



## SinglFuse™ SF-2410FP-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 compliant
- Surface mount packaging for automated assembly
- RoHS compliant\* and halogen free\*\*

## SF-2410FP-T Series – Fast Acting Precision SMD Fuses

### Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time at 25 °C |           |
|---------------------|------------------------|-----------|
|                     | Min.                   | Max.      |
| 100 %               | 4 hours                | —         |
| 200 %               | —                      | 5 seconds |

### Additional Information

Click these links for more information:



### Electrical Characteristics

| Model            | Rated Current (A) | Resistance (Ω) Typ.*** | Rated Voltage | Interrupting Rating                                | Typical I <sup>2</sup> t (A <sup>2</sup> s) **** | Certifications               |
|------------------|-------------------|------------------------|---------------|--|--|------------------------------|
|                  |                   |                        |               |  |  | cUL: <a href="#">E198545</a> |
| SF-2410FP0062T-2 | 0.062             | 6.653                  | 125 VDC       | 50 A @ 125 VAC<br>50 A @ 125 VDC<br>300 A @ 32 VDC | 0.0012   | ✓                            |
| SF-2410FP008T-2  | 0.080             | 4.974                  |               |  | 0.0017   | ✓                            |
| SF-2410FP010T-2  | 0.100             | 3.014                  |               |  | 0.0043   | ✓                            |
| SF-2410FP0125T-2 | 0.125             | 2.044                  |               |  | 0.0094   | ✓                            |
| SF-2410FP016T-2  | 0.160             | 0.8655                 |               |  | 0.0116   | ✓                            |
| SF-2410FP020T-2  | 0.200             | 1.8535                 |               |  | 0.0517   | ✓                            |
| SF-2410FP025T-2  | 0.250             | 1.119                  |               |  | 0.0528   | ✓                            |
| SF-2410FP0315T-2 | 0.315             | 0.843                  |               |  | 0.1365   | ✓                            |
| SF-2410FP0375T-2 | 0.375             | 0.732                  |               |  | 0.1502   | ✓                            |
| SF-2410FP040T-2  | 0.400             | 0.4995                 |               |  | 0.2149   | ✓                            |
| SF-2410FP050T-2  | 0.500             | 0.476                  |               |  | 0.358  | ✓                            |
| SF-2410FP075T-2  | 0.750             | 0.2065                 |               |  | 0.3761   | ✓                            |
| SF-2410FP100T-2  | 1.00              | 0.158                  |               |  | 0.4143   | ✓                            |
| SF-2410FP150T-2  | 1.50              | 0.114                  |               |  | 1.0606   | ✓                            |
| SF-2410FP200T-2  | 2.00              | 0.0605                 |               |  | 1.08   | ✓                            |
| SF-2410FP250T-2  | 2.50              | 0.044                  |               |  | 1.1471   | ✓                            |
| SF-2410FP300T-2  | 3.00              | 0.036                  |               |  | 1.548  | ✓                            |
| SF-2410FP315T-2  | 3.15              | 0.033                  |               |  | 2.6485   | ✓                            |
| SF-2410FP350T-2  | 3.50              | 0.029                  |               |  | 2.695  | ✓                            |
| SF-2410FP400T-2  | 4.00              | 0.021                  |               |  | 3.9744   | ✓                            |
| SF-2410FP500T-2  | 5.00              | 0.013                  | 6.175         | ✓  |  |                              |
| SF-2410FP700T-2  | 7.00              | 0.01                   | 9.016         | ✓  |  |                              |
| SF-2410FP800T-2  | 8.00              | 0.0085                 | 16.758        | ✓  |  |                              |
| SF-2410FP1000T-2 | 10.00             | 0.006                  | 24.42         | ✓  |  |                              |

\*\*\* 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.

