

# Surface Mount Fuses

## Ceramic Fuse > 806 Series



### Description

The 806 Series fuse is designed specifically to provide overcurrent protection to circuits that operate under high working ambient temperature up to 150 °C.

Its design ensures excellent temperature stability and performance reliability. The high I<sup>2</sup>t values which is typical in the Littelfuse Ceramic Fuse family ensure high inrush current withstand capability.

### Features & Benefits

- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- Operating Temperature from -55 °C to +150 °C
- Designed to provide over-current protection in high current Voltage Regulator Module (VRM) applications
- 100% Lead-free, RoHS compliant, and Halogen-free
- Suitable for both leaded and lead-free reflow/wave soldering
- High current ratings in small size
- High performance materials provide improved performance in elevated ambient temperature application
- Avoids nuisance opening due to high inrush and surge current inherent in the system

### Additional Information



Resources



Accessories



Samples

### Agency Approvals

Agency	Agency File Number	Ampere Range
c UL US	E10480	20 A – 30 A

### Electrical Characteristics

% of Ampere Rating	Ampere Rating	Opening Time at 25 °C
100%	20 A – 30 A	4 hours, Minimum
250%	20 A – 30 A	5 seconds, Maximum

### Electrical Specifications

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 Approvals c UL US
20	020.	36	250 A @ 24 VDC	0.00290	65	0.0938	1.8760	x
25	025.		200 A @ 36 VDC	0.00219	110	0.0877	2.1925	x
30	030.		300 A @ 24 VDC 200 A @ 36 VDC	0.00174	170	0.0948	2.8440	x

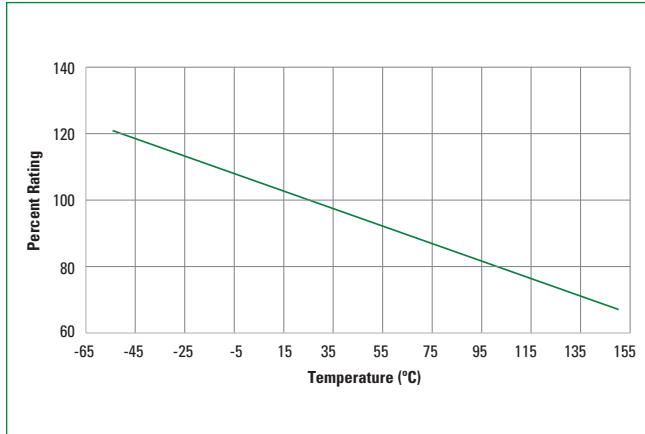
#### Notes:

1. DC Interrupting Rating tested at rated voltage with time constant < 0.1 msec.
  2. Nominal Resistance measured with <10% rated current.
  3. Nominal Melting I<sup>2</sup>t measured at 1 msec. opening time. For other I<sup>2</sup>t data refer to chart.
  4. Nominal Voltage Drop measured at rated current after temperature has stabilized and with fuse mounted on board with 3 oz Cu trace.
- Devices are designed to carry rated current for hours minimum. It is recommended that devices be operated continuously at no more than 80% rated current. See 'Temperature Re-rating Curve' for additional re-rating information.
  - Devices are designed to be mounted with marking code facing up.

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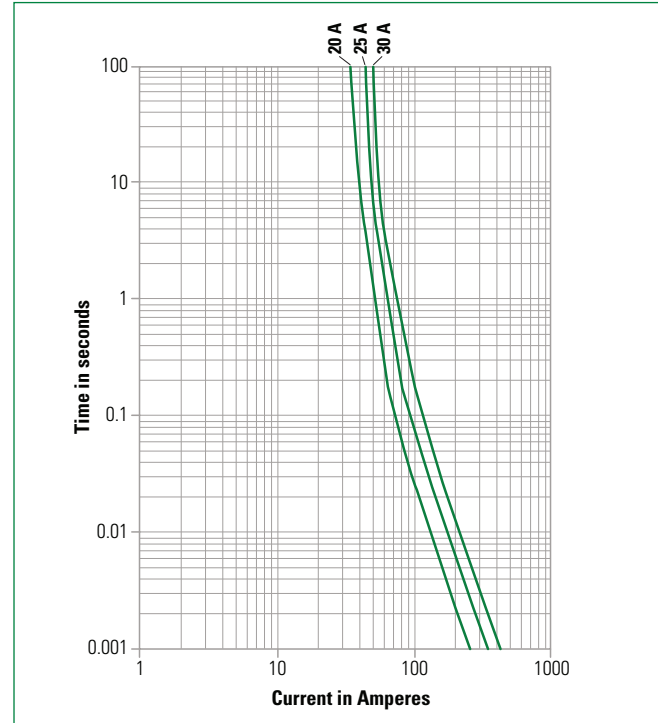
### Temperature Re-rating Curve


