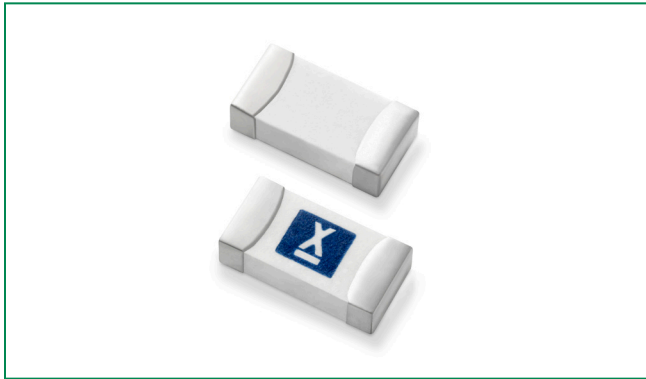



407 Series – 1206 Time-Lag Fuse



Agency Approvals

| AGENCY | AGENCY FILE NUMBER | AMPERE RANGE |
|---|--------------------|--------------|
|  | E10480 | 1A – 8A |

Electrical Characteristics

| % of Ampere Rating | Ampere Rating | Opening Time at 25°C |
|--------------------|---------------|------------------------------|
| 100% | 1A – 8A | 4 hours Minimum |
| 200% | 1A – 8A | 1 sec Min; 120 secs Max |
| 300% | 1A – 8A | 0.1 sec Min; 3 secs Max |
| 800% | 1A – 8A | 0.002 sec Min; 0.05 secs Max |

Additional Information



Datasheet



Samples

Description

Littelfuse 407 Series is a 100% lead-free, RoHS compliant and halogen-free fuse designed specifically to provide overcurrent protection to circuits that operate under high working ambient temperatures up to 150° C and high in-rush currents. The general design ensures excellent temperature stability and performance reliability. This high I²t time lag fuse is designed to have ultra-high in-rush current withstand capability to avoid nuisance fuse open.

Features

- Operating Temperature from -55° C to +150° C compliant and Halogen-free
- UL Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- 100% Lead-free, RoHS
- Suitable for both leaded and lead-free reflow/wave soldering
- Ultra high I²t values

Benefits

- Avoids nuisance opening due to high inrush and surge current inherent in the system
- High current ratings in small size

Applications

- Displays
- Servers
- Computers
- Printers
- Scanners
- Data Modems
- Gaming Consoles

Electrical Specifications by Item

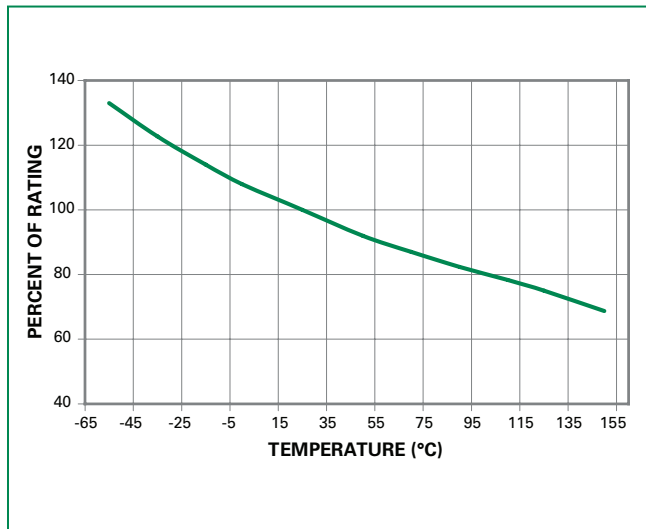
| Ampere Rating (A) | Amp Code | Max. Voltage Rating (V) | Interrupting Rating (AC/DC) ¹ | Nominal Resistance (Ohms) ² | Nominal Melting I ² t (A ² Sec.) ³ | Nominal Voltage Drop At Rated Current (V) ⁴ | Nominal Power Dissipation At Rated Current (W) | Agency Approval |
|-------------------|----------|-------------------------|--|--|---|--|--|-----------------|
| | | | | | | | | UL US |
| 1.00 | 001. | 63 | 50A@63VDC | 0.360 | 0.142 | 0.456 | 0.456 | x |
| 1.25 | 1.25 | 63 | | 0.200 | 0.329 | 0.404 | 0.500 | x |
| 1.50 | 01.5 | 63 | | 0.180 | 0.567 | 0.347 | 0.525 | x |
| 2.00 | 002. | 63 | | 0.100 | 0.870 | 0.323 | 0.640 | x |
| 2.50 | 02.5 | 32 | 50A@32VDC | 0.055 | 1.000 | 0.252 | 0.625 | x |
| 3.00 | 003. | 32 | | 0.040 | 1.300 | 0.187 | 0.570 | x |
| 3.50 | 03.5 | 32 | | 0.030 | 2.260 | 0.153 | 0.525 | x |
| 4.00 | 004. | 32 | | 0.025 | 4.180 | 0.142 | 0.560 | x |
| 4.50 | 04.5 | 32 | | 0.020 | 5.200 | 0.134 | 0.585 | x |
| 5.00 | 005. | 32 | | 0.016 | 7.800 | 0.133 | 0.650 | x |
| 5.50 | 05.5 | 24 | 50A@24VDC | 0.014 | 8.550 | 0.130 | 0.715 | x |
| 6.00 | 006. | 24 | 60A@24VDC | 0.012 | 15.560 | 0.128 | 0.780 | x |
| 7.00 | 007. | 24 | | 0.010 | 16.230 | 0.110 | 0.770 | x |
| 8.00 | 008. | 24 | | 0.009 | 24.120 | 0.097 | 0.800 | x |

