



## SinglFuse™ SF-2410F-T Series Features

- Single blow fuse for overcurrent protection
- EIA 2410 (6125 metric) footprint
- Ceramic tube design for fast acting precision fusing speed applications
- UL 248-14 listed
- Surface mount packaging for automated assembly
- RoHS compliant\* and halogen free\*\*

## SF-2410F-T Series – Fast Acting SMD Fuses

### Electrical Characteristics

Model	Rated Current (A)	Fusing Time	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I <sup>2</sup> t (A <sup>2</sup> s)****	Certifications	
							cUL	
							E198545	
SF-2410F1200T-2	12	Open within 60 sec. at 200 % rated current	0.0045	125 VAC	50 A @ 65 VAC 50 A @ 65 VDC 200 A @ 86 VAC 200 A @ 86 VDC 300 A @ 24 VDC	52.91	✓	
SF-2410F1500T-2	15		0.003				90.9	✓
SF-2410F2000T-2	20		0.0025				140.8	✓
SF-2410F2500T-2	25		0.002				246.55	✓

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

\*\*\*\* Melting I<sup>2</sup>t 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](http://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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# SinglFuse™ SF-2410F-T Series Applications

- Notebooks
- LCD Monitors
- LCD Backlight Inverters
- POE, POE+
- PC Servers
- Power Supplies
- Game Consoles
- White Goods

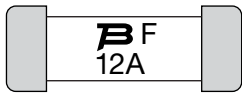
## SF-2410F-T Series – Fast Acting SMD Fuses BOURNS®

### 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.



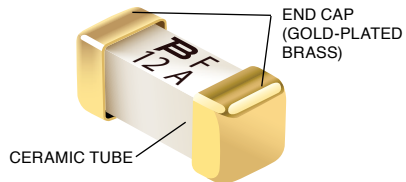
Rated Current	Part Marking
12 A	12A
15 A	15A
20 A	20A
25 A	25A

### How to Order

**SF - 2410 F 1200 T - 2**

SinglFuse™  
 Product Designator  
 SMD Footprint  
     2410 = EIA 2410  
     (6125 metric)  
 Fuse Blow Type  
     F = Fast Acting  
 Rated Current  
     1200 ~ 2500 (12 A ~ 25 A)  
 Structure Type  
     T = Ceramic Tube  
 Packaging Type  
     - 2 = Tape & Reel

