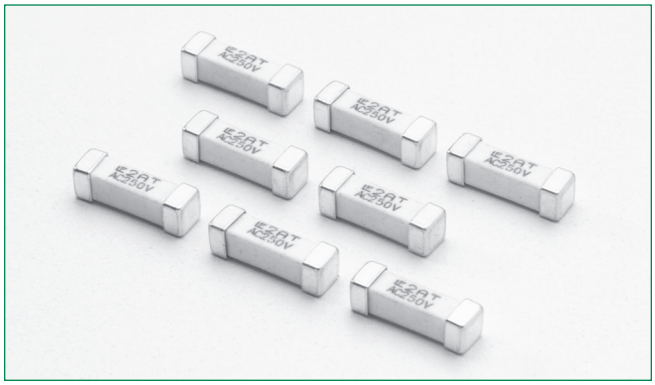
# Surface Mount Fuses

NANO²® > 250V > Slo-Blo® Fuse > 443 Series

## 443 Series Fuse



## Description

The 250V Nano²® Fuse is a small square surface mount fuse that is designed to enable compliance with the RoHS directive. This product is fully compatible with lead-free solder alloy and higher temperature profiles associated with lead-free assembly.

## Features

- 250 VAC voltage rating
- Slo-Blo® Fuse
- Available 0.50A – 5.00A
- Halogen-free and RoHS Compliant
- Fully compatible with lead-free solder alloys and higher temperature profiles associated with lead-free assembly
- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- Conforms to K60127-1 and K60127-7
- Conforms to DENAN's Appendix 3
- Conforms to IEC/EN 60127-1 and IEC/EN 60127-7

## Agency Approvals

| Agency | Agency File Number | Ampere Range |
|---|---|---|
| c UL us | E10480 | 0.500A - 5.00A |
| | SU05024 -14004<br>SU05024 -14003<br>SU05024 -14002 | 0.500A - 0.750A<br>1.00A - 2.50A<br>3.00A - 5.00A |
| PS E | NBK290416-JP1021 | 1.00A – 5.00A |
| | R50310551 | 0.500A - 5.00A |

## Applications

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

## Electrical Characteristics for Series

| % of Ampere Rating | Opening Time |
|---|---|
| 100% | 4 hours, Minimum |
| 250% | 120 seconds, Maximum |

## Additional Information

Datasheet | Resources | Samples

## Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Max Voltage Rating (V) | Interrupting Rating[4] | Nominal Cold Resistance (Ohms) | Nominal Melting I²t (A²sec) | Nominal Voltage Drop (mV) | Agency Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | c UL us | | PS E | |
| 0.50 | .500 | 250 | 50A @ 250VAC<br>100A @ 125VDC | 0.600 | 1.61 | 448 | x | x | - | x |
| 0.75 | .750 | 250 | | 0.275 | 3.025 | 285 | x | x | - | x |
| 1 | 001. | 250 | | 0.180 | 10.17 | 234 | x | x | x | x |
| 1.50 | 01.5 | 250 | | 0.100 | 14.72 | 196 | x | x | x | x |
| 2 | 002. | 250 | | 0.052 | 18.06 | 154 | x | x | x | x |
| 2.50 | 02.5 | 250 | | 0.035 | 18.13 | 139 | x | x | x | x |
| 3 | 003. | 250 | | 0.028 | 51.44 | 113 | x | x | x | x |
| 3.50 | 03.5 | 250 | | 0.019 | 53.14 | 98 | x | x | x | x |
| 4 | 004. | 250 | | 0.016 | 122.5 | 81 | x | x | x | x |
| 5 | 005. | 250 | | 0.0115 | 180.6 | 80 | x | x | x | x |