Note:

1. AC Interrupting Rating tested at rated voltage with unity power factor. DC Interrupting Rating tested at rated voltage with time constant < 0.8 msec.
2. Nominal Resistance measured with < 10% rated current.
3. Nominal Melting I²t measured at 1 msec opening time.
4. Nominal Voltage Drop measured at rated current after temperature has stabilized.

- Devices designed to carry rated current for 4 hours minimum. It is recommended that devices be operated continuously at no more than 80% rated current. See *Temperature Re-rating Curve* for additional derating information.
- Devices designed to be mounted with marking code facing up.

Temperature Re-rating Curve



Note:

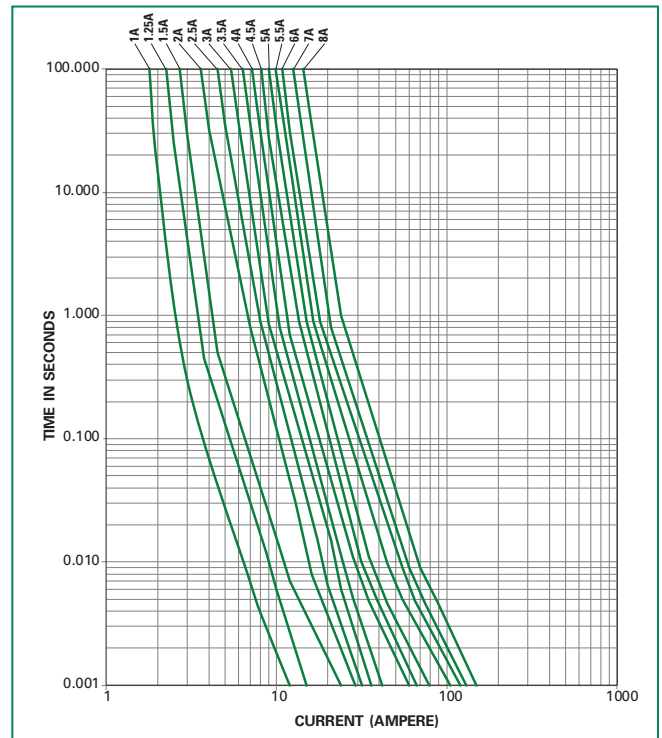
Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

Example:

For continuous operation at 75° C, the fuse should be re-rated as follows:

$$I = (0.80)(0.85)I_{RAT} = (0.68)I_{RAT}$$

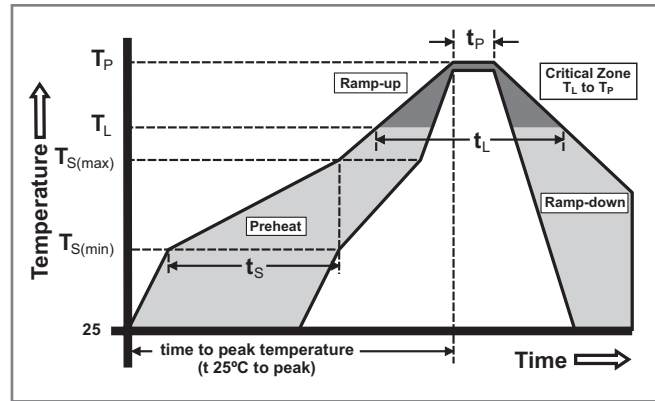
Average Time Current Curves



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) | | 3° 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) | | 10 – 30 seconds |
| Ramp-down Rate | | 6° 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. |
|----------------|------------------------|

