

# 462 Series

## 250V/350V VAC/VDC Time Lag Fuse



### Additional Information



Resources



Accessories



Samples

### Electrical Characteristics for Series

| % of Amp Rating | Opening Time                                          |
|-----------------|-------------------------------------------------------|
| 125%            | 1 hour, Minimum                                       |
| 200%            | 2 minutes, Maximum                                    |
| 1000%           | 10 milliseconds, Minimum<br>100 milliseconds, Maximum |

### Description

The 462 series Nano2® Surface Mount Fuse has time-lag current characteristics with 250V and 350V interrupting ratings. It complies with IEC 60127-4 Universal Modular Fuse-Links (UMF).

### Features & Benefits

- Heat resistant plastic housing, UL 94 V-0
- Designed for line or low voltage applications
- Low voltage drop
- Internationally approved
- High pulse resistance
- Lead-free – compatible with lead-free solders and higher temperature profiles
- Available in ratings of 0.5A to 5A
- Halogen-free and RoHS compliant.

### Applications

- Lighting ballast
- AC/DC adaptor primary protection
- Transformerless AC/DC converter circuit
- High DC voltage power distribution system

### Agency Approvals

| Agency | Agency File/Certificate Number | Ampere Range            |
|--------|--------------------------------|-------------------------|
| c  US  | E67006                         | 0.5A - 5A               |
|        | 40022235                       | 1A, 1.6A, 2A, 3.15A, 4A |
|        | NBK250416-JP1021               | 1A - 1.6A               |
|        | NBK010721-JP1021               | 2A - 5A                 |
|        | CQC14012115883                 | 1.6A                    |
|        | RU C-DE.HB26.B01385/21         | 0.5A - 5A               |
|        | E242325                        | 0.5A - 5A               |
|        | NA                             | 0.5A - 5A               |
|        | NA                             | 0.5A - 5A               |

### Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Max Voltage Rating (V) <sup>5</sup> | Interrupting Rating            | Nominal Cold Resistance (Ohms) <sup>1</sup> | Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) | Nom Voltage Drop (mV) | Nom Power Dissipation (mW) | Agency Approvals <sup>3</sup> |   |   |   |   |   |   |   |
|-------------------|----------|-------------------------------------|--------------------------------|---------------------------------------------|-------------------------------------------------------|-----------------------|----------------------------|-------------------------------|---|---|---|---|---|---|---|
|                   |          |                                     |                                |                                             |                                                       |                       |                            |                               |   |   |   |   |   |   |   |
| 0.5               | 0500     | 250                                 | 100A @ 350VAC/VDC <sup>4</sup> | 0.227                                       | 0.43                                                  | 160                   | 200                        | x                             | x | x | - | x | - | x | - |
| 0.63              | 0630     |                                     |                                | 0.157                                       | 0.8                                                   | 160                   | 200                        | x                             | x | x | - | x | - | x | - |
| 0.8               | 0800     |                                     |                                | 0.13                                        | 1.4                                                   | 160                   | 250                        | x                             | x | x | - | x | - | x | - |
| 1.0               | 1100     |                                     |                                | 0.0867                                      | 2.7                                                   | 140                   | 250                        | x                             | x | x | x | x | - | x | x |
| 1.25              | 1125     |                                     |                                | 0.0602                                      | 5.2                                                   | 130                   | 250                        | x                             | x | x | - | x | - | x | x |
| 1.6               | 1160     |                                     |                                | 0.0443                                      | 9.7                                                   | 130                   | 280                        | x                             | x | x | x | x | x | x | x |
| 2.0               | 1200     |                                     |                                | 0.0335                                      | 5.44                                                  | 120                   | 300                        | x                             | x | x | x | x | - | x | x |
| 2.5               | 1250     |                                     |                                | 0.0278                                      | 8.0                                                   | 120                   | 450                        | x                             | x | x | - | x | - | x | x |
| 3.15              | 1315     |                                     |                                | 0.0204                                      | 14.0                                                  | 110                   | 600                        | x                             | x | x | x | x | - | x | x |
| 4.0               | 1400     |                                     |                                | 0.0158                                      | 21.0                                                  | 110                   | 800                        | x                             | x | x | x | x | - | x | x |
| 5.0               | 1500     |                                     | 150A @ 250VAC/VDC              | 0.0124                                      | 40.0                                                  | 110                   | 1000                       | x                             | x | x | - | x | - | x | x |

