



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, IEC 60127-1 and IEC 60127-7 compliant

- Surface mount packaging for automated assembly
- RoHS compliant* and halogen free**



This series is currently available but not recommended for new designs. The [Model SF-3812TL-T Series](#) is the recommended replacement.

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

Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
250 %	—	120 seconds

Additional Information

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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	TUV
						E198545	R 50421699
SF-3812TL050T-2	0.50	0.5479	250 VAC	50 A @ 250 VAC	1.963	✓	✓
SF-3812TL075T-2	0.75	0.26			3.375	✓	✓
SF-3812TL100T-2	1.00	0.18			11.22	✓	✓
SF-3812TL150T-2	1.50	0.1027			14.85	✓	✓
SF-3812TL200T-2	2.00	0.0504			19.84	✓	✓
SF-3812TL250T-2	2.50	0.037			20.5	✓	✓
SF-3812TL300T-2	3.00	0.028			54	✓	✓
SF-3812TL350T-2	3.50	0.0199			57.82	✓	✓
SF-3812TL400T-2	4.00	0.0158			125.6	✓	✓
SF-3812TL500T-2	5.00	0.012			185	✓	✓

*** 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



CALIFORNIA WARNING: Can expose you to lead, a carcinogen and reproductive toxicant. See 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.

"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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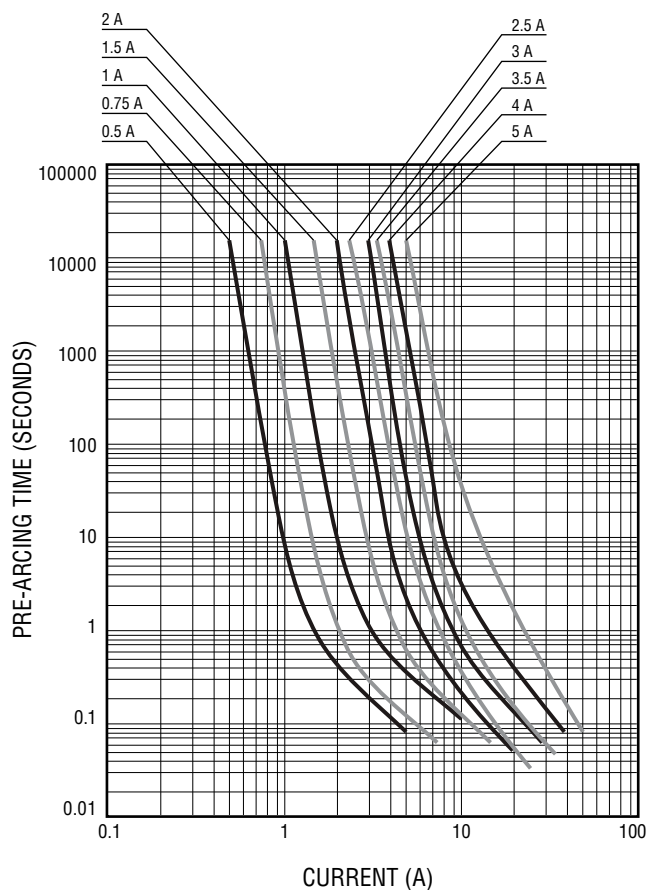
SinglFuse™ SF-3812TL-T Series Applications

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

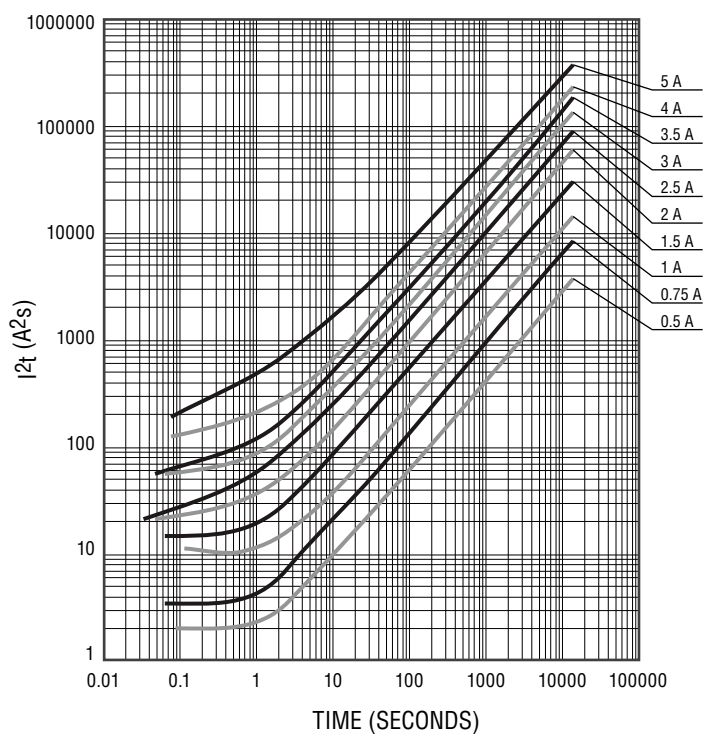
SF-3812TL-T Series – Time Lag & Low Power SMD Fuses

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Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves



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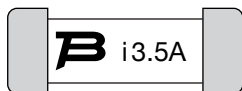
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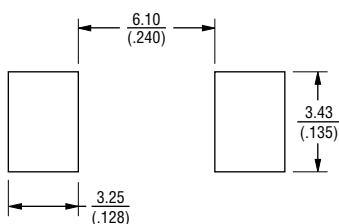
Typical Part Marking

Represents total content. Layout may vary.



