



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**

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

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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



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.

"SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

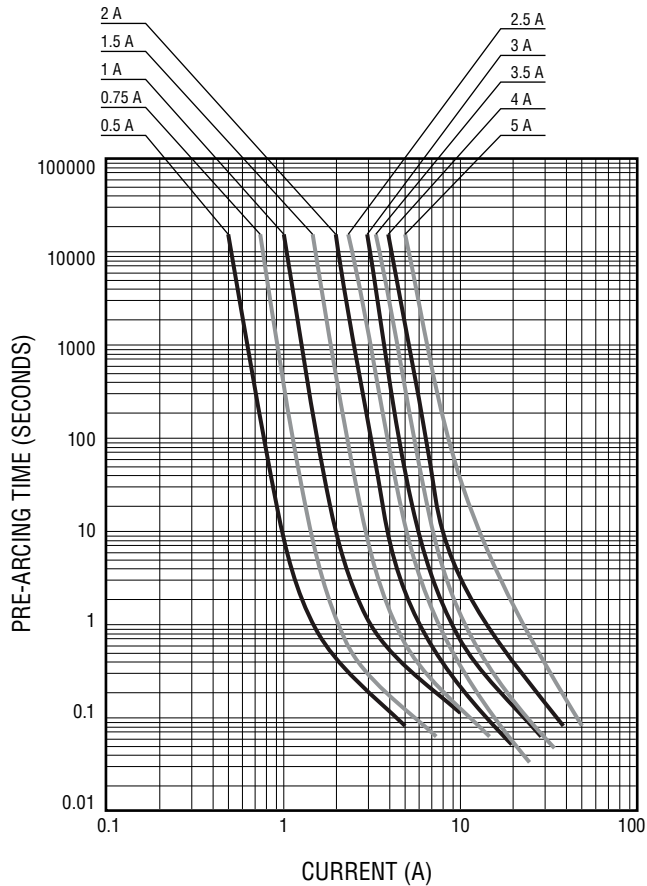
SinglFuse™ SF-3812TL-T Series Applications

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

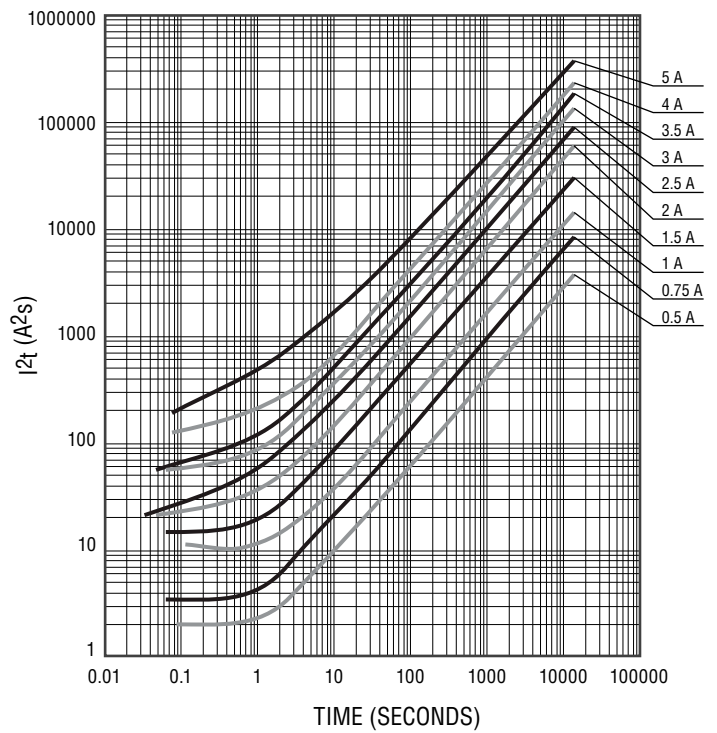
SF-3812TL-T Series – Time Lag & Low Power SMD Fuses

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Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves



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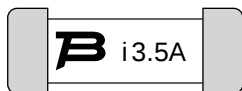
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SF-3812TL-T Series – Time Lag & Low Power SMD Fuses

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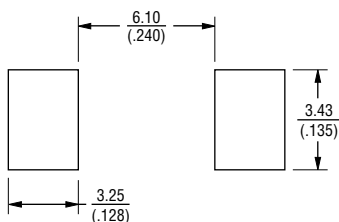
Typical Part Marking

Represents total content. Layout may vary.



