



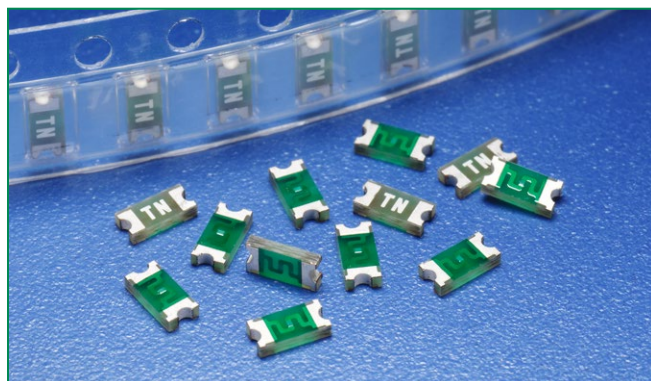
**THE DATASHEET OF
0468.500NR**





Surface Mount Fuses

Thin Film > 1206 Size > Slo-Blo® Fuse > 468 Series

468 Series 1206 Slo-Blo® Fuse



Agency Approvals

| AGENCY | AGENCY FILE NUMBER | AMPERE RANGE |
|---|--------------------|--------------|
|  | E10480 | 0.5A - 3A |
|  | 29862 | 0.5A - 3A |

Electrical Characteristics for Series

| % of Ampere Rating | Opening Time at 25°C |
|--------------------|-----------------------------------|
| 100% | 4 hours, Minimum |
| 200% | 1 sec., Min.; 120 sec., Max. |
| 300% | 0.05 sec., Min.; 1.5 sec., Max |
| 800% | 0.0015 sec., Min.; .05 sec., Max. |

Additional Information



Datasheet



Resources



Samples

Description

The 468 Series Slo-Blo® Surface Mount Fuse (SMF) is a small (1206 size) thin-film device designed for secondary protection of circuits used in space constrained applications such as hand-held portable electronic devices. This series is 100% lead-free and meets the requirements of the RoHS directive. New Halogen-Free 468 Series fuses are available—to order use the “HF” suffix. See Part Numbering section for additional information.

Features



- Complies with electronic industry environmental standards for lead reduction.
- Product is compatible with lead-free solders and higher temperature profiles.
- Time delay feature withstands high inrush currents and prevents nuisance openings.
- Package is visually distinct from fast-acting version for easy identification.
- Top side marking allows visual verification of amperage rating.
- RoHS, lead-free and halogen-free compliant.

Applications

Secondary protection for space constrained applications:

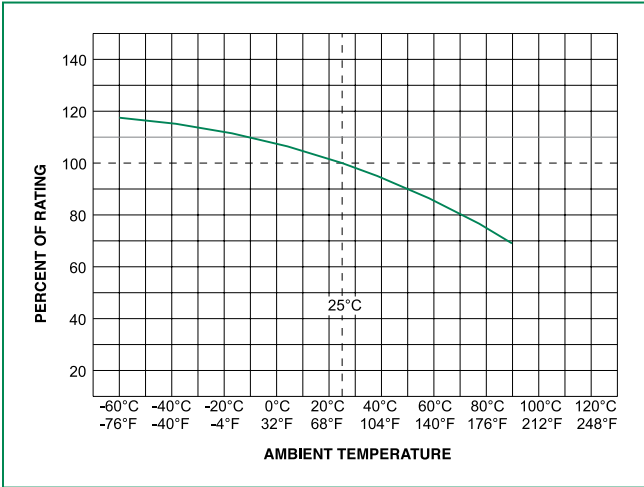
- Cell phones
- Battery packs
- Digital cameras
- DVD players
- Hard disk drives.

Electrical Specifications by Item

| Ampere Rating (A) | Amp Code | Max Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting I ² t (A ² sec) | Nom Voltage Drop (mV) | Nom Power Dissipation (W) | Agency Approvals | |
|-------------------|----------|------------------------|----------------------------|--------------------------------|---|-----------------------|---------------------------|---|---|
| | | | | | | | |  |  |
| 0.50 | .500 | 63 | 50A @63 VAC/VDC | 0.27000 | 0.0310 | 156.77 | 0.0784 | x | x |
| 1.00 | 001. | 63 | | 0.0790 | 0.1270 | 94.70 | 0.0947 | x | x |
| 1.50 | 01.5 | 63 | | 0.0440 | 0.2880 | 82.32 | 0.1235 | x | x |
| 2.00 | 002. | 63 | 35A @63 VAC 50A @63 VDC | 0.0325 | 0.5060 | 77.27 | 0.1545 | x | x |
| 2.50 | 02.5 | 63 | | 0.0240 | 1.0110 | 73.92 | 0.1848 | x | x |
| 3.00 | 003. | 32 | 50A @32 VAC/VDC | 0.01950 | 1.2700 | 72.95 | 0.2189 | x | x |

1. Measured at 10% of rated current, 25°C.
2. Measured at rated voltage.

Temperature Re-rating Curve



Note:

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

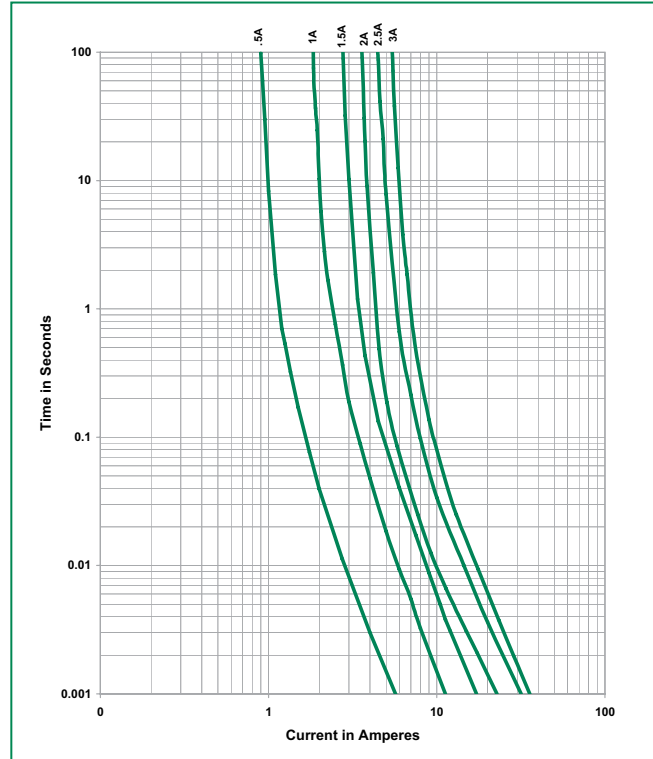
Example:

For continuous operation at 70 degrees celsius, the fuse should be derated as follows:

$$I = (0.75)(0.80)I_{RAT} = (0.60)I_{RAT}$$

2. The temperature derating curve represents the nominal conditions. For questions about temperature derating curve, please consult Littelfuse technical support for assistance.

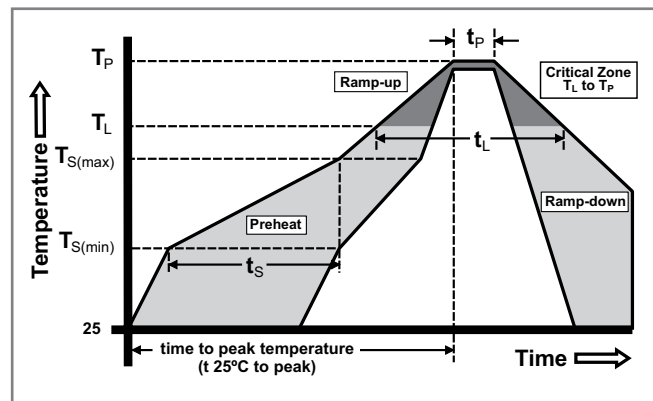
Average Time Current Curves



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 | 260°C, 10 seconds max. |
|----------------|------------------------|



Surface Mount Fuses

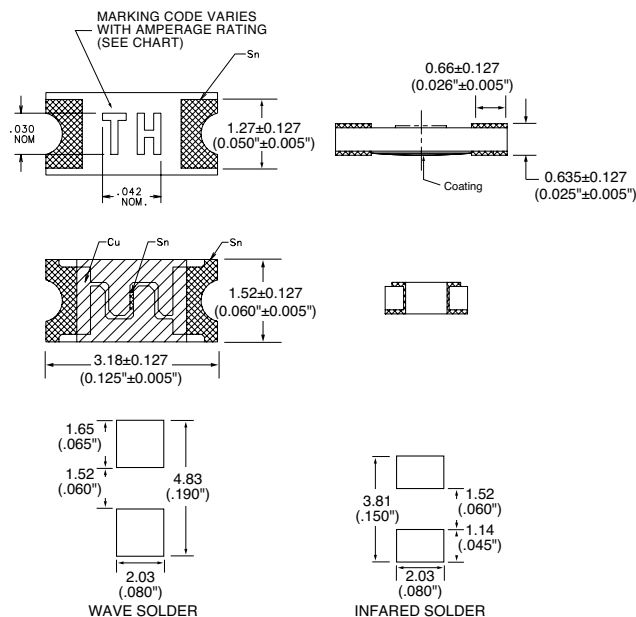
Thin Film > 1206 Size > Slo-Blo® Fuse > 468 Series

Product Characteristics

| | |
|------------------------------|---|
| Materials | Body: Epoxy Substrate Terminations: 100% Tin over Nickel over Copper Element Cover Coat: Conformal Coating |
| Operating Temperature | -55°C to 90°C. Consult temperature re-rating curve chart. For operation above 90°C please contact Littelfuse |
| Thermal Shock | Withstands 5 cycles of - 50°C to 125°C |
| Humidity | MIL-STD-202, Method 103, Condition D |

| | |
|--|---|
| Vibration | Withstands 10-55 Hz per MIL-STD-202, Method 201 and 10-2000 Hz at 20 g's per MIL-STD-202, Method 204, Condition D |
| Insulation Resistance (After Opening) | Greater than 10,000 ohms. |
| Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition D |

Dimensions



Part Marking System

| Amp Code | Marking Code |
|----------|--------------|
| .500 | TF |
| 001. | TH |
| 01.5 | TK |
| 002. | TN |
| 02.5 | TO |
| 003. | TP |

Part Numbering System

0468002.NRHF

SERIES

AMP Code

The dot is positioned before the Packaging Suffix with whole ratings and within the numbering sequence for fractional ratings. Refer to Amp Code column in the Electrical Specifications table.

PACKAGING Code

NR = Tape and Reel, 5000 pcs

'HF' SUFFIX

HALOGEN FREE ITEM

Example:
1.5 amp product is 0468**01.5**NRHF (2 amp product shown above).

Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code |
|------------------------|------------------------------------|----------|---------------------------|
| Tape & Reel – 8mm tape | EIA-481 Rev. D (IEC 60286, part 3) | 5000 | NR |

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