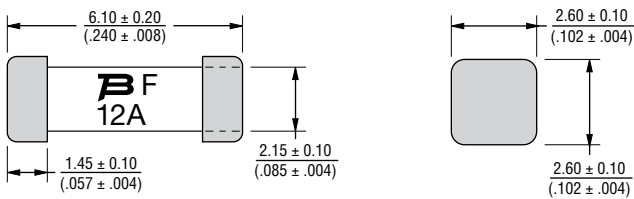
### Construction



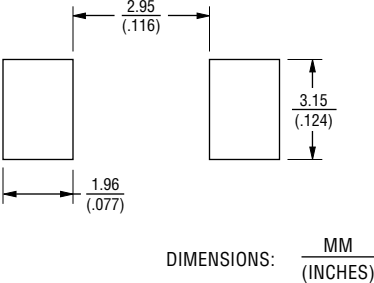
### Packaging Quantity

1,000 pieces per 7-inch reel

### Product Dimensions



### Recommended Pad Layout

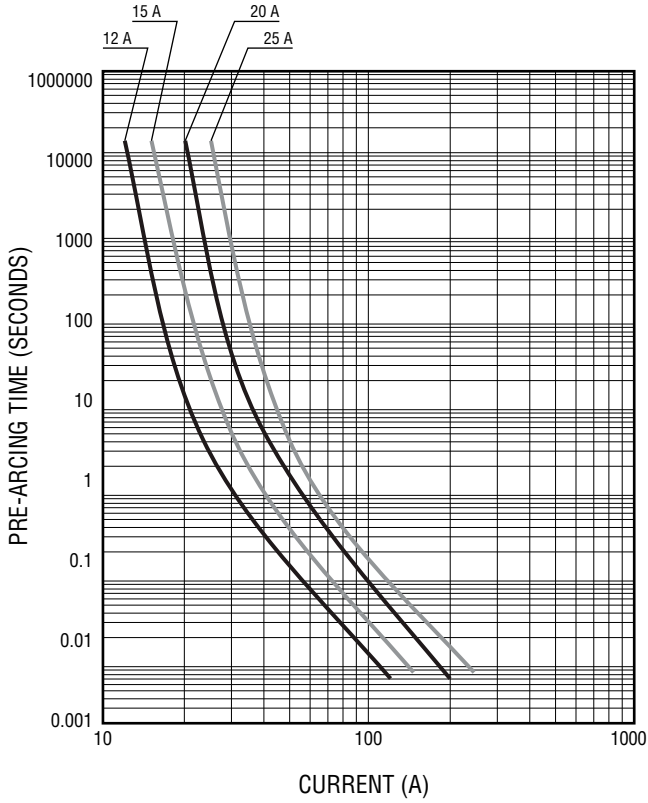


### Agency Recognition

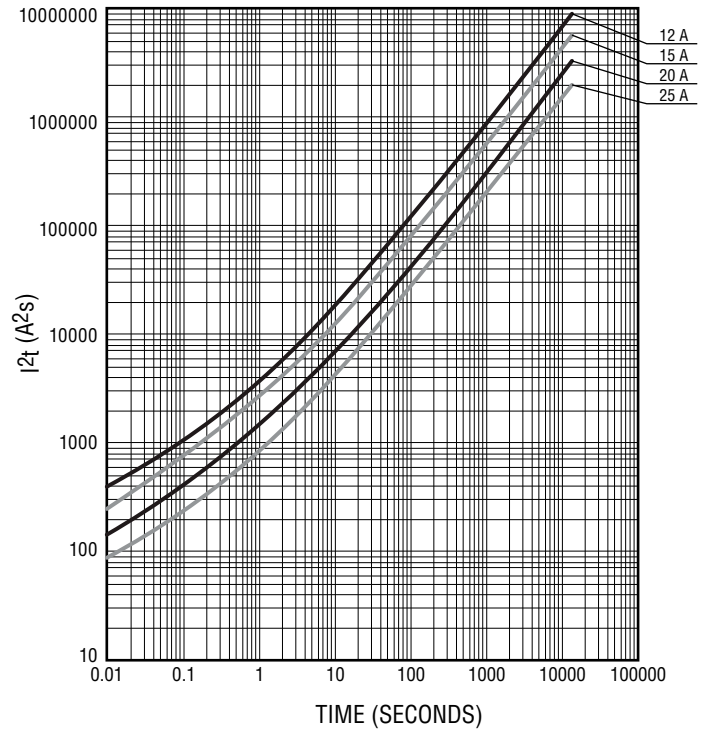
UL File Number ..... [E198545](#)

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Average Pre-Arcing Time vs. Current Curves



Average  $I^2t$  vs. t Curves

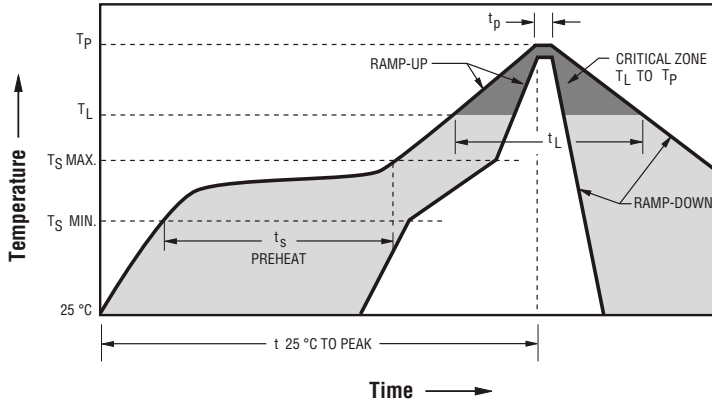


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## Solder Reflow Recommendations



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 ± 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)



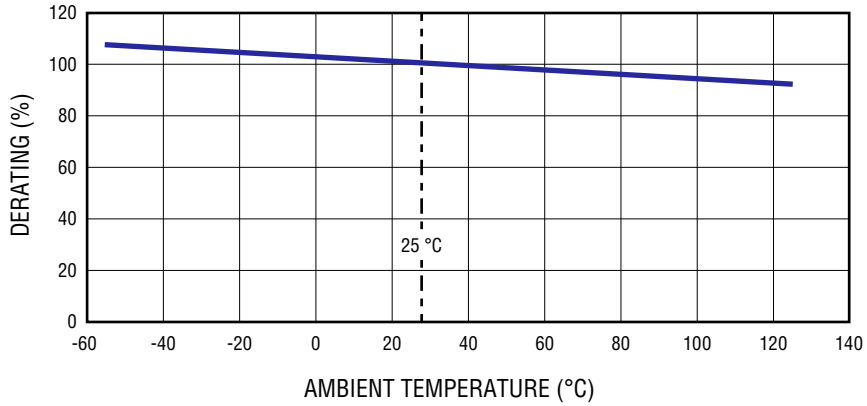
Profile Feature	Pb-Free Assembly
Preheat: Temperature Max. ( $T_{smax}$ ) Time (Min. to Max.)	150 °C 60~90 seconds
Solder Pot Temperature	260 °C max.
Solder Dwell Time	2~3 seconds

