

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

|                      |                                             |
|----------------------|---------------------------------------------|
| <b>Part Number:</b>  | SF-2410HI200T-2                             |
| <b>Manufacturer:</b> | Bourns Inc.                                 |
| <b>Package:</b>      | Tape & Reel (TR), Cut Tape (CT), Digi-Reel® |
| <b>Availability:</b> | Please confirm with sales                   |

**Product Page:**

<https://antrexco.com/product/details/bourns-inc/sf-2410hi200t-2.html>

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New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

**Note:**

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



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

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

## SF-2410HI-T Series – High Inrush SMD Fuses

### Clearing Time Characteristics for Series

| % of Current Rating | Clearing Time at 25 °C |             |
|---------------------|------------------------|-------------|
|                     | Min.                   | Max.        |
| 100 %               | 4 hours                | —           |
| 200 %               | 1 second               | 60 seconds  |
| 300 %               | 0.2 seconds            | 3 seconds   |
| 800 %               | 0.02 seconds           | 0.1 seconds |

### Additional Information

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### Electrical Characteristics

| Model            | Rated Current<br>(A) | Resistance<br>(Ω) Typ.*** | Rated<br>Voltage | Interrupting<br>Rating                             | Typical<br>I <sup>2</sup> t (A <sup>2</sup> s) **** | Certifications               |
|------------------|----------------------|---------------------------|------------------|----------------------------------------------------|-----------------------------------------------------|------------------------------|
|                  |                      |                           |                  |                                                    |                                                     | cUL: <a href="#">E198545</a> |
| SF-2410HI0375T-2 | 0.375                | 0.6208                    | 125 VAC          | 50 A @ 125 VAC<br>50 A @ 125 VDC<br>300 A @ 32 VDC | 0.4147                                              | ✓                            |
| SF-2410HI050T-2  | 0.50                 | 0.3462                    |                  |                                                    | 0.495                                               | ✓                            |
| SF-2410HI075T-2  | 0.75                 | 0.1666                    |                  |                                                    | 1.2632                                              | ✓                            |
| SF-2410HI100T-2  | 1.00                 | 0.1079                    |                  |                                                    | 1.9933                                              | ✓                            |
| SF-2410HI150T-2  | 1.50                 | 0.057                     |                  |                                                    | 2.82                                                | ✓                            |
| SF-2410HI200T-2  | 2.00                 | 0.0509                    |                  |                                                    | 7.488                                               | ✓                            |
| SF-2410HI250T-2  | 2.50                 | 0.0317                    |                  |                                                    | 16.771                                              | ✓                            |
| SF-2410HI300T-2  | 3.00                 | 0.0228                    |                  |                                                    | 24.99                                               | ✓                            |
| SF-2410HI350T-2  | 3.50                 | 0.0196                    |                  |                                                    | 24.908                                              | ✓                            |
| SF-2410HI400T-2  | 4.00                 | 0.015                     |                  |                                                    | 27.056                                              | ✓                            |
| SF-2410HI500T-2  | 5.00                 | 0.0112                    |                  |                                                    | 50.308                                              | ✓                            |
| SF-2410HI700T-2  | 7.00                 | 0.0083                    |                  |                                                    | 100.06                                              | ✓                            |

\*\*\* 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.



### 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.

"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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## SinglFuse™ SF-2410HI-T Series Applications

- Notebooks
- LCD Monitors
- LCD Backlight Inverters
- POE, POE+
- PC Servers
- Power Supplies
- Battery Protection
- White Goods

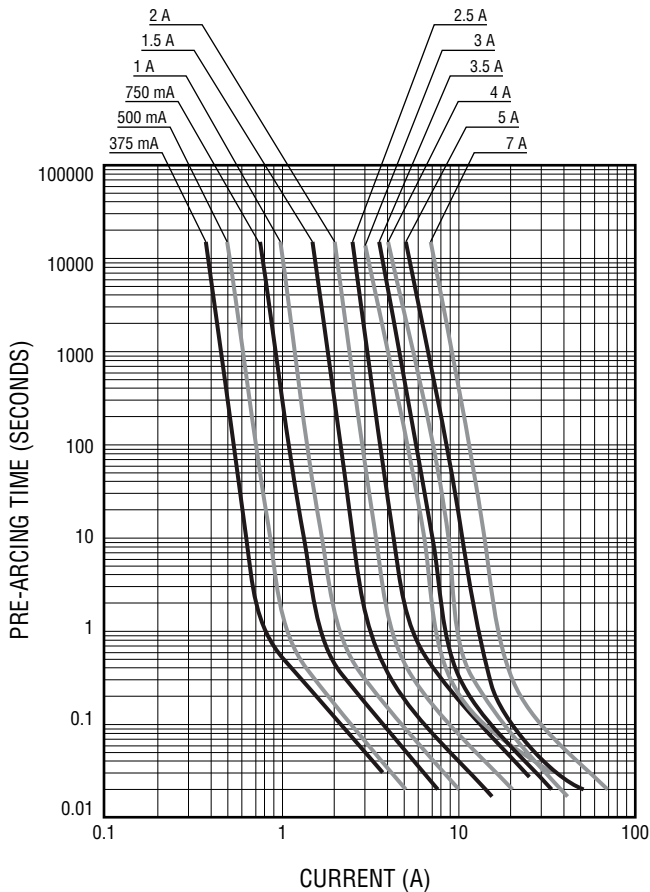
## SF-2410HI-T Series – High Inrush SMD Fuses

