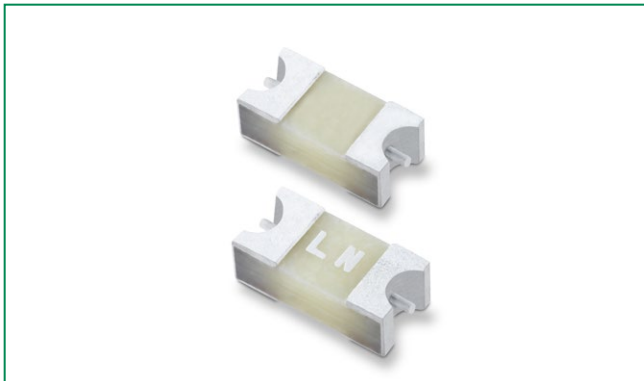


470 Series Fuse



**Description**

The 470 series is a family of 125V rated high energy SMD fuses, perfect for space constrained applications. It offers the standard Nano Fuse circuit protection capability with a very small 1206 foot print.

This product is RoHS compliant, Halogen-Free and 100% Pb-Free with guaranteed operating temperature of up to 125°C.

**Features**

- Very Small 1206 Footprint
- 125V Voltage Rating
- Fast-Acting
- Pb-Free, RoHS Compliant and Halogen-Free
- Wide Operating temperature range of -55°C to 125°C
- ENERGY STAR® Surge Immunity test compliant (100kHz Ring Wave, 2.5kV, 7 strikes common and differential modes) - 1.5A and above ampere rating only

**Agency Approvals**

| Agency | Agency File Number | Ampere Range |
|--------|--------------------|--------------|
|        | E10480             | 0.500 - 2A   |

**Electrical Characteristics for Series**

| % of Ampere Rating | Opening Time       |
|--------------------|--------------------|
| 100%               | 4 Hours, Minimum   |
| 200%               | 5 Seconds, Maximum |

**Applications**

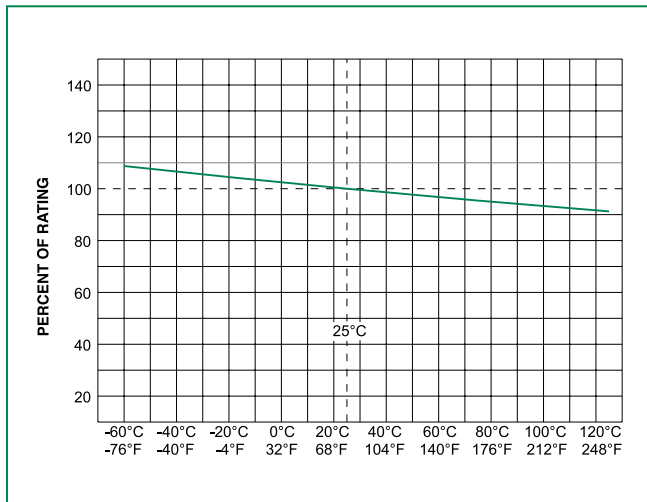
- LED Lighting
- LCD/LED TVs
- Notebooks/PCs
- Gaming Consoles
- Battery Charging Circuit Protection
- Power Supply Units
- Telecom Systems
- White Goods

**Electrical Characteristic**

| Ampere Rating (A) | Amp Code | Max Voltage Rating (V) | Interrupting Rating                          | Nominal Cold Resistance (Ohms) | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec.) | Agency Approvals |
|-------------------|----------|------------------------|--|--------------------------------|--|------------------|
|                   |          |                        |  |                                |  |                  |
| 0.500             | .500     | 125V                   | 50A @ 125VDC<br>50A @ 125VAC<br>300A @ 32VDC | 0.5455                         | 0.02874  | x                |
| 1.00              | 001      | 125V                   |  | 0.2242                         | 0.14785  | x                |
| 1.25              | 1.25     | 125V                   |  | 0.1637                         | 0.30269  | x                |
| 1.50              | 01.5     | 125V                   |  | 0.1263                         | 0.45970  | x                |
| 2.00              | 002      | 125V                   |  | 0.1004                         | 0.75625  | x                |

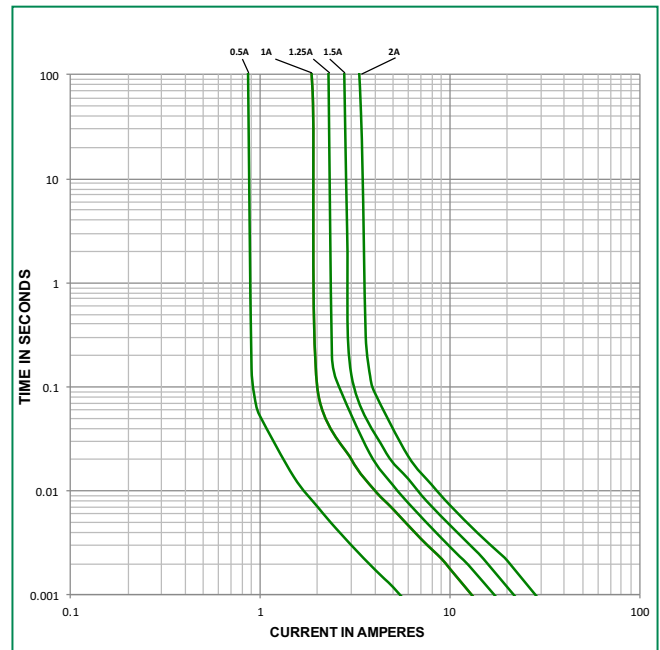
**Note:** I<sup>2</sup>t values stated for 8msec opening time.