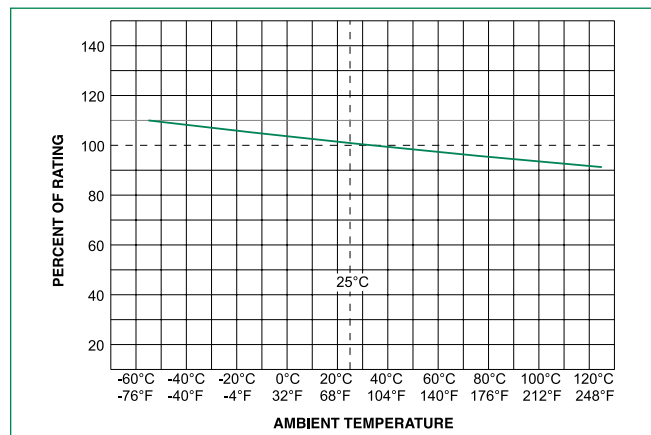
#### Notes:

- Cold resistance measured at less than 10% of rated current at 23°C
- I<sup>2</sup>t values are measured at 8ms opening time
- Agency Approval Table Key: X = Approved or Certified, P = Pending
- UL Recognition - IR at 100A @ 350 VAC/VDC
- Rated at 350VAC/VDC per UL Recognition under UL248 (up to 4A only). Rated at 250VAC/VDC per VDE under IEC standard 60127-4. If you have special electrical characteristic needs, please contact Littelfuse to discuss application specific options.

# 462 Series

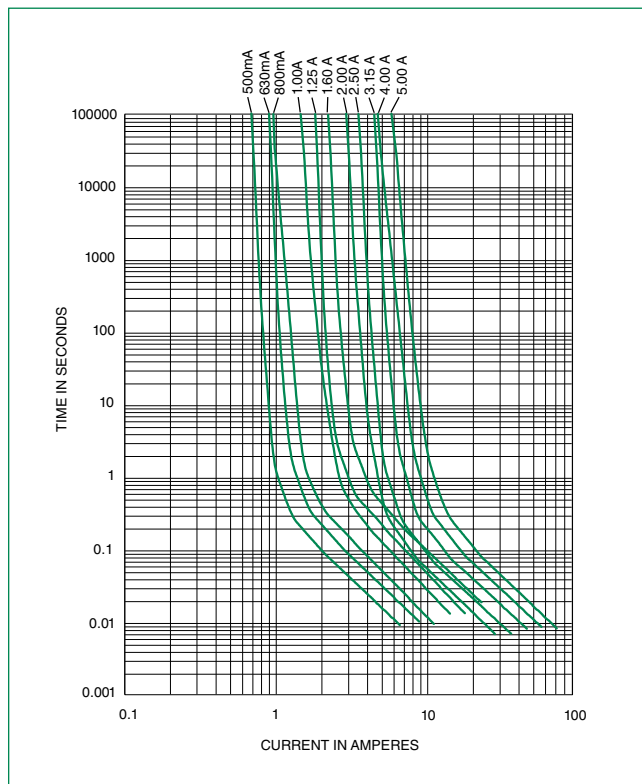
## 250V/350V VAC/VDC Time Lag Fuse

Temperature Re-rating Curve

**Note:**

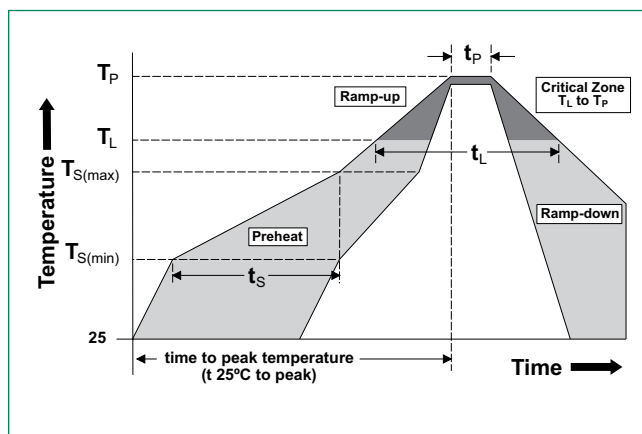
1. Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