**Notes:**

1. 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 rerated as follows:  $I = (0.80)(0.85)I_{\text{rat}} = (0.68)I_{\text{rat}}$

### Average Time Current Curves



### Product Characteristics

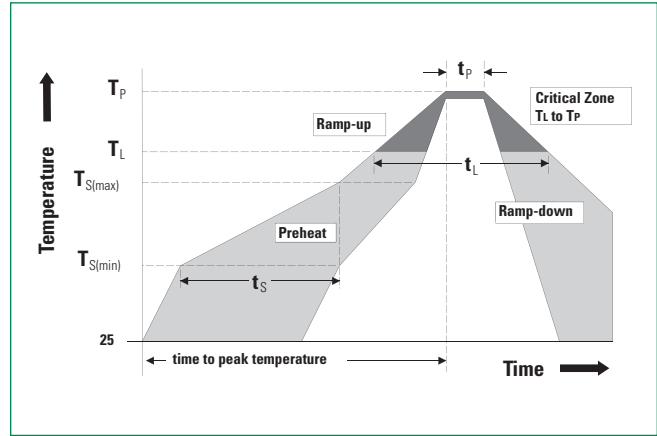
<b>Materials</b>	<b>Body:</b> Advanced Ceramic <b>Terminations:</b> Ag/Ni/Sn (100% Lead-free)
<b>Moisture Sensitivity Level</b>	IPC/JEDEC J-STD-020, Level 1
<b>Solderability</b>	IPC/ECA/JEDEC J-STD-002D
<b>Biased Humidity Test</b>	JESD22-A110-B
<b>Resistance to Solvents</b>	MIL-STD-202, Method 215
<b>Moisture Resistance</b>	MIL-STD-202, Method 106G
<b>Thermal Shock</b>	MIL-STD-202, Method 107G
<b>Mechanical Shock</b>	MIL-STD-202, Method 213B
<b>Vibration Low Frequency</b>	MIL-STD-202, Method 201A
<b>Vibration High Frequency</b>	MIL-STD-202, Method 204, Condition D
<b>Dissolution of Metallization</b>	IPC/EIC/JEDEC J-STD-002B, Condition D
<b>Terminal Strength</b>	IEC 60127-4

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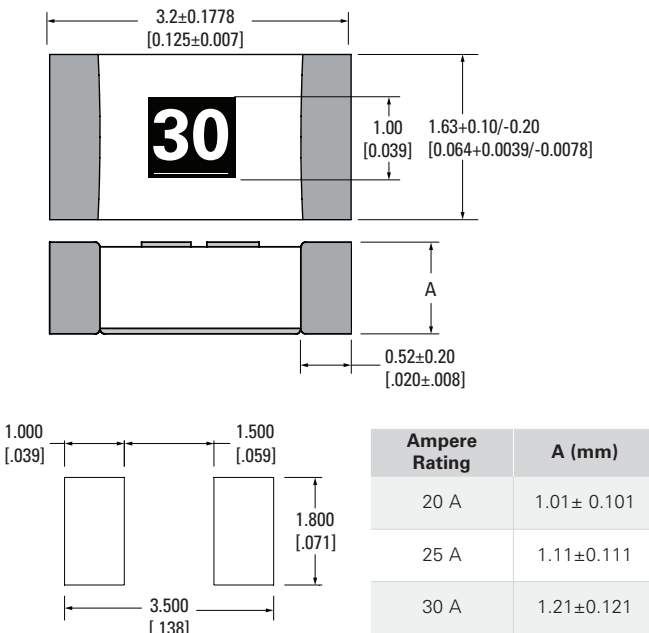
### Soldering Parameters

<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 secs
<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 secs
<b>Peak Temperature (<math>T_p</math>)</b>		260+0/-5 °C
<b>Time within 5 °C of actual peak Temperature (<math>t_p</math>)</b>		10–30 seconds
<b>Ramp-down Rate</b>		6 °C/second max.
<b>Time 25 °C to peak Temperature (<math>T_p</math>)</b>		8 minutes max.
<b>Do not exceed</b>		260 °C
<b>Wave Soldering Parameters</b>		260 °C Peak Temperature, 10 seconds max.



### Dimensions

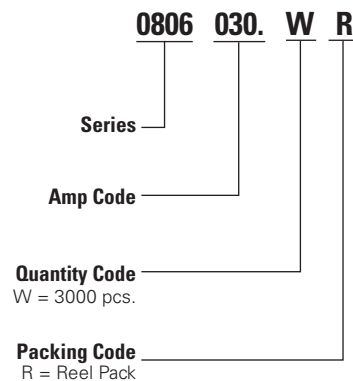
Measurements are in mm [inch]



### Part Marking System

Ampere Rating	Marking Code
020	<b>20</b>
025	<b>25</b>
030	<b>30</b>

### Part Numbering System



### Packaging

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

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