SingIFuse™ 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^2t (A^2s) ****	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	•	*pending*
SF-3812TL075T-2	0.75		0.26			3.375	•	*pending*
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 I^2t 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.

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

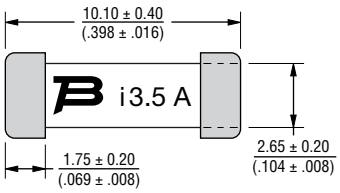
Operating Temperature..... -55 °C to +125 °C
Storage Conditions
Temperature ..... +15 °C to +30 °C
Humidity..... 20 % to 70 %
Shelf Life.....2 years from manufacturing date
Moisture Sensitivity Level 1
ESD Classification (HBM).....Class 6

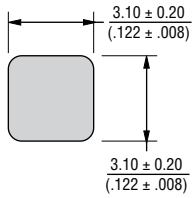
Typical Part Marking

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





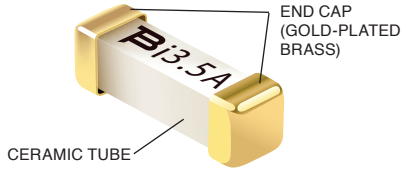
DIMENSIONS: MM / (INCHES)

Agency Recognition

UL File Number E198545

TUV File Number.....R 50421699

Construction



Packaging Quantity

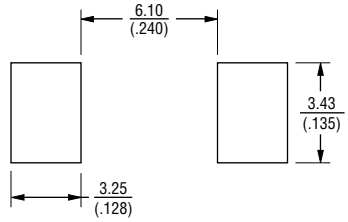
2,500 pieces per 13-inch reel

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



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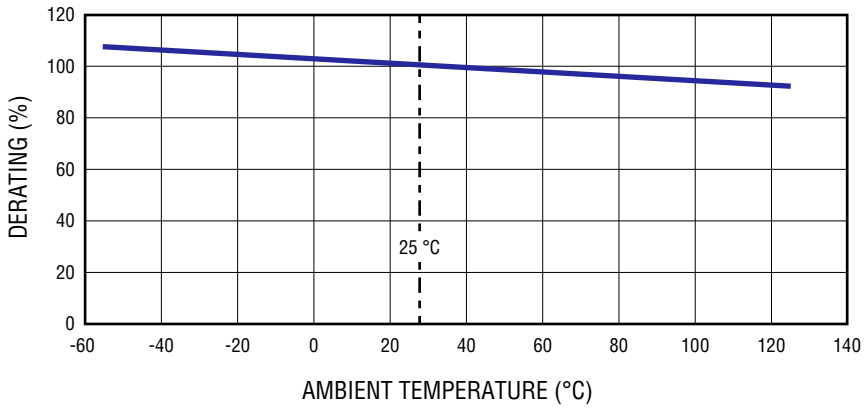
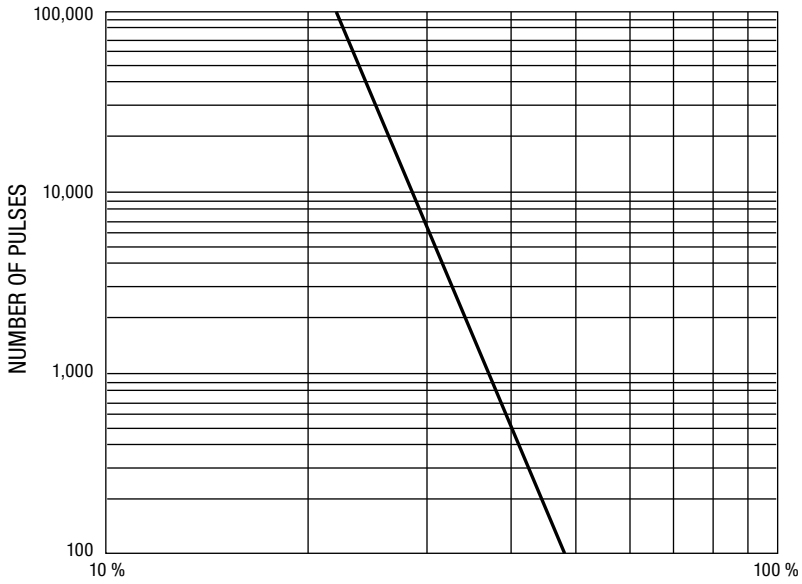
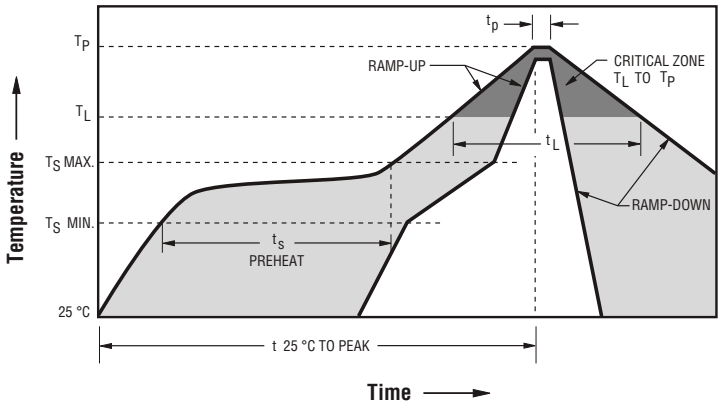
Current Rating Thermal Derating Curve



