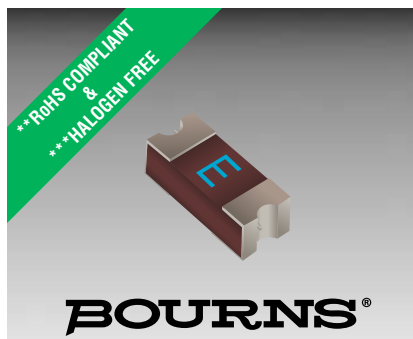




# THE DATASHEET OF SF-2410FPA200W-2





## Features

- Fast acting precision fusing speed
- EIA 2410 (6125 metric) footprint
- AEC-Q200 compliant\*
- UL 248-14 listed
- RoHS compliant\*\* and halogen free\*\*\*

## SF-2410FPA-W Series - Automotive Grade Fast Acting Precision Fuses

### Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time @ 25 °C |           |
|---------------------|-----------------------|-----------|
|                     | Min.                  | Max.      |
| 100 %               | 4 hours               | —         |
| 200 %               | 0.01 second           | 5 seconds |

### Additional Information

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### 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-2410FPA100W-2  | 1                 | 0.093                     | 250 VDC       | 100 A @ 250 VDC<br>300 A @ 32 VDC | 0.59                                              | ✓                            |
| SF-2410FPA125W-2  | 1.25              | 0.07                      |               |                                   | 0.96                                              | ✓                            |
| SF-2410FPA150W-2  | 1.5               | 0.06                      |               |                                   | 1.19                                              | ✓                            |
| SF-2410FPA200W-2  | 2                 | 0.042                     |               |                                   | 2.75                                              | ✓                            |
| SF-2410FPA250W-2  | 2.5               | 0.031                     | 125 VDC       | 50 A @ 125 VDC<br>300 A @ 32 VDC  | 1.21                                              | ✓                            |
| SF-2410FPA300W-2  | 3                 | 0.0249                    |               |                                   | 1.73                                              | ✓                            |
| SF-2410FPA315W-2  | 3.15              | 0.023                     |               |                                   | 2.2                                               | ✓                            |
| SF-2410FPA350W-2  | 3.5               | 0.021                     |               |                                   | 2.5                                               | ✓                            |
| SF-2410FPA400W-2  | 4                 | 0.0175                    |               |                                   | 3.3                                               | ✓                            |
| SF-2410FPA500W-2  | 5                 | 0.0146                    |               |                                   | 5.9                                               | ✓                            |
| SF-2410FPA630W-2  | 6.3               | 0.01                      |               |                                   | 12.5                                              | ✓                            |
| SF-2410FPA700W-2  | 7                 | 0.0097                    |               |                                   | 14.2                                              | ✓                            |
| SF-2410FPA800W-2  | 8                 | 0.0085                    |               |                                   | 16.5                                              | ✓                            |
| SF-2410FPA1000W-2 | 10                | 0.0068                    |               |                                   | 29.2                                              | ✓                            |

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

\*\*\*\*\* Melting I<sup>2</sup>t calculated at 0.001 second pre-arcing time.



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

\* Meets Bourns' internal AEC-Q200 equivalent test plan.

\*\* 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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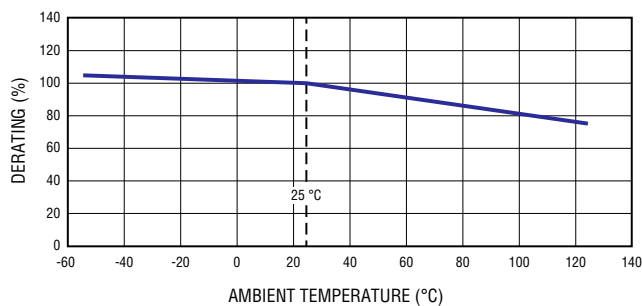
# SF-2410FPA-W Series – Automotive Grade Fast Acting Precision SMD Fuses **BOURNS®**

## Environmental Characteristics

|                                 |                    |
|---------------------------------|--------------------|
| Operating Temperature           | -55 °C to + 125 °C |
| Storage Conditions              |                    |
| Temperature                     | +5 °C to +35 °C    |
| Humidity                        | 40 % to 75 %       |
| Moisture Sensitivity Level      | 1                  |
| ESD Classification <sup>1</sup> | Class 6            |

