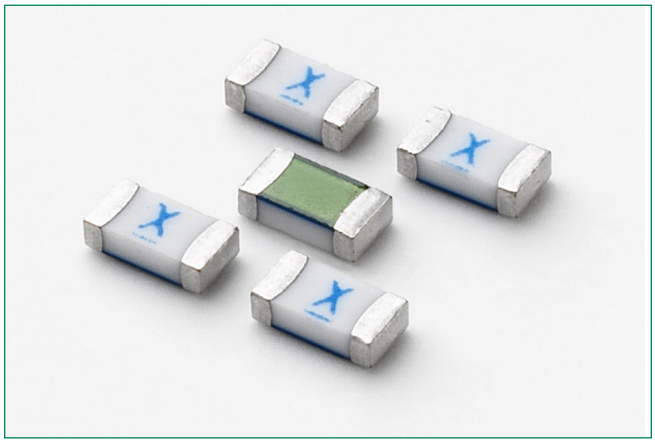
469 Series
1206 Slo-Blo® Fuse



Additional Information

Resources | Accessories | Samples

Description

The 469 Series is a 100% lead-free, halogen-free and RoHS compliant fuse series designed specifically to provide over-current protection to circuits that operate under high working ambient temperature up to 150°C.

The general design ensures excellent temperature stability and performance reliability.

The high I^2t values, typical in the Littelfuse Ceramic fuse family, ensure high inrush current withstand capability.

Features and Benefits

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

Applications

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

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time at 25°C
100%	2A – 8A	4 hours, Minimum
200%	2A – 8A	1 sec., Min.; 120 secs., Max.
300%	2A – 8A	0.1 sec., Min.; 3 secs., Max.
800%	2A – 8A	0.002 sec., Min.; 0.05 sec., Max.

Agency Approvals

Agency	Agency File Number	Ampere Range
c UL us	E10480	2A – 8A
CSA	29862	2A – 8A

Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max. Voltage Rating (V)	Interrupting Rating[1]	Nominal Resistance (Ohms)[2]	Nominal Melting I^2t ($A^2Sec.$)[3]	Nominal Voltage Drop At Rated Current (V)[4]	Nominal Power Dissipation At Rated Current (W)	Agency Approvals	
								c UL us	CSA
2.00	002.	63	60 A @ 63 VDC	0.166	0.2250	0.455	0.91	x	x
4.00	004.	32	60 A @ 32 VDC	0.052	3.560	0.236	0.944	x	x
5.00	005.	32		0.033	5.620	0.216	1.080	x	x
6.00	006.	24	60 A @ 24 VDC	0.026	9.410	0.274	1.644	x	x
7.00	007.	24		0.020	14.400	0.216	1.512	x	x
8.00	008.	24		0.016	23.720	0.233	1.864	x	x

Notes:
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^2t 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 re-rating information.
Devices designed to be mounted with marking code facing up.

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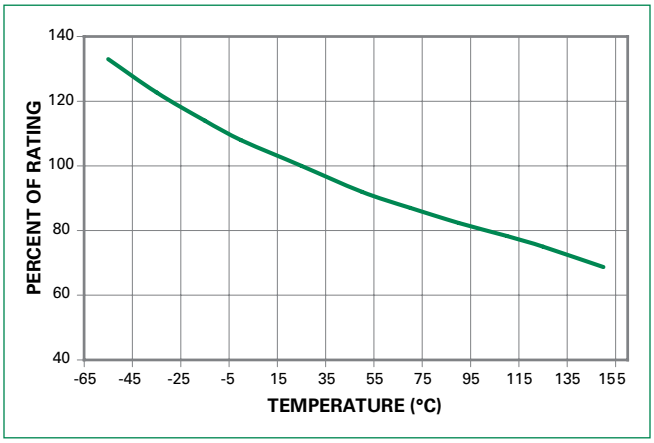
Temperature Re-rating Curve



