



## 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 listed
- Surface mount packaging for automated assembly
- RoHS compliant\* and halogen free\*\*

## SF-2410FP-T Series – Fast Acting Precision 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-2410FP0062T-2	0.062	Open within 5 sec. at 200 % rated current	6.653	125 VAC	50 A @ 125 VAC 50 A @ 125 VDC 300 A @ 32 VDC	0.0012	✓
SF-2410FP008T-2	0.08		4.974			0.0017	✓
SF-2410FP010T-2	0.1		3.014			0.0043	✓
SF-2410FP0125T-2	0.125		2.044			0.0094	✓
SF-2410FP016T-2	0.16		0.8655			0.0116	✓
SF-2410FP020T-2	0.2		1.8535			0.0517	✓
SF-2410FP025T-2	0.25		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	0.4		0.4995			0.2149	✓
SF-2410FP050T-2	0.5		0.476			0.358	✓
SF-2410FP075T-2	0.75		0.2065			0.3761	✓
SF-2410FP100T-2	1		0.158			0.4143	✓
SF-2410FP150T-2	1.5		0.114			1.0606	✓
SF-2410FP200T-2	2		0.0605			1.08	✓
SF-2410FP250T-2	2.5		0.044			1.1471	✓
SF-2410FP300T-2	3		0.036			1.548	✓
SF-2410FP315T-2	3.15		0.033			2.6485	✓
SF-2410FP350T-2	3.5		0.029			2.695	✓
SF-2410FP400T-2	4		0.021			3.9744	✓
SF-2410FP500T-2	5	0.013	6.175	✓			
SF-2410FP700T-2	7	0.01	9.016	✓			
SF-2410FP800T-2	8	0.0085	16.758	✓			
SF-2410FP1000T-2	10	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.



### 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-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

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### 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

### 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

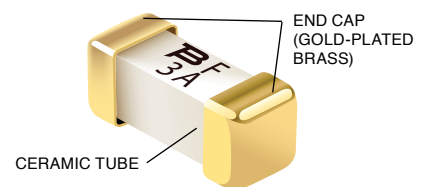
### Agency Recognition

UL File Number ..... E198545

### Packaging Quantity

1,000 pieces per 7-inch reel

### Construction



### 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

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



## Typical Part Marking

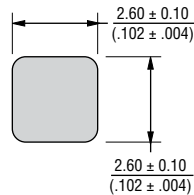
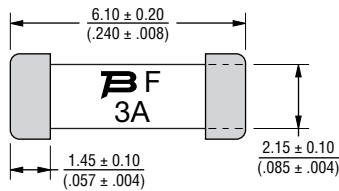
Represents total content. Layout may vary.



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

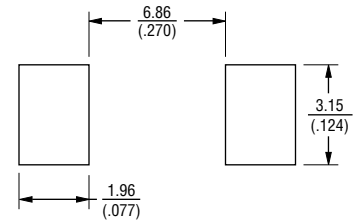
Rated Current	Part Marking
1 A	1 A
1.5 A	1.5 A
2 A	2 A
2.5 A	2.5 A
3 A	3 A
3.15 A	3.15 A
3.5 A	3.5 A
4 A	4 A
5 A	5 A
7 A	7 A
8 A	8 A
10 A	10 A