Pulse Cycle Withstand Capability



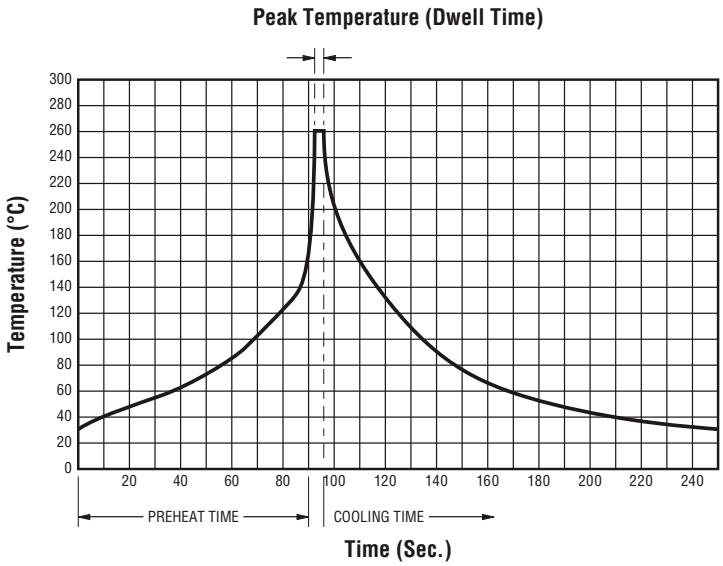
Solder Reflow Recommendations



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

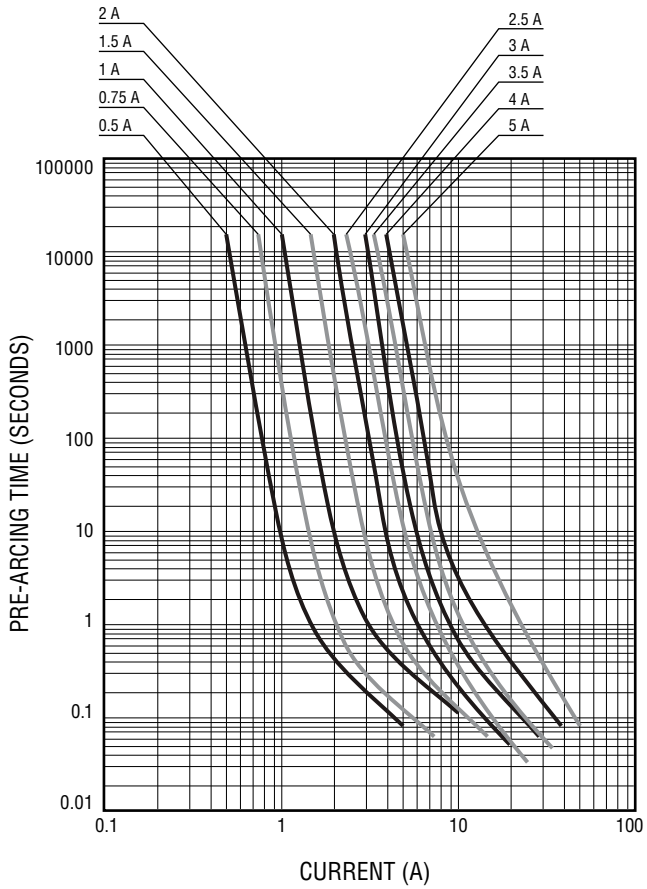
* Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.

