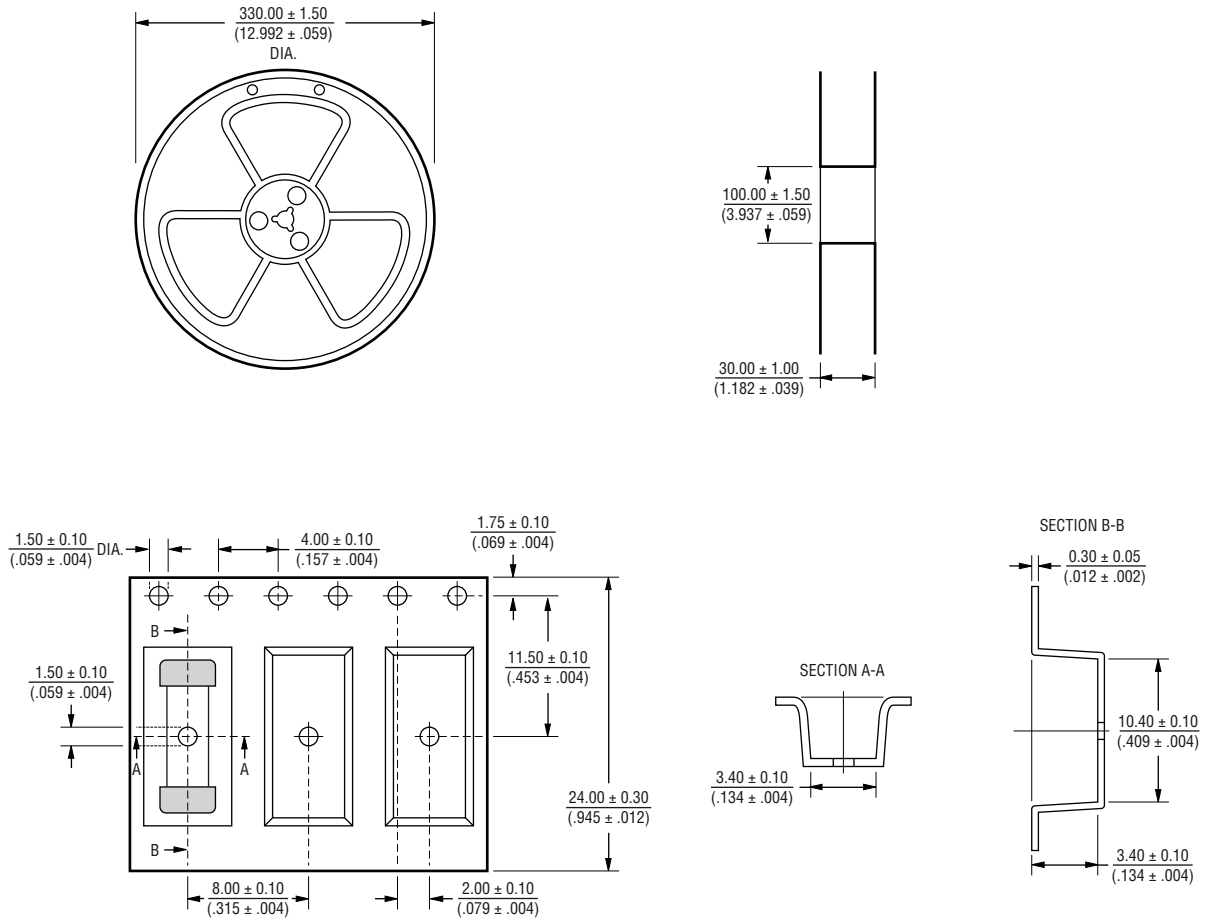


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Packaging Specifications



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

BOURNS®

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