<sup>1</sup>per AEC-Q200-2, HBM

## Current Rating Thermal Derating Curve



## Typical Part Marking

Represents total content. Layout may vary.  
Markings in blue color.



| Rated Current | Part Marking | Rated Current | Part Marking |
|---------------|--------------|---------------|--------------|
| 1 A           | E            | 3.5 A         | L            |
| 1.25 A        | F            | 4 A           | M            |
| 1.5 A         | G            | 5 A           | N            |
| 2 A           | I            | 6.3 A         | O            |
| 2.5 A         | J            | 7 A           | P            |
| 3 A           | K            | 8 A           | R            |
| 3.15 A        | V            | 10 A          | Q            |

## How to Order

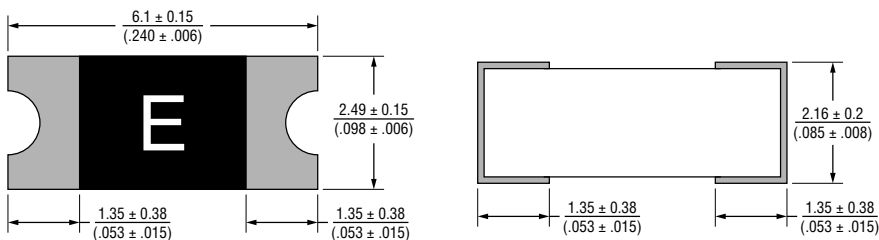
### SF - 2410 FP A 100 W - 2

SinglFuse™ \_\_\_\_\_  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 2410 = EIA 2410  
 (6125 metric) \_\_\_\_\_  
 Fuse Blow Type \_\_\_\_\_  
 FP = Fast Acting Precision \_\_\_\_\_  
 Automotive Grade \_\_\_\_\_  
 Rated Current \_\_\_\_\_  
 100 ~ 1000 = 1 A ~ 10 A \_\_\_\_\_  
 Structure Type \_\_\_\_\_  
 W = Wire Core \_\_\_\_\_  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel

## Packaging

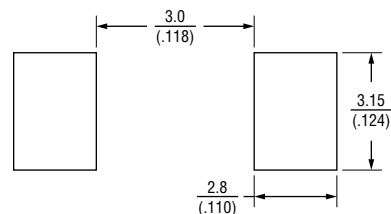
|                |                      |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification  | EIA 481-2            |
| Quantity       | 2,000 pieces         |
| Packaging Code | -2                   |

## Product Dimensions



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

## Recommended Pad Layout



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

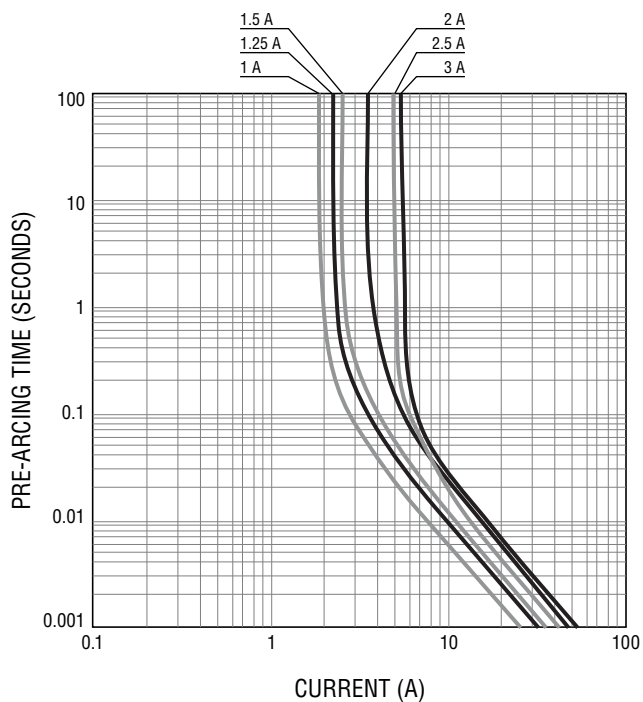
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