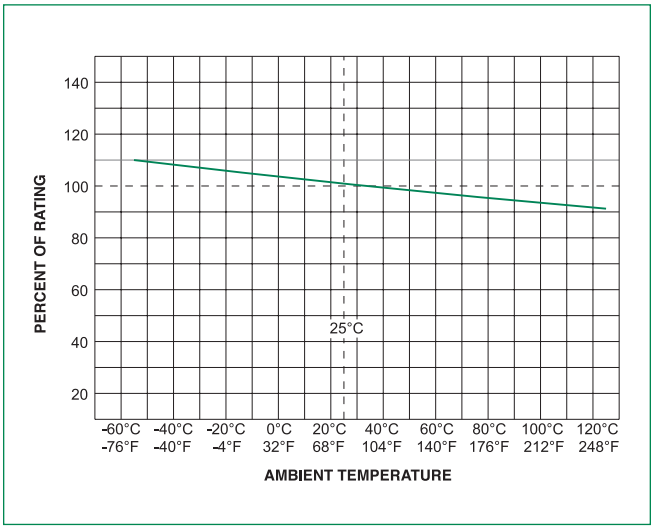
**Notes:**
**1.** Cold resistance measured at less than 10% of rated current at 23°C.
**2.** Agency Approval Table Key: X=Approved or Certified, P=Pending and Blank=Not Approved
**3.** Have special electrical characteristic needs? Contact Littelfuse to learn more about application specific options.
**4.** Interrupting Rating may differ based on Agency Approval. See Agency Approval certificate for more details.