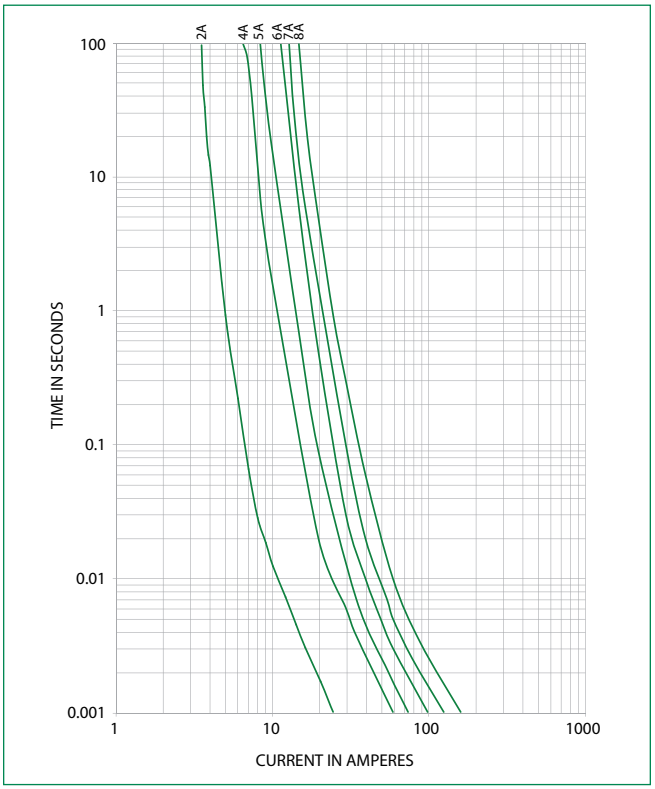
Note:

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 degrees celsius, the fuse should be rerated as follows:
$I = (0.80)(0.85)I_N = (0.68)I_N$

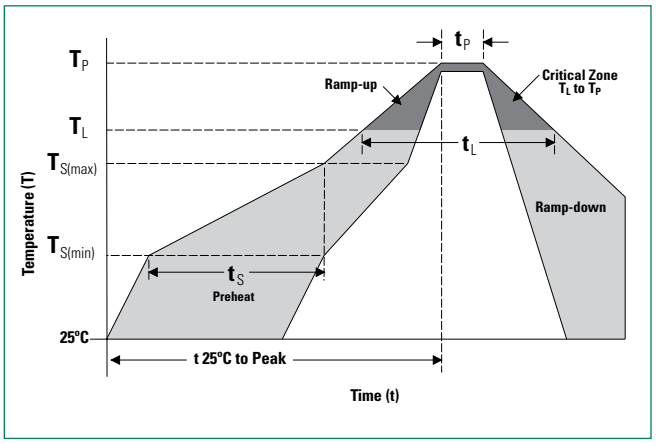
Average Time Current Curves



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.



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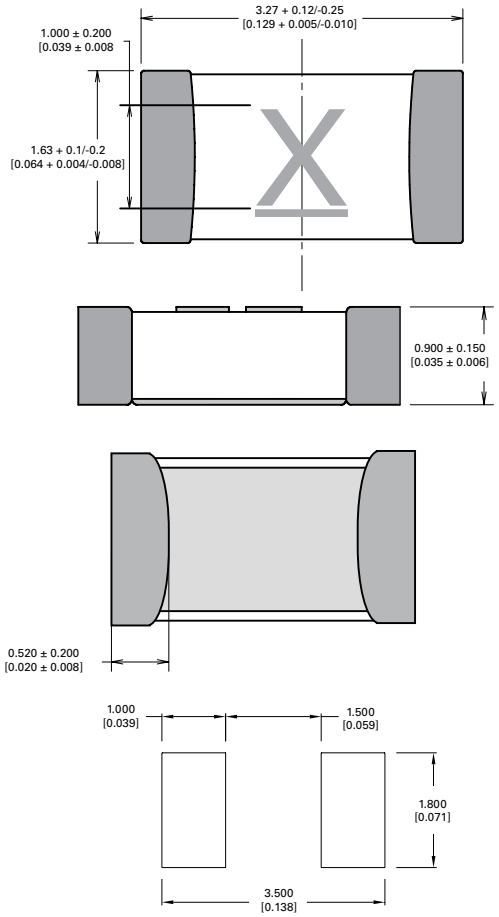
Product Characteristics

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/EIC/JEDEC J-STD-002, Condition B
Humidity	MIL-STD-202, Method 103, Conditions D
Resistance to Soldering 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/EIC/JEDEC J-STD-002, Condition D
Terminal Strength	IEC 60127-4

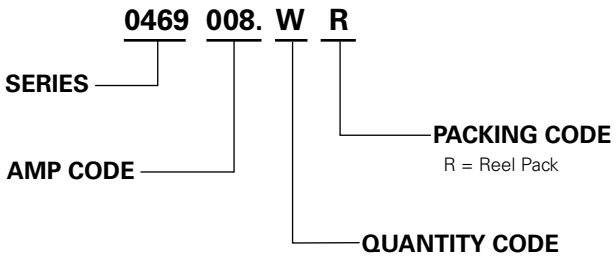
Dimensions mm (inches)



Part Marking System

Amp Code	Marking Code
002.	N
004.	S
005.	T
006.	U
007.	W
008.	X

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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