## Temperature Derating Curve



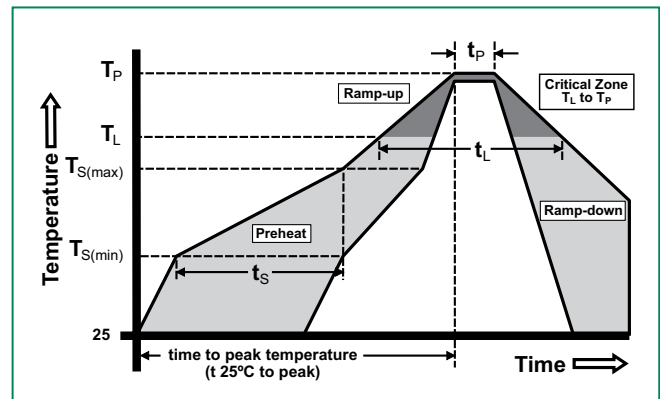
**NOTE:** Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

## 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 seconds        |
| 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 – 90 seconds         |
| Peak Temperature ( $T_p$ )                             |                                    | 250 <sup>+0/-5</sup> °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                   |

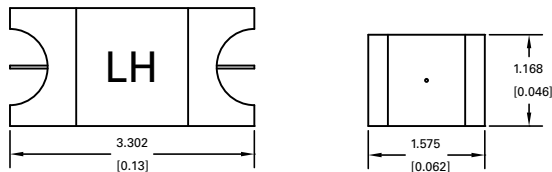


## Product Characteristics

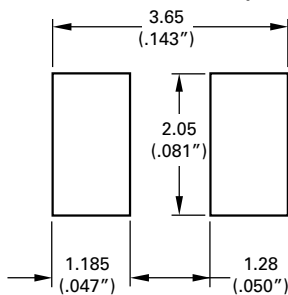
|  |  |
|--|--|
| <b>Materials</b>                             | <b>Body:</b> Epoxy Resin<br><b>Terminations:</b> Cu/Ni/Sn (100% Pb-free) |
| <b>Product Marking</b>                       | <b>Body:</b> Current Rating  |
| <b>Operating Temperature</b>                 | -55°C to +125°C  |
| <b>Solderability</b>                         | MIL-STD-202  |
| <b>Insulation Resistance (after opening)</b> | IEC 60127-4 (0.1Mohm Min)  |

|                                     |   |
|-------------------------------------|---|
| <b>Thermal Shock</b>                | MIL-STD-202, Method 107, Test Condition B, 5 cycles, -65°C to 125°C, 15 minutes @ each extreme  |
| <b>Mechanical Shock</b>             | MIL-STD-202, Method 213B, Test Condition I: De-energized. 100G's peak amplitude, sawtooth wave 6ms duration, 3 cycles XYZ+xyz = 18 shocks |
| <b>Vibration</b>                    | MIL-STD-202, Method 201: 0.03" amplitude, 10-55 Hz in 1 min. 2 hrs. each XYZ = 6hrs (10- 55 Hz)   |
| <b>Moisture Resistance</b>          | MIL-STD-202, Method 106, 10 cycles Condition A  |
| <b>Salt Spray</b>                   | MIL-STD-202, Method 101, Test Condition B (48 hrs)  |
| <b>Resistance to Soldering Heat</b> | Method 210, Test Condition B (10 sec at 260°C)  |

## Dimensions



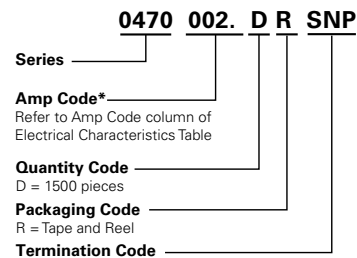
### Recommended Pad Layout



## Part Marking System

| Amp Code | Marking Code |
|----------|--------------|
| .500     | <b>LF</b>    |
| 001.     | <b>LH</b>    |
| 1.25     | <b>LJ</b>    |
| 01.5     | <b>LK</b>    |
| 002.     | <b>LN</b>    |

## Part Numbering System



## Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Reel Size |
|-------------------|-------------------------|----------|---------------------------|-----------|
| 8mm Tape and Reel | EIA-RS-481-1            | 1500     | DR                        | N/A       |

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