Average Time Current Curves



Soldering Parameters

|                                                                        |                                    |                         |
|------------------------------------------------------------------------|------------------------------------|-------------------------|
| <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>                             |                                    | 250 <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.          |



# 462 Series

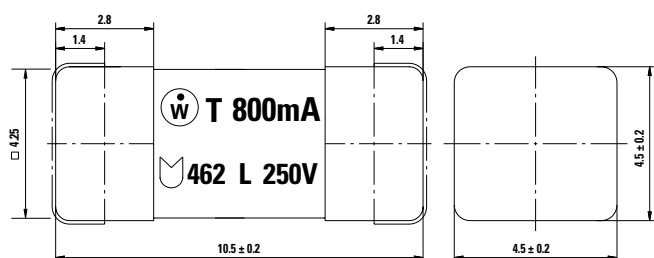
## 250V/350V VAC/VDC Time Lag Fuse

### Product Characteristics

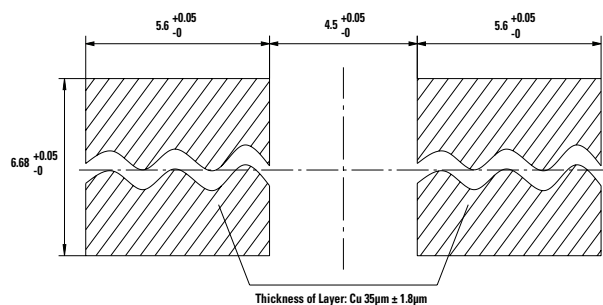
|                                     |                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------|
| <b>Materials</b>                    | <b>Body:</b> Plastic UL 94 V-0<br><b>Cap:</b> Tin-plated brass                        |
| <b>Product Marking</b>              | <b>Body:</b> Brand Logo, "T" for Time-Lag, Current Rating, L Voltage Rating, UMF logo |
| <b>Solderability</b>                | IEC 60068-2-58                                                                        |
| <b>Resistance to Soldering Heat</b> | IEC 60068-2-58                                                                        |

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b>      | -40°C to +85°C with proper derating                                                                        |
| <b>Climatic Category</b>          | IEC 60068-1, -2-1, -2-2, -2-78<br>(-40°C to +85°C / 21 days)                                               |
| <b>Vibration</b>                  | IEC 60068-6 (24 cycles of 15 mins each,<br>1-60 Hz at 0.75mm amplitude, 60-2000<br>Hz at 10g acceleration) |
| <b>Moisture Sensitivity Level</b> | J-STD-020, Level 1                                                                                         |

### Dimensions



### Recommended Pad Layout



### Part Numbering System

|               |                    |                                                                                                                                   |                          |                            |                |             |
|---------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------|----------------|-------------|
| <b>462</b>    | <b>0</b>           | <b>500</b>                                                                                                                        | <b>0</b>                 | <b>0</b>                   | <b>0</b>       | <b>0</b>    |
| <b>Series</b> | <b>AMP Code</b>    | <b>AMP Rating</b>                                                                                                                 | <b>Reserve Character</b> | <b>Packaging Code</b>      | <b>Variant</b> | <b>Kind</b> |
|               | 0: < 1A<br>1: > 1A | 100: 1A<br>125: 1.25A<br>160: 1.6A<br>200: 2A<br>250: 2.5A<br>315: 3.15A<br>400: 4A<br>500: 500mA, 5A<br>630: 630mA<br>800: 800mA | 0: Default               | 0: Tape and Reel, 1500 pcs | 0: Standard    | 0: Standard |

#### Examples:

0.5 amp (500mA) product is  
462 **0** 500 0 0 0 0

5.0 amp product is  
462 **1** 500 0 0 0 0

Please refer to Amp Code column of the Electrical Specifications table on the first page of this document.

### Packaging

| Packaging Option   | Packaging Specification | Quantity | Quantity & Packaging Code |
|--------------------|-------------------------|----------|---------------------------|
| 16mm Tape and Reel | IEC 60286, part 3       | 1500     | 0                         |

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