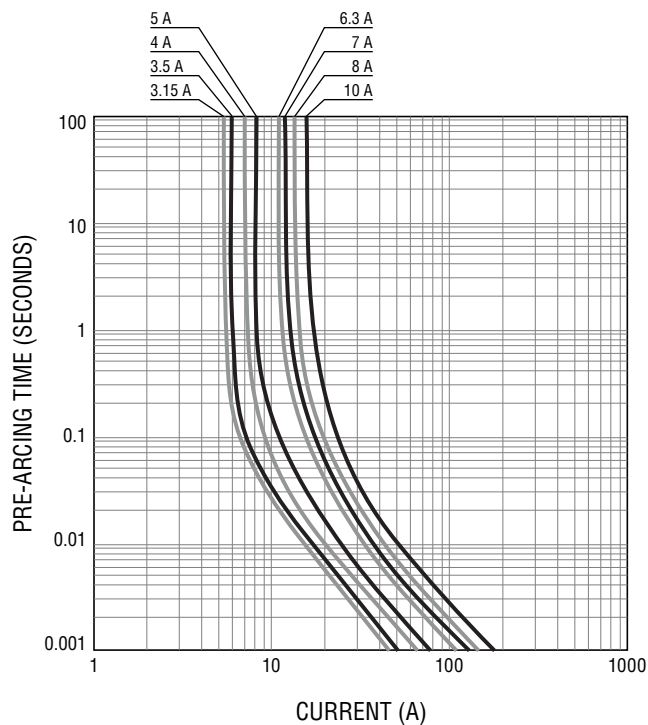
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# SF-2410FPA-W Series – Automotive Grade Fast Acting Precision SMD Fuses **BOURNS®**

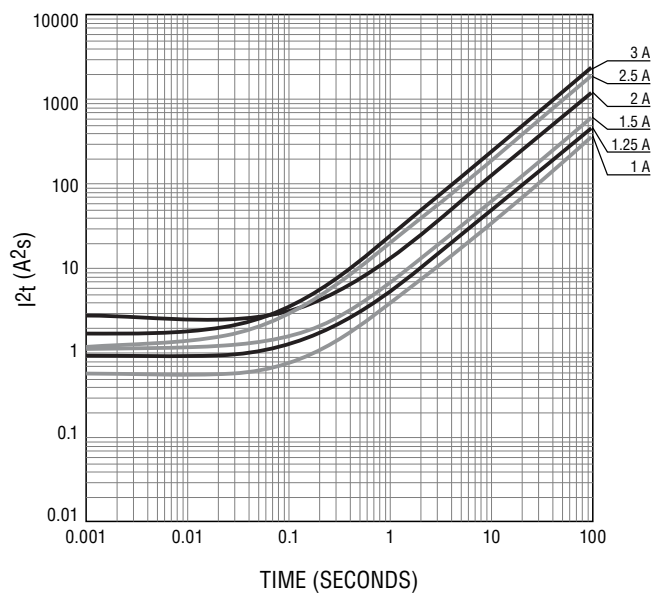
**Average Pre-Arcing Time vs. Current Curves (1 - 3 A)**



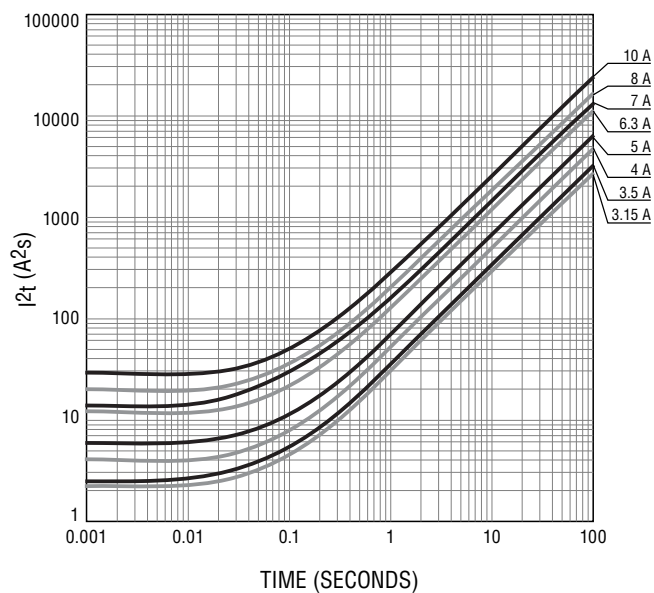
**Average Pre-Arcing Time vs. Current Curves (3.15 - 10 A)**