\*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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**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# SinglFuse™ SF-2410FP-T Series Applications

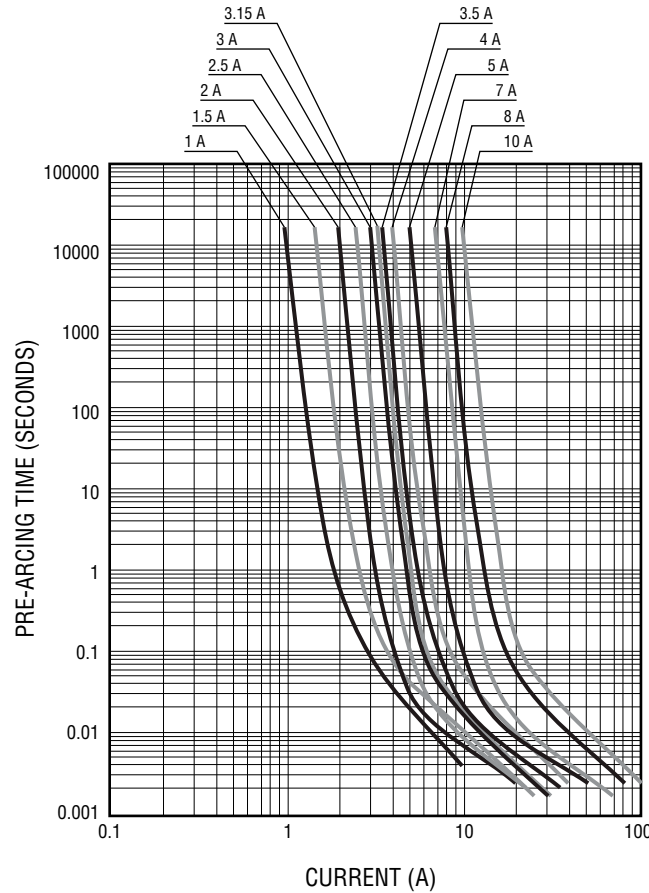
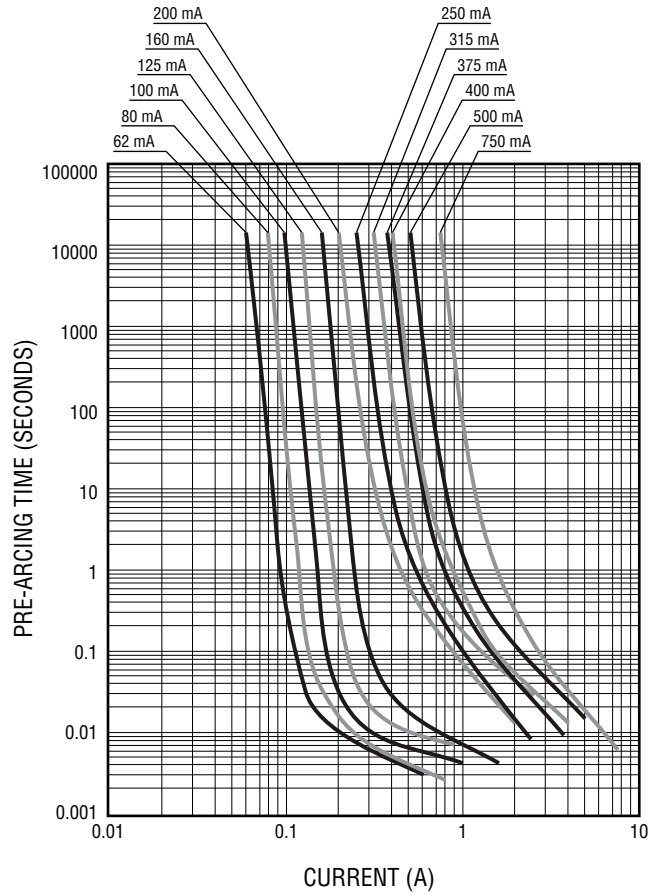
- Notebooks
- LCD Monitors
- LCD Backlight Inverters
- POE, POE+
- PC Servers
- Power Supplies
- Game Consoles
- White Goods