Rated Current	Part Marking
0.50 A	i500mA
0.75 A	i750mA
1.00 A	i1 A
1.50 A	i1.5A
2.00 A	i2A
2.50 A	i2.5A
3.00 A	i3A
3.50 A	i3.5A
4.00 A	i4A
5.00 A	i5A

Recommended Pad Layout



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

Packaging

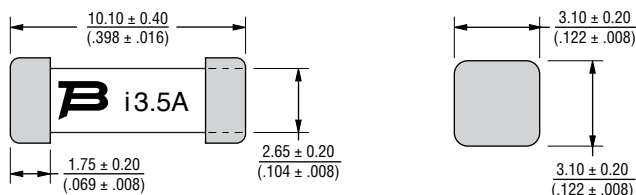
Reel Dimension	13-inch Tape and Reel
Specification	EIA 481-2
Quantity	2,500 pieces
Packaging Code	-2

How to Order

SF - 3812 TL 050 T - 2

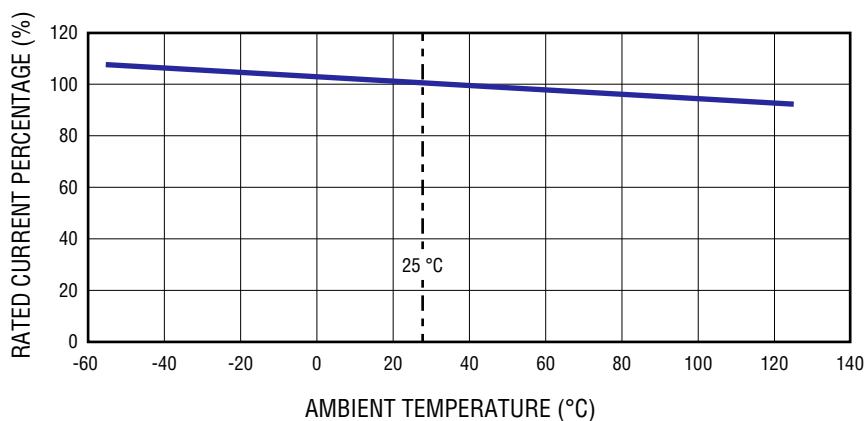
SinglFuse™ _____
 Product Designator _____
 SMD Footprint _____
 3812 = EIA 3812
 (10030 metric)
 Fuse Blow Type _____
 TL = Time Lag & Low Power
 Rated Current _____
 050 - 500 (0.50 A ~ 5.00 A)
 Structure Type _____
 T = Ceramic Tube
 Packaging Type _____
 - 2 = Tape & Reel

Product Dimensions



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

Current Rating Thermal Derating Curve



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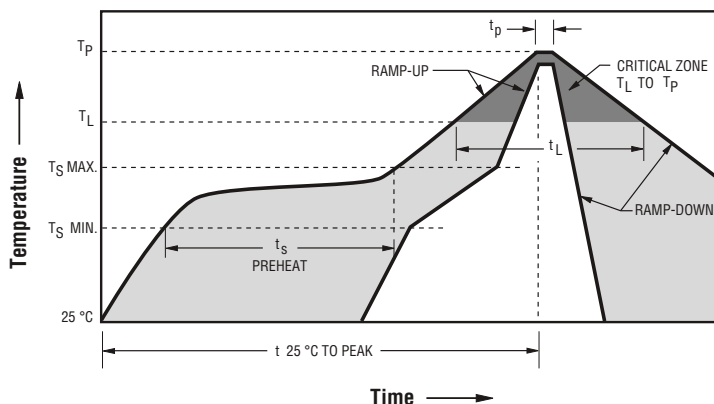
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Solder Reflow Recommendations

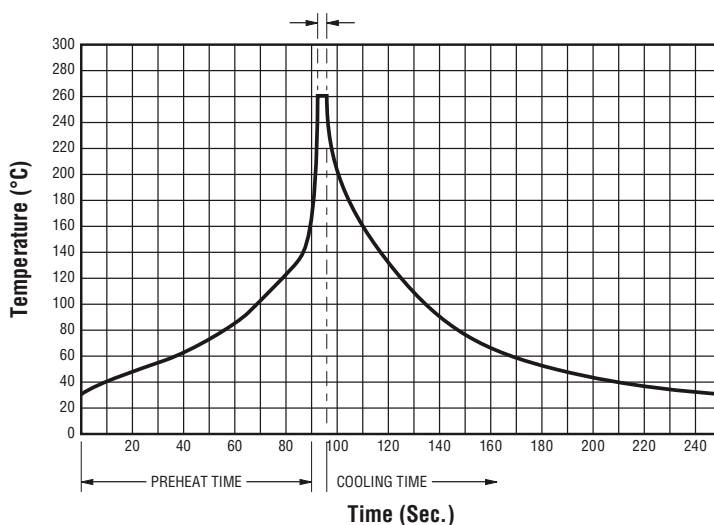


Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. (T_{smin}) Temperature Max. (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	150 °C 200 °C 60~180 seconds
Ramp Up Rate (T_L to T_P)	3 °C / second max.
Ramp Up Rate (T_{smax} to T_L)	5 °C / second max.
Liquidous Temperature (T_L) Time (t_L) maintained above T_L	217 °C 60~90 seconds
Peak Package Body Temperature (T_P)	235 °C $\pm$ 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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SF-3812TL-T Series – Time Lag & Low Power SMD Fuses**BOURNS®****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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