

# 443E Series Fuse

## NANO<sup>2</sup>® > 250V > Slo-Blo® Fuse



### Additional Information



Resources



Accessories



Samples

### Agency Approvals

| Agency | Agency File Number | Ampere Range |
|--------|--------------------|--------------|
|        | E242325            | 1.25A        |
|        | 40046623           | 1.25A        |
|        | CQC17012176681     | 1.25A        |
|        | E10480             | 1.25A        |
|        | -                  | 1.25A        |

### Description

The 443E Series is a Nano<sup>2</sup>®, 250 V fuse. It is a surface mount Universal Modular Fuse (UMF) that complies with IEC 60127-4. It is RoHS-compliant and fully compatible with lead-free solder alloy and higher temperature profiles associated with lead-free assembly.

### Features & Benefits

- 250 VAC/VDC voltage rating with 200 A interrupting rating
- Slo-Blo® Fuse
- RoHS-compliant
- Fully compatible with leadfree solder alloys and higher temperature profiles associated with lead-free assembly
- Avoids nuisance opening due to high inrush and surge current inherent in the system
- Suits high voltage applications requiring high interrupting current

### Applications

- AC/DC power adaptor
- Telecom equipment system power
- Portable system built-in AC/DC converter

### Electrical Characteristics

| % of Ampere Rating | Ampere Rating | Opening Time at 25°C |
|--------------------|---------------|----------------------|
| 100%               | 1.25 A        | 4 hours Minimum      |
| 200%               | 1.25 A        | 120 secs Maximum     |

### Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Max. Voltage Rating (V) | Interrupting Rating (AC/DC)     | Nominal Cold Resistance <sup>1</sup> (Ohms) | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> Sec.) <sup>2</sup> | Nominal Voltage Drop (mV) | Nominal Power Dissipation at Rated Current (W) | Agency Approval <sup>3</sup> |   |   |   |   |
|-------------------|----------|-------------------------|---------------------------------|---------------------------------------------|---------------------------------------------------------------------|---------------------------|------------------------------------------------|------------------------------|---|---|---|---|
|                   |          |                         |                                 |                                             |                                                                     |                           |                                                |                              |   |   |   |   |
| 1.25              | 1.25     | 250                     | 200A @ 250VAC/<br>200A @ 250VDC | 0.100                                       | 3.97                                                                | 165                       | 0.456                                          | x                            | x | x | x | x |

**Note:**

1. Nominal Cold Resistance measured at less than 10% of rated current at 23° C.

2. Nominal Melting I<sup>2</sup>t is measured at 10 the Ampere Rating (I<sub>a</sub>)

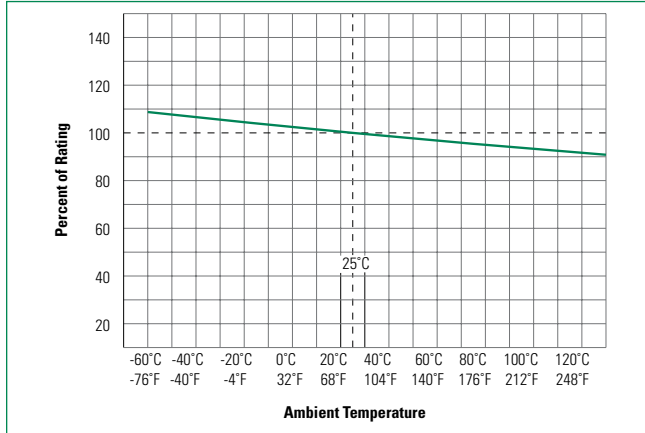
3. Agency Approval Table key: X = Approved or Certified, P = Pending and Blank = Not Approved