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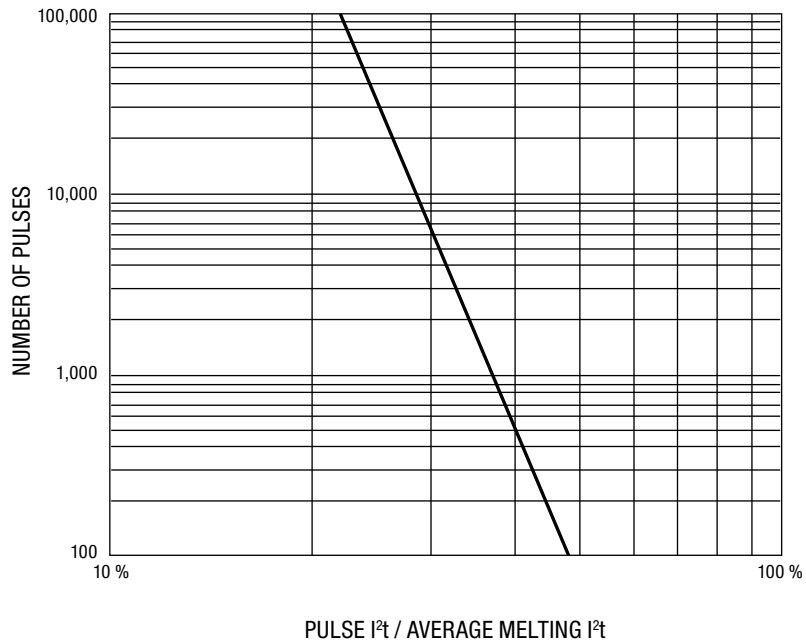
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**Current Rating Thermal Derating Curve**



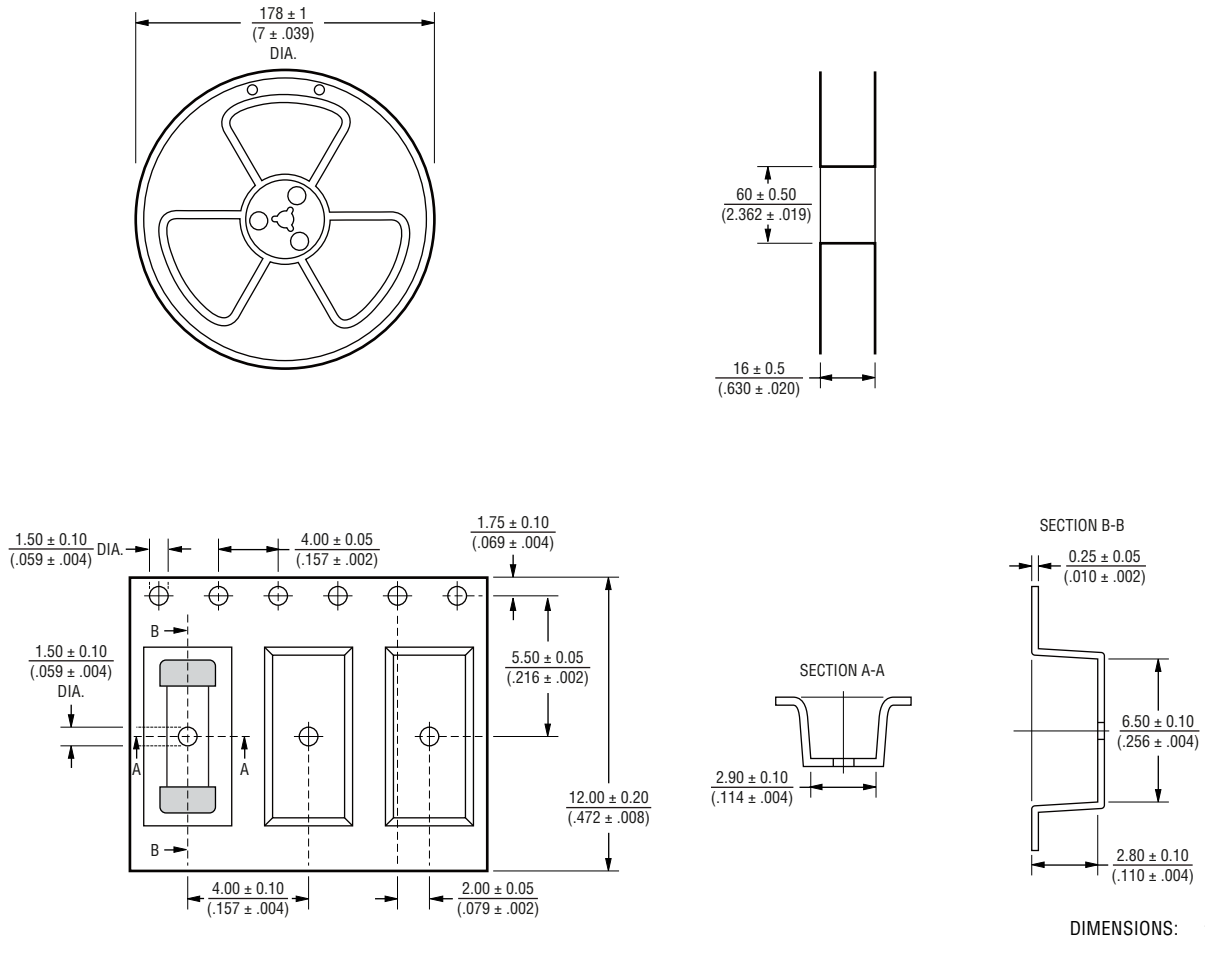
**Pulse Cycle Withstand Capability**



# SF-2410F-T Series – Fast Acting SMD Fuses

**BOURNS®**

## Packaging Specifications



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REV. 03/19

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