## Product Dimensions



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

## Recommended Pad Layout



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

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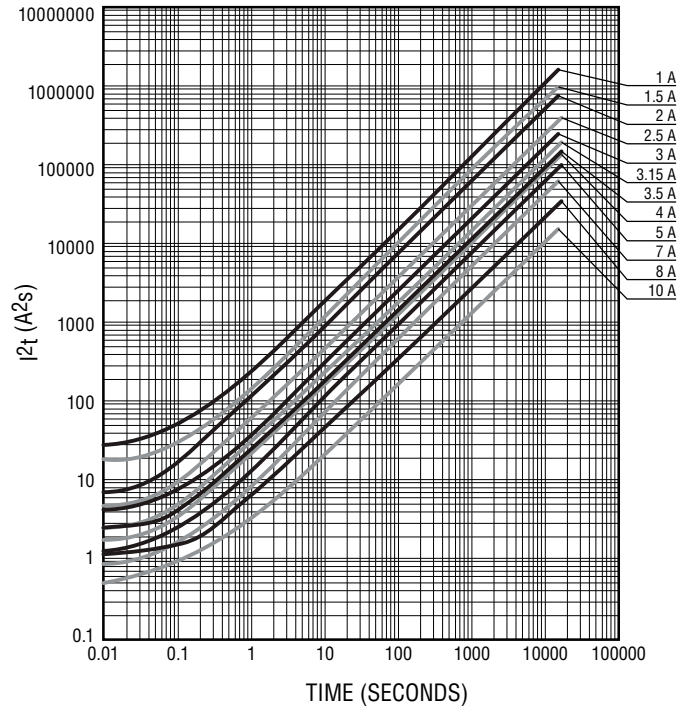
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Average Pre-Arcing Time vs. Current Curves



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



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## Solder Reflow Recommendations

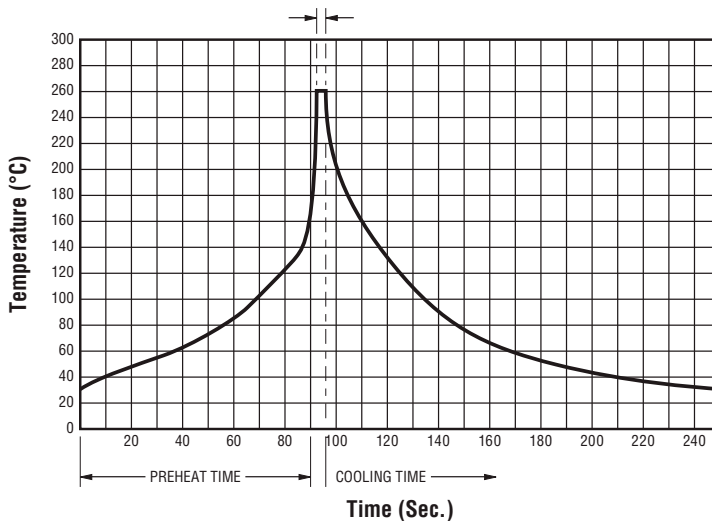


Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. ( $T_{smin}$ ) Temperature Max. ( $T_{smax}$ ) Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	150 °C 200 °C 60~180 seconds
Ramp Up Rate ( $T_L$ to $T_p$ )	3 °C / second max.
Ramp Up Rate ( $T_{smax}$ to $T_L$ )	5 °C / second max.
Liquidous 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.