Revised: GD.11/05/20

# Surface Mount Fuses

## NANO²® > 250V > Slo-Blo® Fuse > 443 Series

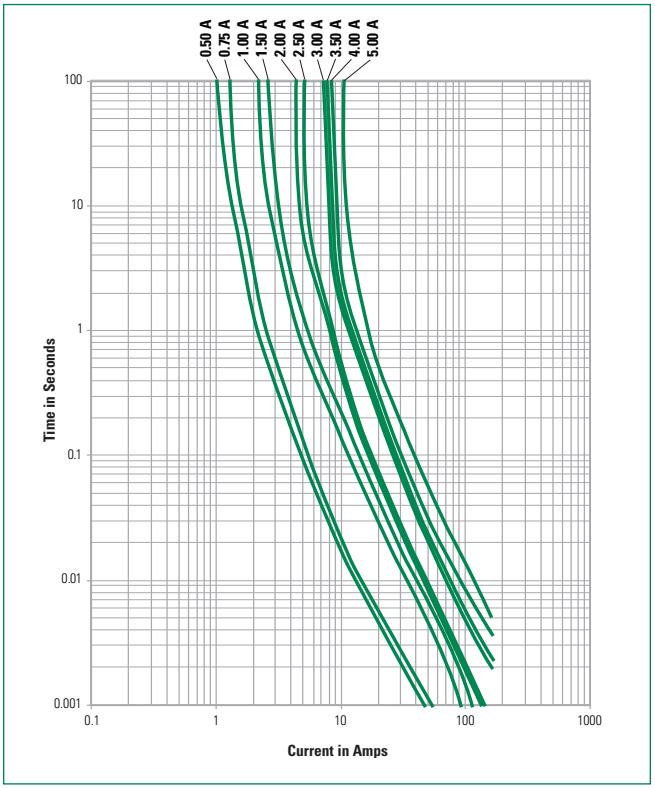
### Temperature Re-rating Curve




**Note:**

**1.** Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

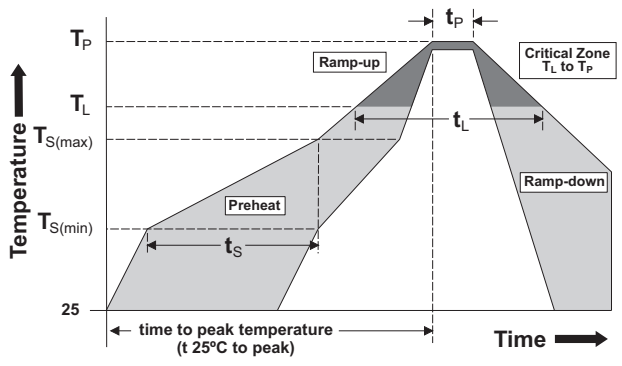
### Average Time Current Curves




### Soldering Parameters

| | | |
|---|---|---|
| **Reflow Condition** | | Pb – Free assembly |
| **Pre Heat** | **- Temperature Min ($T_{s(min)}$)** | 150°C |
| | **- Temperature Max ($T_{s(max)}$)** | 200°C |
| | **- Time (Min to Max) ($t_s$)** | 60 – 180 secs |
| **Average ramp up rate (Liquidus Temp ($T_L$) to peak** | | 5°C/second max. |
| **$T_{S(max)}$ to $T_L$ - Ramp-up Rate** | | 5°C/second max. |
| **Reflow** | **- Temperature ($T_L$) (Liquidus)** | 217°C |
| | **- Temperature ($t_L$)** | 60 – 150 seconds |
| **Peak Temperature ($T_P$)** | | $260^{+0/-5}$ °C |
| **Time within 5°C of actual peak Temperature ($t_p$)** | | 20 – 40 seconds |
| **Ramp-down Rate** | | 5°C/second max. |
| **Time 25°C to peak Temperature ($T_P$)** | | 8 minutes max. |
| **Do not exceed** | | 260°C |

| | |
|---|---|
| **Wave Soldering Parameters** | 260°C Peak Temperature, 3 seconds max. |





Revised: GD.11/05/20

Littelfuse
Expertise Applied | Answers Delivered

# Surface Mount Fuses

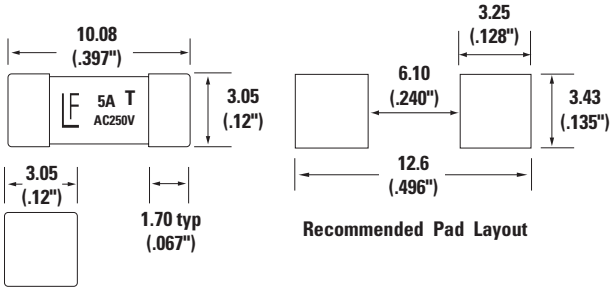
NANO²® > 250V > Slo-Blo® Fuse > 443 Series

## Product Characteristics

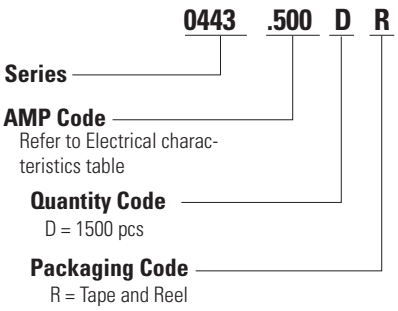
| | |
|---|---|
| **Materials** | Body: Ceramic<br>Cap: Silver Plated Brass |
| **Product Marking** | Body: Brand Logo, Current Rating<br>Rated Voltage, and<br>T - Characteristic "T" |
| **Insulation Resistance** (after Opening) | MIL-STD-202, Method 302,<br>Test Condition A (10,000 ohms, Minimum) |
| **Solderability** | MIL-STD-202, Method 208 |
| **Resistance to Soldering Heat** | MIL-STD-202, Method 210,<br>Test Condition B (10 sec at 260°C) |
| **Moisture Sensitivity Level** | Level 1 J-STD-020 |
| **PCB Recommendation for Thermal Management** | Min. copper layer thickness = 100um<br>Min. copper trace width = 10mm<br><br>Alternate methods of thermal management may be used. In such cases, under normal operations, the maximum temperature of the fuse body should not exceed 80°C in a 25°C ambient environment. |

| | |
|---|---|
| **Operating Temperature** | –55°C to 125°C |
| **Thermal Shock** | MIL-STD-202, Method 107,<br>Test Condition B (5 cycles -65°C to +125°C) |
| **Vibration** | MIL-STD-202, Method 201<br>(10-55 Hz) |
| **Moisture Resistance** | MIL-STD-202, Method 106,<br>High Humidity (90-98% RH), Heat (65°C) |
| **Salt Spray** | MIL-STD-202, Method 101,<br>Test Condition B |
| **Mechanical Shock** | MIL-STD-202, Method 213,<br>Test Condition I (100 G's peak for 6 milliseconds) |

## Dimensions




## Part Numbering System




**Example:**
1.5 amp product is 0443 **01.5** D R
(0.5 amp product shown above).

## Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code |
|---|---|---|---|
| 24mm Tape and Reel | EIA-RS 481-2 (IEC 286, part 3) | 1500 | DR |


Revised: GD.11/05/20