Rated Current	Part Marking
0.50 A	i500mA
0.75 A	i750mA
1.00 A	i1A
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

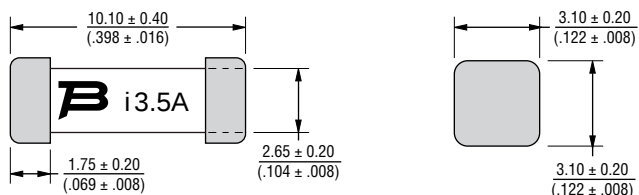
Reel Dimension	13-inch Tape and Reel
Specification	EIA 481-2
Quantity	2,500 pieces
Packaging Code	-2

How to Order

SF - 3812 TL 050 T - 2

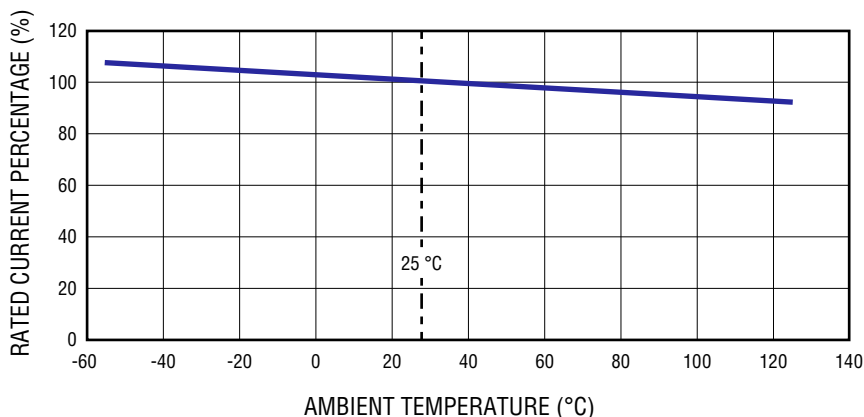
SinglFuse™ _____
 Product Designator _____
 SMD Footprint _____
 3812 = EIA 3812
 (10030 metric) _____
 Fuse Blow Type _____
 TL = Time Lag & Low Power _____
 Rated Current _____
 050 - 500 (0.50 A ~ 5.00 A) _____
 Structure Type _____
 T = Ceramic Tube _____
 Packaging Type _____
 - 2 = Tape & Reel

Product Dimensions



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

Current Rating Thermal Derating Curve



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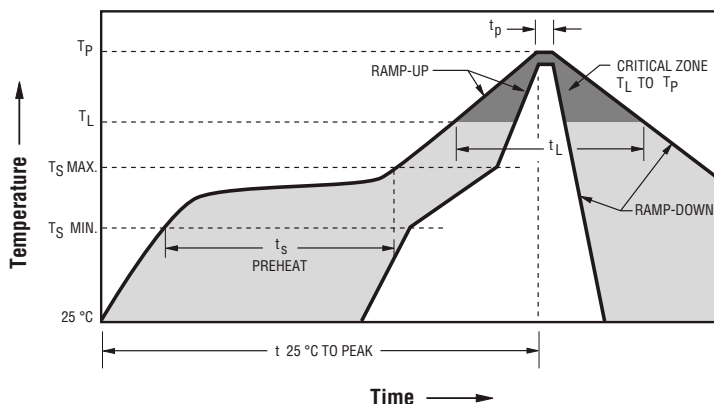
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Solder Reflow Recommendations

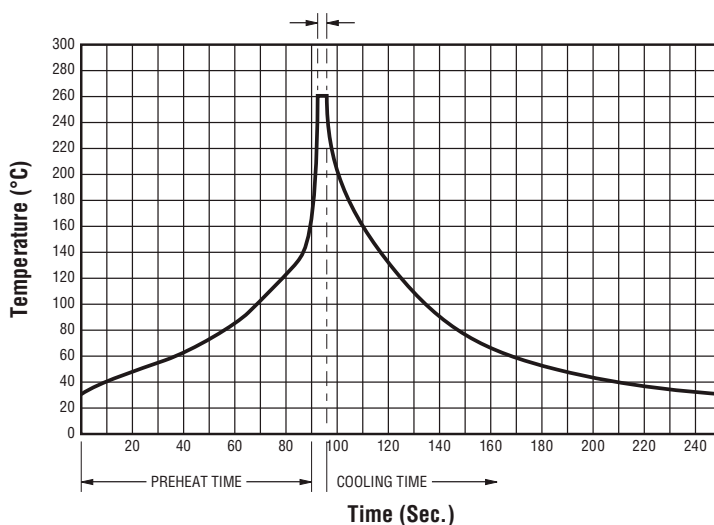


Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. (T_{smin}) Temperature Max. (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	150 °C 200 °C 60–180 seconds
Ramp Up Rate (T_L to T_P)	3 °C / second max.
Ramp Up Rate (T_{smax} to T_L)	5 °C / second max.
Liquidous Temperature (T_L) Time (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 $\pm$ 5 $^{\circ}$ 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: 235 $\pm$ 5 $^{\circ}$ C Time setup: 30 $\pm$ 5 sec.	DCR change $\leq$ $\pm$ 15 %	IEC 60068-2-58
3	Thermal shock	Temperature setup: 25 $^{\circ}$ C $\sim$ -65 $^{\circ}$ C $\sim$ 25 $^{\circ}$ C $\sim$ 125 $^{\circ}$ C Time setup: -65 $^{\circ}$ C (30 min) $\sim$ 25 $^{\circ}$ C (5 min) $\sim$ 125 $^{\circ}$ C (30 min) $\sim$ 25 $^{\circ}$ 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 $^{\circ}$ 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 $^{\circ}$ 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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