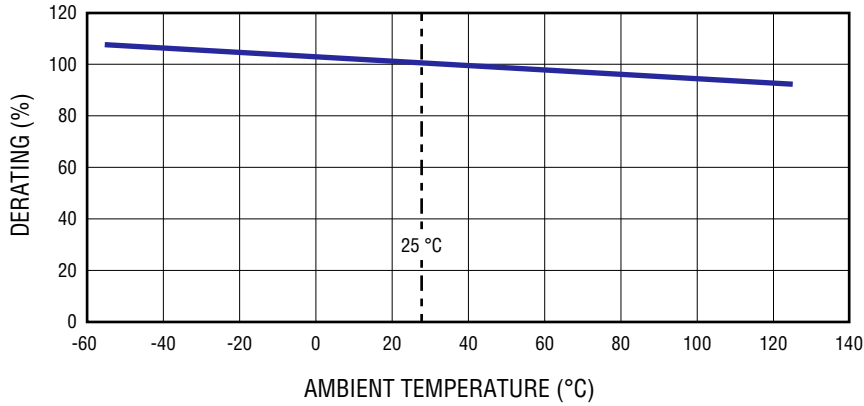
## Solder Wave Recommendations

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

**Current Rating Thermal Derating Curve**



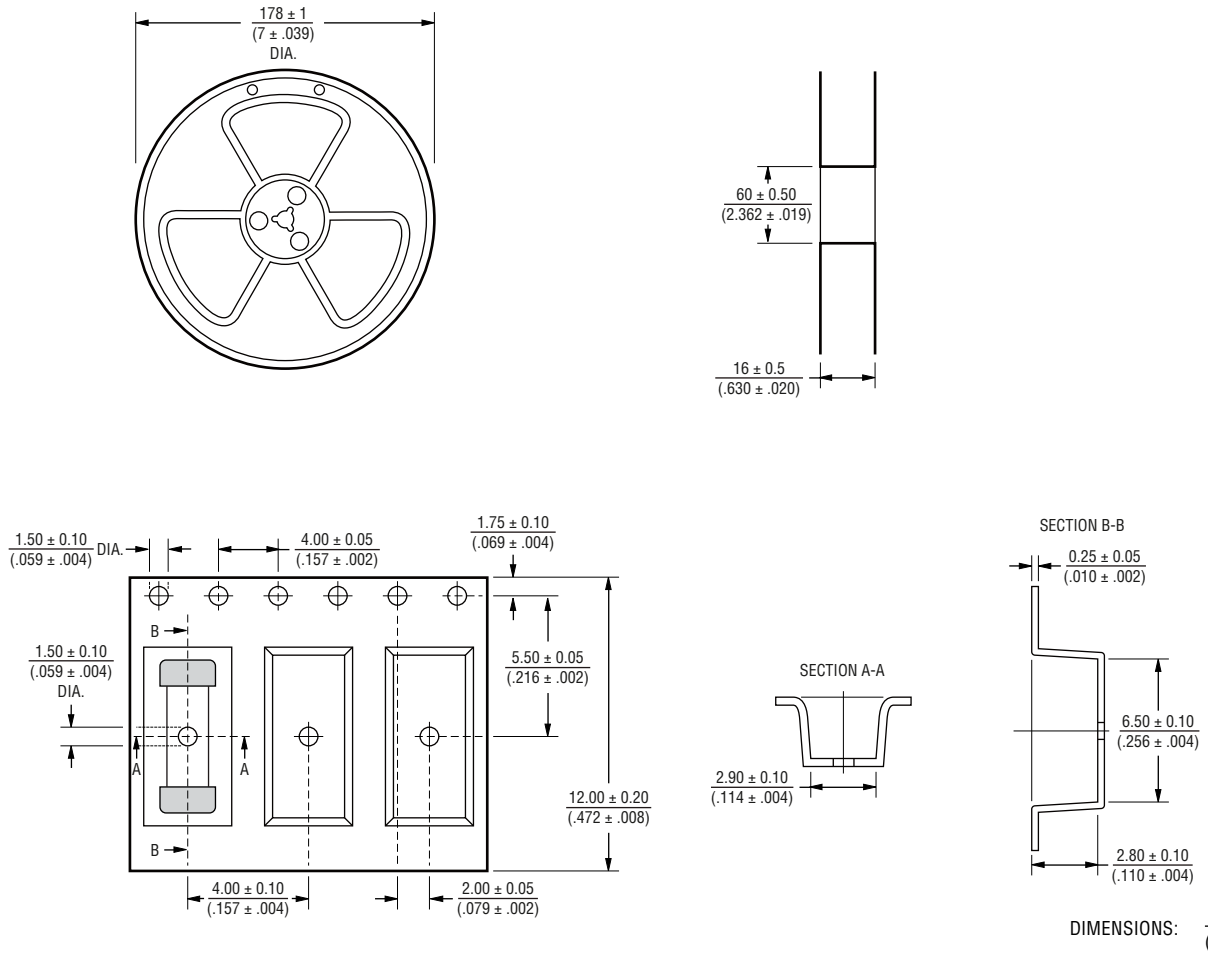
**Pulse Cycle Withstand Capability**



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

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## Packaging Specifications



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

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REV. 03/19

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