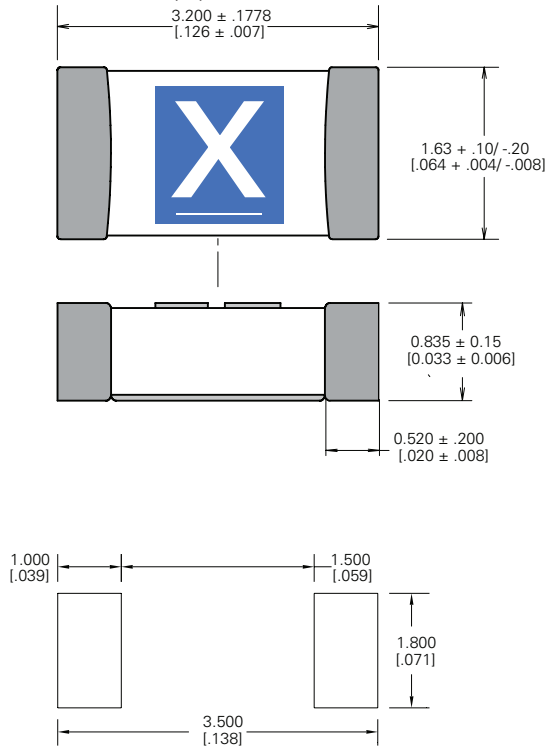


Product Characteristics

| | |
|-------------------------------------|--|
| Materials | Body: Advanced Ceramic Terminations: Ag / Ni / Sn (100% Lead-free) Element Cover Coating: Lead-free Glass |
| Moisture Sensitivity Level | IPC/JEDEC J-STD-020, Level 1 |
| Solderability | IPC/ECA/JEDEC J-STD-002, Condition C |
| Humidity Test | MIL-STD-202, Method 103, Conditions D |
| Resistance to Solder Heat | MIL-STD-202, Method 210, Condition B |
| Moisture Resistance | MIL-STD-202, Method 106 |
| Thermal Shock | MIL-STD-202, Method 107, Condition B |
| Mechanical Shock | MIL-STD-202, Method 213, Condition A |
| Vibration | MIL-STD-202, Method 201 |
| Vibration, High Frequency | MIL-STD-202, Method 204, Condition D |
| Dissolution of Metallization | IPC/ECA/JEDEC J-STD-002, Condition D |
| Terminal Strength | IEC 60127-4 |

Dimensions

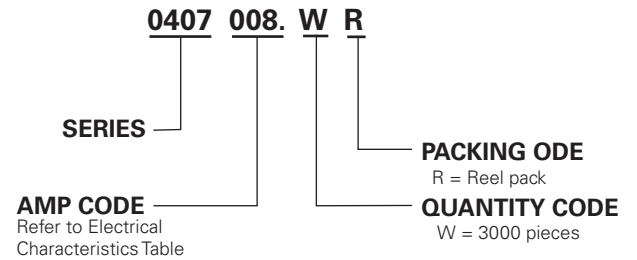
All dimensions in mm (in)



Part Marking System

| Amp Code | Marking Code | Amp Code | Marking Code |
|----------|--------------|----------|--------------|
| 001. | H | 004. | S |
| 1.25 | J | 04.5 | S. |
| 01.5 | K | 005. | T |
| 002. | N | 05.5 | U |
| 02.5 | Q | 006. | V |
| 003. | P | 007. | W |
| 03.5 | R | 008. | X |

Part Numbering System



Packaging

| Packaging Option | Form Factor | Packaging Specification | Quantity | Quantity & Packaging Code |
|-------------------|---------------|----------------------------|----------|---------------------------|
| 8mm Tape and Reel | Surface Mount | EIA-481, IEC 60286, Part 3 | 3000 | WR |

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at <https://www.littelfuse.com/legal/disclaimers/product-disclaimer.aspx>.