**Average  $I^2t$  vs.  $t$  Curves (1 - 3 A)**



**Average  $I^2t$  vs.  $t$  Curves (3.15 - 10 A)**



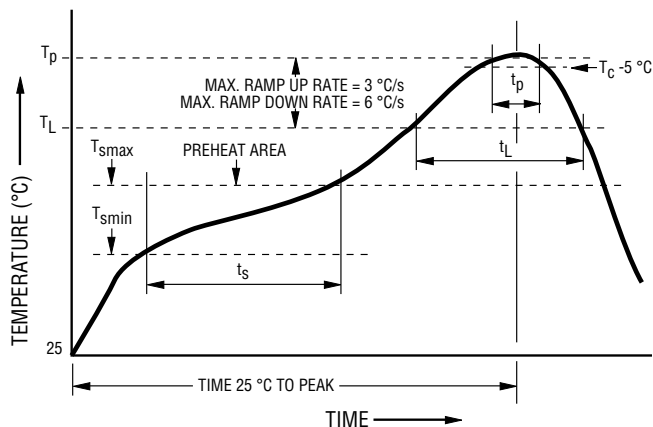
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## SF-2410FPA-W Series – Automotive Grade Fast Acting Precision SMD Fuses **BOURNS®**

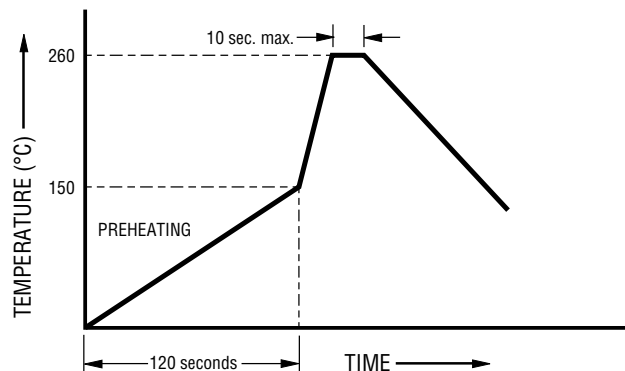
### Solder Reflow Recommendations



| 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>60~120 seconds |
| Ramp Up Rate ( $T_L$ to $T_p$ )                                                                                                           | 3 °C / second max.                 |
| Liquidous Temperature ( $T_L$ )<br>Time ( $t_L$ ) maintained above $T_L$                                                                  | 217 °C<br>60~150 seconds           |
| Peak Package Body Temperature ( $T_p$ )                                                                                                   | 260 °C                             |
| Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_C$ )                                                         | 30 seconds*                        |
| Ramp Down Rate ( $T_p$ to $T_L$ )                                                                                                         | 6 °C / second max.                 |
| Time 25 °C to Peak Temperature                                                                                                            | 8 minutes max.                     |

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

### Solder Wave Recommendations



### Reliability Tests

| Test Items                      | Reference Standard         |
|---------------------------------|----------------------------|
| Visual Inspection               | MIL-STD-883<br>Method 2009 |
| High Temperature Storage        | MIL-STD-202<br>Method 108  |
| Low Temperature Storage         | IEC 60068-2-1              |
| Temperature Cycling             | JESD22<br>Method JA-104    |
| Biased Humidity                 | MIL-STD-202<br>Method 103  |
| High Temperature Operating Life | MIL-STD-202<br>Method 108  |
| Physical Dimension              | JESD22<br>Method JB-100    |
| Mechanical Vibration            | MIL-STD-202<br>Method 204  |
| Mechanical Shock                | MIL-STD-202<br>Method 213  |
| Resistance to Soldering Heat    | MIL-STD-202<br>Method 210  |
| Salt Spray                      | MIL-STD-202<br>Method 101  |
| Solderability                   | MIL-STD-202<br>Method 208  |
| Terminal Strength               | AEC-Q200-006               |
| Board Flex                      | AEC-Q200-005               |
| Electrical Characterization     | Bourns Specification       |

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