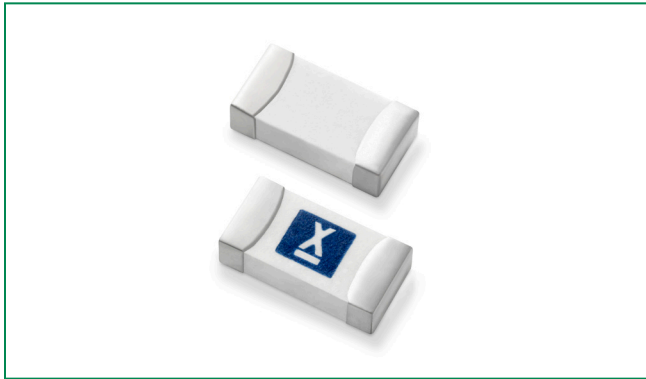



### 407 Series – 1206 Time-Lag Fuse



#### 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 I<sup>2</sup>t 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 I<sup>2</sup>t 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

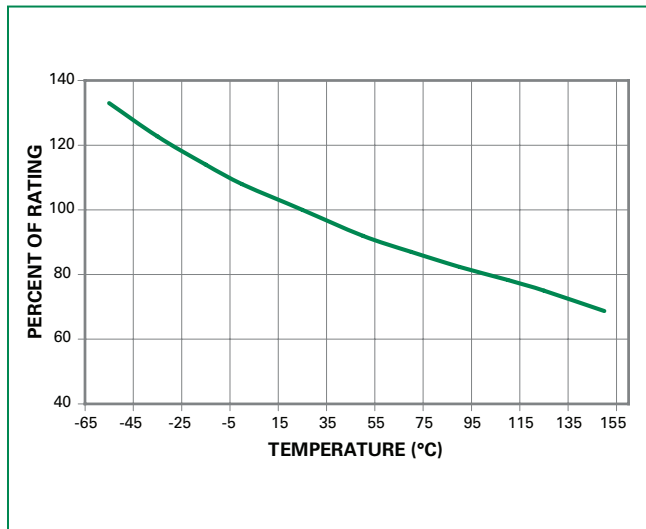
### Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max. Voltage Rating (V)	Interrupting Rating (AC/DC) <sup>1</sup>	Nominal Resistance (Ohms) <sup>2</sup>	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> Sec.) <sup>3</sup>	Nominal Voltage Drop At Rated Current (V) <sup>4</sup>	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 I<sup>2</sup>t 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:**

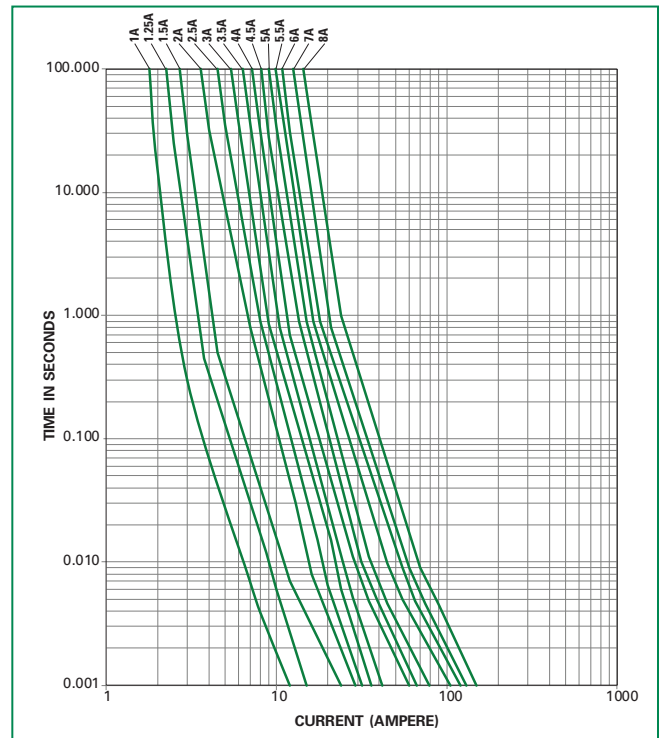
Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

**Example:**

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

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

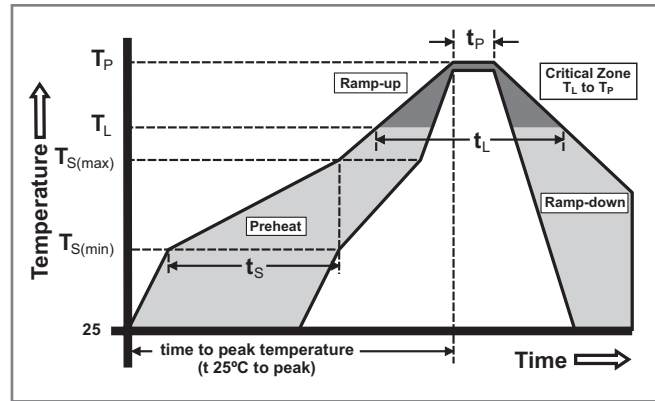
### Average Time Current Curves



### 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 <sup>+0/-5</sup> ° 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.
----------------	------------------------

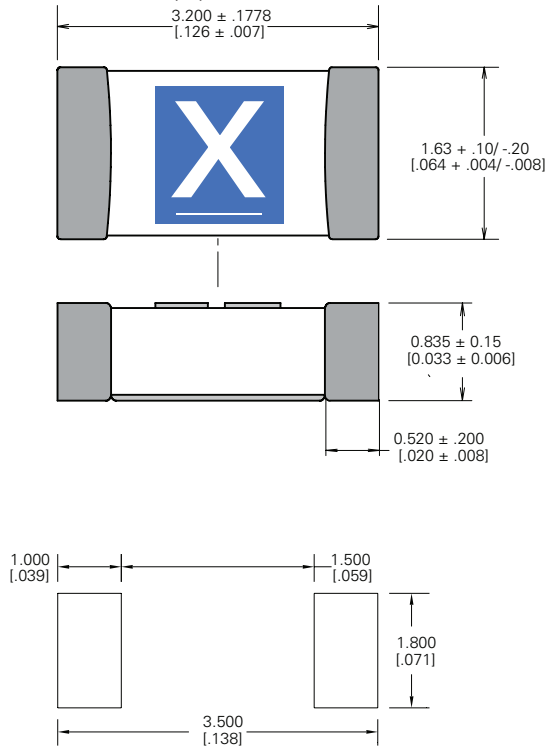


### Product Characteristics

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

### Dimensions

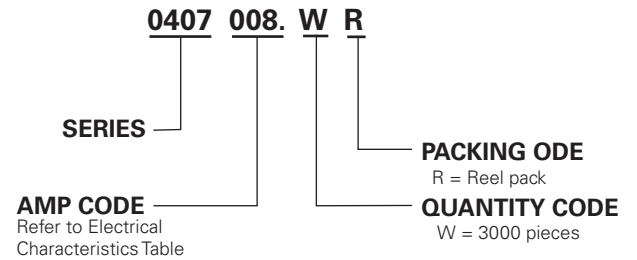
All dimensions in mm (in)



### Part Marking System

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

### 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>.