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

### Environmental Characteristics

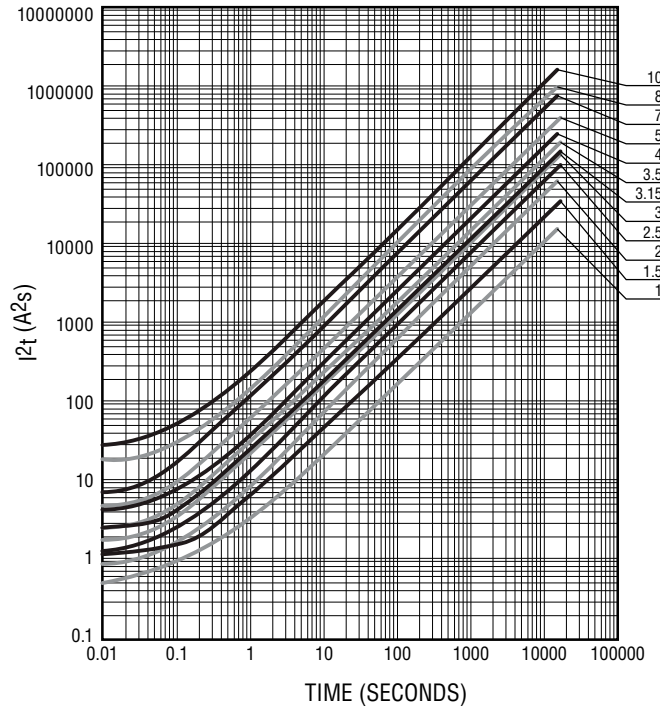
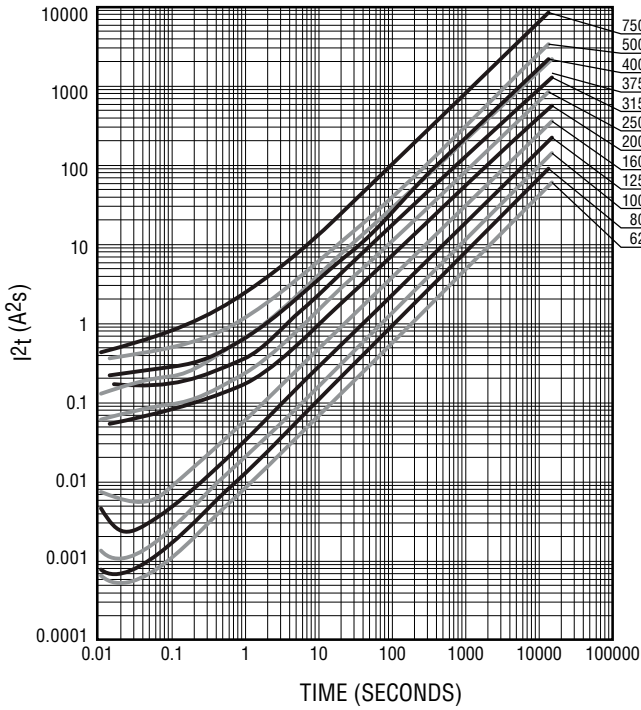
Operating Temperature.....-55 °C to +125 °C  
 Storage Conditions  
     Temperature .....+15 °C to +30 °C  
     Humidity.....20 % to 70 %  
     Shelf Life.....2 years from manufacturing date  
 Moisture Sensitivity Level.....1  
 ESD Classification (HBM).....Class 6

### Average Pre-Arcing Time vs. Current Curves



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Average  $I^2t$  vs. t Curves



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# SF-2410FP-T Series – Fast Acting Precision SMD Fuses



## How to Order

**SF - 2410 FP 0062 T - 2**

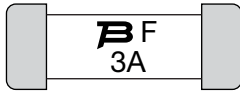
SinglFuse™  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 2410 = EIA 2410 (6125 metric)  
 Fuse Blow Type \_\_\_\_\_  
 FP = Fast Acting Precision  
 Rated Current \_\_\_\_\_  
 0062 ~ 1000 (62 mA ~ 10 A)  
 Structure Type \_\_\_\_\_  
 T = Ceramic Tube  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel

## Packaging

|                |                      |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification  | EIA 481-2            |
| Quantity       | 1,000 pieces         |
| Packaging Code | -2                   |

## Typical Part Marking

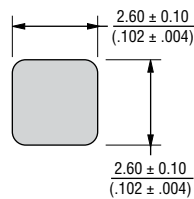
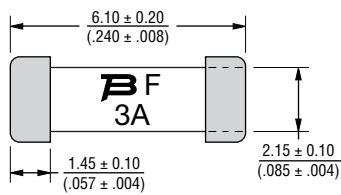
Represents total content. Layout may vary.



| Rated Current | Part Marking |
|---------------|--------------|
| 62 mA         | 62 mA        |
| 80 mA         | 80 mA        |
| 100 mA        | 100 mA       |
| 125 mA        | 125 mA       |
| 160 mA        | 160 mA       |
| 200 mA        | 200 mA       |
| 250 mA        | 250 mA       |
| 315 mA        | 315 mA       |
| 375 mA        | 375 mA       |
| 400 mA        | 400 mA       |
| 500 mA        | 500 mA       |
| 750 mA        | 750 mA       |

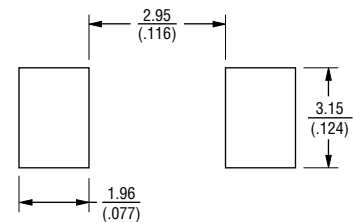
| Rated Current | Part Marking |
|---------------|--------------|
| 1 A           | 1 A          |
| 1.5 A         | 1.5 A        |
| 2 A           | 2 A          |
| 2.5 A         | 2.5 A        |
| 3 A           | 3 A          |
| 3.15 A        | 3.15 A       |
| 3.5 A         | 3.5 A        |
| 4 A           | 4 A          |
| 5 A           | 5 A          |
| 7 A           | 7 A          |
| 8 A           | 8 A          |
| 10 A          | 10 A         |

## Product Dimensions



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

## Recommended Pad Layout



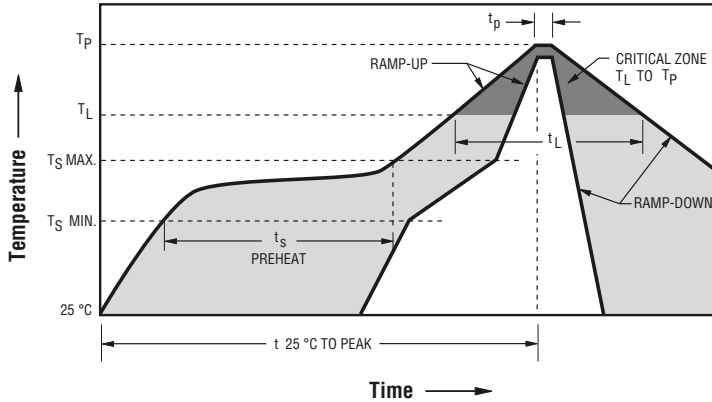
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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## Solder Reflow Recommendations