Solder Wave Recommendations

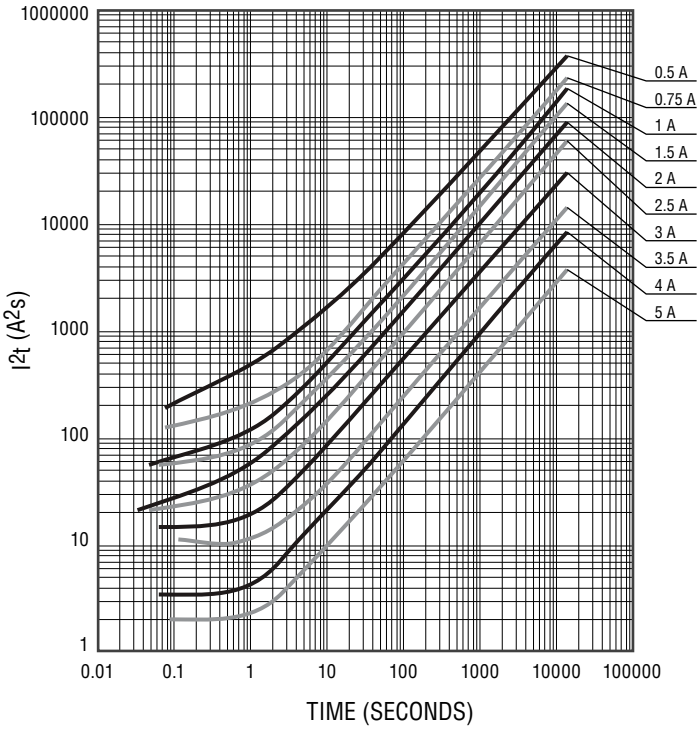


Profile Feature	Pb-Free Assembly
Preheat: Temperature Max. (T_{smax}) Time (Min. to Max.)	 150 °C 60~90 seconds
Solder Pot Temperature	260 °C max.
Solder Dwell Time	2~3 seconds

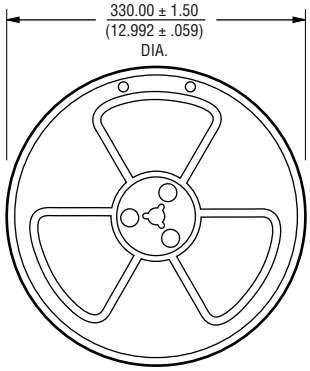
Average Pre-Arcing Time vs. Current Curves

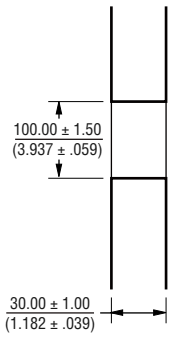


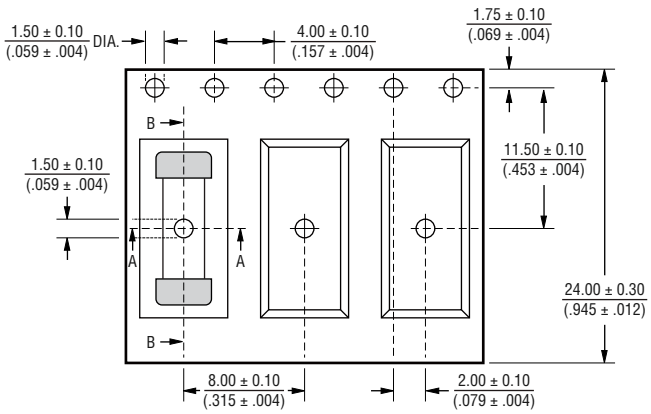
Average I^2t vs. t Curves

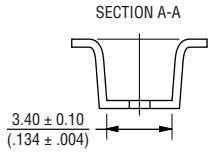


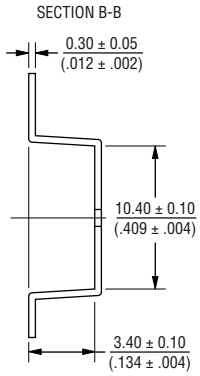
Packaging Specifications











DIMENSIONS: MM / (INCHES)

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