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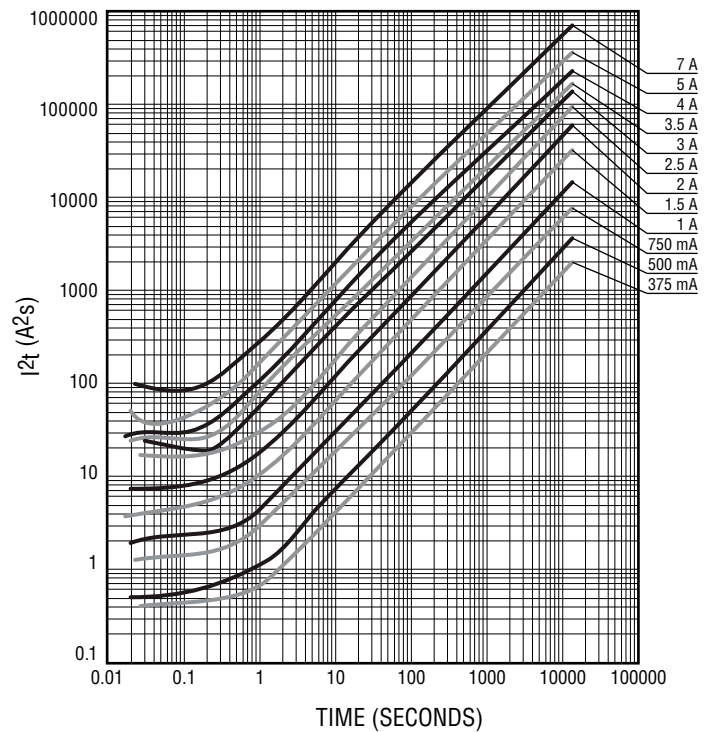
### Environmental Characteristics

|                                  |                                 |
|----------------------------------|---------------------------------|
| 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



### Average $I^2t$ vs. $t$ Curves



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# SF-2410HI-T Series – High Inrush SMD Fuses

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## Typical Part Marking

Represents total content. Layout may vary.



| Rated Current | Part Marking |
|---------------|--------------|
| 375 mA        | 375 mA       |
| 500 mA        | 500 mA       |
| 750 mA        | 750 mA       |
| 1 A           | 1 A          |
| 1.5 A         | 1.5 A        |
| 2 A           | 2 A          |
| 2.5 A         | 2.5 A        |
| 3 A           | 3 A          |
| 3.5 A         | 3.5 A        |
| 4 A           | 4 A          |
| 5 A           | 5 A          |
| 7 A           | 7 A          |

## How to Order

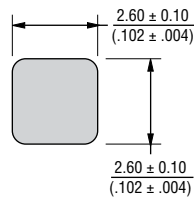
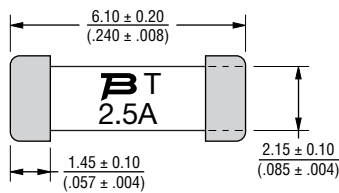
**SF - 2410 HI 0375 T - 2**

SinglFuse™ \_\_\_\_\_  
 Product Designator \_\_\_\_\_  
 SMD Footprint \_\_\_\_\_  
 2410 = EIA 2410  
 (6125 metric) \_\_\_\_\_  
 Fuse Blow Type \_\_\_\_\_  
 HI = High inrush \_\_\_\_\_  
 Rated Current \_\_\_\_\_  
 0375 ~ 700 (375 mA ~ 7 A) \_\_\_\_\_  
 Structure Type \_\_\_\_\_  
 T = Ceramic Tube \_\_\_\_\_  
 Packaging Type \_\_\_\_\_  
 - 2 = Tape & Reel