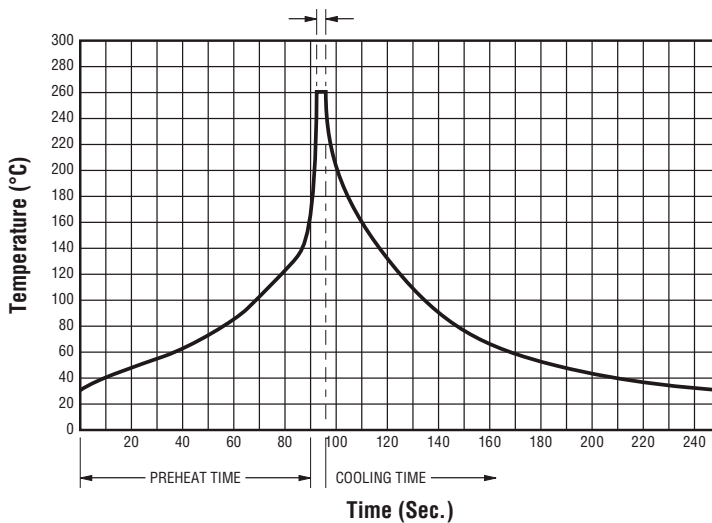


| Profile Feature   | Pb-Free Assembly                   |
|---|------------------------------------|
| Preheat / Soak:<br>Temperature Min. ( $T_{smin}$ )<br>Temperature Max. ( $T_{smax}$ )<br>Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ ) | 150 °C<br>200 °C<br>60~180 seconds |
| Ramp Up Rate ( $T_L$ to $T_p$ )   | 3 °C / second max.                 |
| Ramp Up Rate ( $T_{smax}$ to $T_L$ )  | 5 °C / second max.                 |
| Liquidous Temperature ( $T_L$ )<br>Time ( $t_L$ ) maintained above $T_L$  | 217 °C<br>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:<br>Temperature Max. ( $T_{smax}$ )<br>Time (Min. to Max.) | 150 °C<br>60~90 seconds |
| Solder Pot Temperature   | 260 °C max.             |
| Solder Dwell Time  | 2~3 seconds             |

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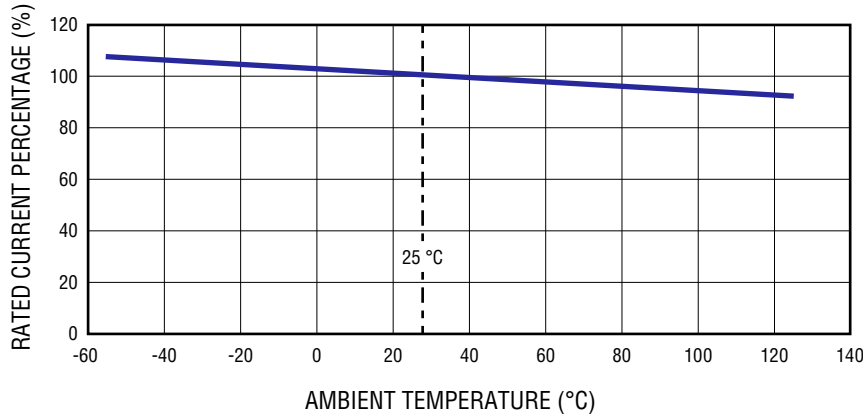
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# SF-2410FP-T Series – Fast Acting Precision SMD Fuses

**BOURNS®**

## Current Rating Thermal Derating Curve



## Reliability Testing

| No. | Test                         | Test Condition   | Requirement  | Test Reference                                  |
|-----|------------------------------|--|--|---|
| 1   | Solderability                | Temperature setup: 235 ±5 °C<br>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<br>Time setup: 30 ± 5 sec.  | DCR change ≤ ±15 %   | IEC 60068-2-58                                  |
| 3   | Thermal shock                | Temperature setup:<br>25 °C ~ -65 °C ~ 25 °C ~ 125 °C<br>Time setup: -65 °C (30 min)<br>~ 25 °C (5 min) ~ 125 °C (30 min)<br>~ 25 °C (5 min), 5 cycles | DCR change ≤ ±15 %<br>No mechanical damage                           | MIL-STD-202G<br>Method 107G<br>Test Condition B |
| 4   | Humidity unload              | Heat (85 ±0.5 °C)<br>High Humidity (85 ±1 % RH)<br>240 hours   | DCR change ≤ ±15 %<br>No mechanical damage                           | MIL-STD-202G<br>Method 103B<br>Test Condition A |
| 5   | Salt spray                   | Salt spray concentration: 5 ±1 %<br>Test liquid temperature: 35 ±0.5 °C<br>96 hours  | DCR change ≤ ±15 %<br>No mechanical damage                           | MIL-STD-202G<br>Method 101E<br>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<br>Time setup: 1 Minute/cycle<br>(X-Y-Z, 120 cycles, 6 hours)   | DCR change ≤ ±15 %<br>No mechanical damage                           | MIL-STD-202G<br>Method 201A                     |

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