4. Have special electrical characteristic needs? Contact Littelfuse to learn more about application specific options

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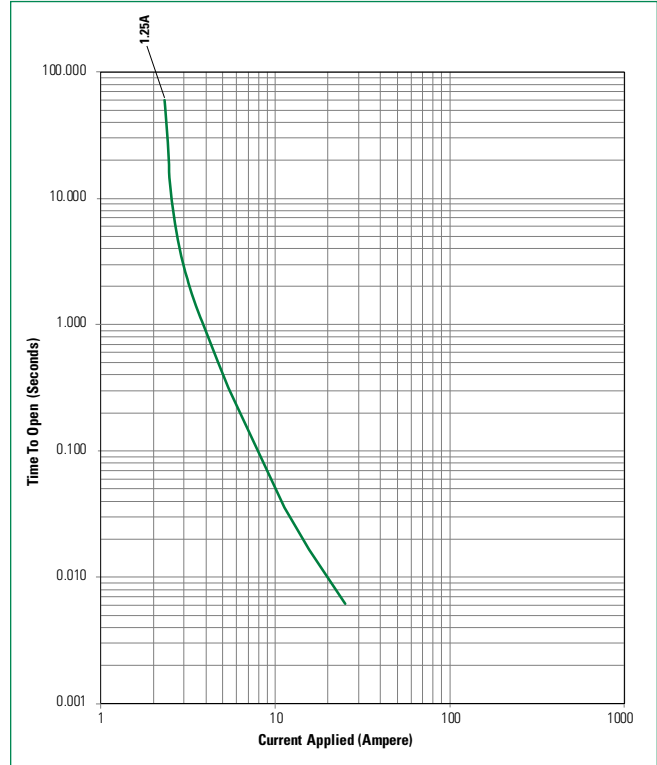
## NANO<sup>2</sup>® > 250V > Slo-Blo® Fuse

### Temperature Re-rating Curve


**Note:**

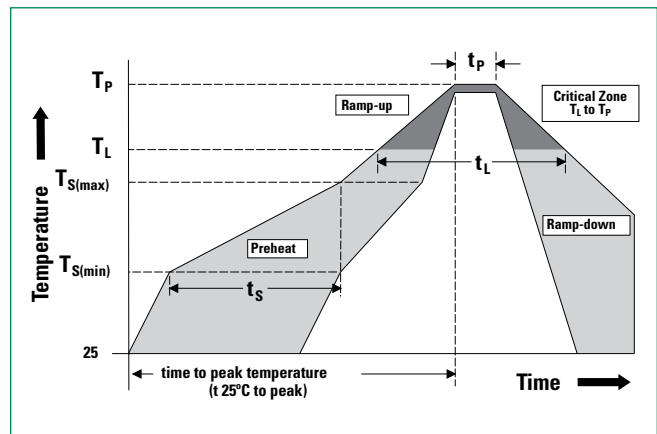
Re-rating depicted in this curve is in addition to the standard re-rating of 25% for continuous operation.

### Average Time Current Curves



### Soldering Parameters

|                                                                        |                                    |                                         |
|------------------------------------------------------------------------|------------------------------------|-----------------------------------------|
| <b>Reflow Condition</b>                                                |                                    | Pb – free assembly                      |
| <b>Pre Heat</b>                                                        | - Temperature Min ( $T_{s(min)}$ ) | 150° C                                  |
|                                                                        | - Temperature Max ( $T_{s(max)}$ ) | 200° C                                  |
|                                                                        | - Time (Min to Max) ( $t_s$ )      | 60 – 180 seconds                        |
| <b>Average Ramp-up Rate (Liquidus Temp (<math>T_L</math>) to peak)</b> |                                    | 5° C/second max.                        |
| <b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>      |                                    | 5° C/second max.                        |
| <b>Reflow</b>                                                          | - Temperature ( $T_L$ ) (Liquidus) | 217° C                                  |
|                                                                        | - Temperature ( $t_L$ )            | 60 – 150 seconds                        |
| <b>Peak Temperature (<math>T_p</math>)</b>                             |                                    | 260 <sup>+0/-5</sup> ° C                |
| <b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>   |                                    | 20 – 40 seconds                         |
| <b>Ramp-down Rate</b>                                                  |                                    | 5° C/second max.                        |
| <b>Time 25°C to peak Temperature (<math>T_p</math>)</b>                |                                    | 8 minutes max.                          |
| <b>Do not exceed</b>                                                   |                                    | 260° C                                  |
| <b>Wave soldering</b>                                                  |                                    | 260° C Peak Temperature, 3 seconds max. |