## Packaging

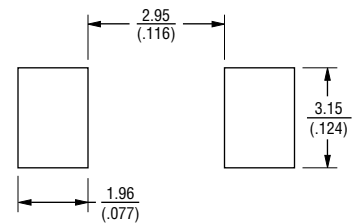
|                |                      |
|----------------|----------------------|
| Reel Dimension | 7-inch Tape and Reel |
| Specification  | EIA 481-2            |
| Quantity       | 1,000 pieces         |
| Packaging Code | -2                   |

## Product Dimensions



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

## Recommended Pad Layout



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

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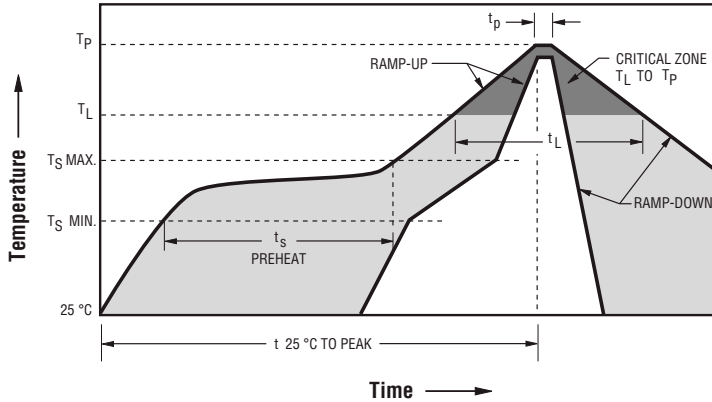
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## SF-2410HI-T Series – High Inrush SMD Fuses

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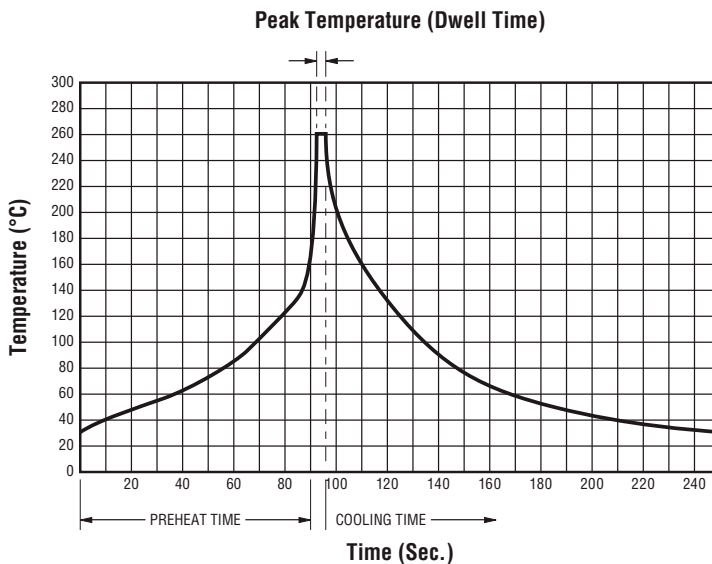
### Solder Reflow Recommendations



| 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>60~150 seconds                                                                  |
| Peak Package Body Temperature ( $T_P$ )                                                                                                   | 235 °C $\pm$ 5 °C<br>(for <1 A rating)<br>260 °C $\pm$ 0/-5 °C<br>(for $\geq$ 1 A rating) |
| 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.                                                                            |

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

### Solder Wave Recommendations



| 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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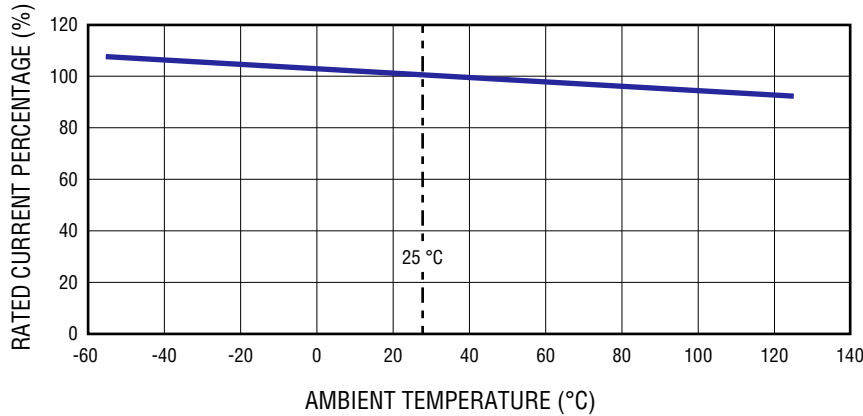
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## SF-2410HI-T Series – High Inrush SMD Fuses

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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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