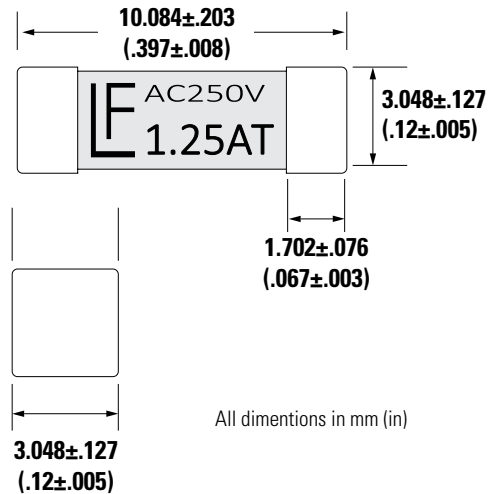
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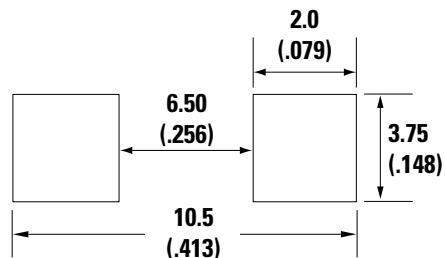
### Product Characteristics

|                                             |                                                                                                                                                                     |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Materials</b>                            | <b>Body:</b> Ceramic<br><b>Cap:</b> Silver Plated Brass                                                                                                             |
| <b>Product Marking</b>                      | Voltage rating, Ampere rating, T-Characteristic, "T" and Brand                                                                                                      |
| <b>Temperature Humidity Bias</b>            | MIL-STD-202, Method 103, (85° C, 85%RH with 10% hold current)                                                                                                       |
| <b>Solderability</b>                        | MIL-STD-202, Method 208 (95% coverage)                                                                                                                              |
| <b>Resistance to Soldering Heat</b>         | MIL-STD-202, Method 210                                                                                                                                             |
| <b>Pulse Test</b>                           | IEC 60127-1; 9.5 (25° C +/-5° C, pulse 100% rated current)                                                                                                          |
| <b>Terminal Strength Test</b>               | MIL-STD-202, Method 211, Test Condition A (5N force to the side for 60sec)                                                                                          |
| <b>Endurance Test</b>                       | IEC 60127-1; 9.4 (25° C +/-5° C, 100% rated current for 1 hour, stop current for 15 mins. 100 cycles. Test for voltage drop to determine maximum power dissipation) |
| <b>Operating Temperature</b>                | -55° C to 125° C                                                                                                                                                    |
| <b>Temperature Cycling</b>                  | JESDD22 - A104 (-40° C to 125° C)                                                                                                                                   |
| <b>High Frequency Vibration</b>             | MIL-STD-202, Method 204 (55Hz – 2Hz, 10G)                                                                                                                           |
| <b>Low Temperature Storage</b>              | MIL-STD-202, Method 108 (-40° C for 1000 hours)                                                                                                                     |
| <b>High Temperature Storage</b>             | MIL-STD-202, Method 108 (125° C for 1000 hours)                                                                                                                     |
| <b>Mechanical Shock</b>                     | MIL-STD-202, Method 213, (50 G's peak for 11 milliseconds, halfsine waveform/10 – 55 Hz)                                                                            |
| <b>High Temperature Operating Life Test</b> | JESD 22 - A108 (125° C rated current at any voltage <= to rated voltage); 1000H duration                                                                            |

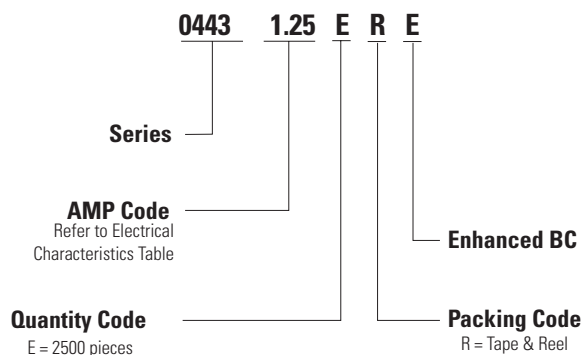
### Dimensions



### Recommended Pad Layout



### Part Numbering System



### Packaging

| Packaging Option   | Form Factor   | Packaging Specification    | Quantity | Quantity & Packaging Code |
|--------------------|---------------|----------------------------|----------|---------------------------|
| 24mm Tape and Reel | Surface Mount | EIA-RS 481-2 (IEC 60286-3) | 2500     | ERE                       |

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