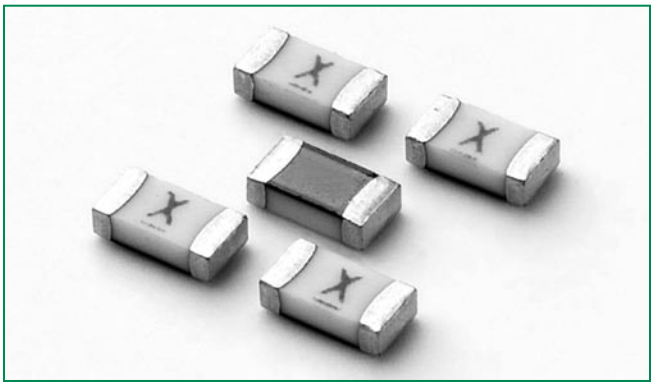
RoHS Pb HF 469 Series – 1206 Slo-Blo® Fuse



Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE
	E10480	1A – 8A
	LR29862	1A – 8A

Electrical Characteristics for Series

% 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 sec., Max.

Description

The 469 Series is a 100% Lead-free, RoHS compliant and Halogen-free 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 which are typical in the Littelfuse Ceramic fuse family, ensure high inrush current withstand capability.

Features

- 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

Applications

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

Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max. Voltage Rating (V)	Interrupting Rating	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	
1	001.	63	50 A @ 63 V DC	COMING SOON				pending	pending
1.25	1.25	63						pending	pending
1.5	01.5	63						x	x
2	002.	63						x	x
2.5	02.5	32	50 A @ 32 V DC					x	x
3	003.	32						x	x
3.5	03.5	32						x	x
4	004.	32	60 A @ 32 V DC	0.052	3.560	0.236	0.944	x	x
5	005.	32		0.035	5.620	0.216	1.080	x	x
6	006.	24	60 A @ 24 V DC	0.028	9.410	0.274	1.640	x	x
7	007.	24		0.021	14.400	0.216	1.510	x	x
8	008.	24		0.017	23.720	0.233	1.860	x	x

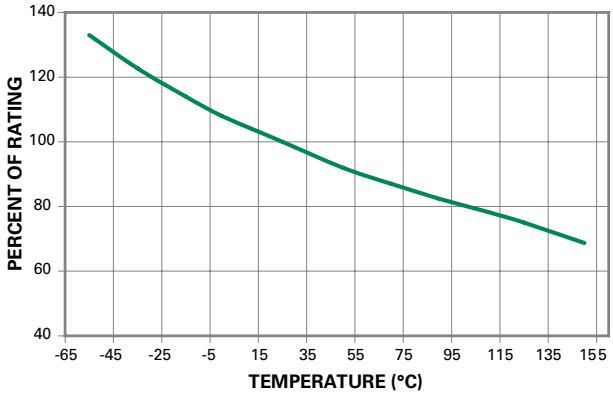
Notes:

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 Rerating Curve" for additional rerating information.

Devices designed to be mounted with marking code facing up.

Temperature Rerating Curve



Note:

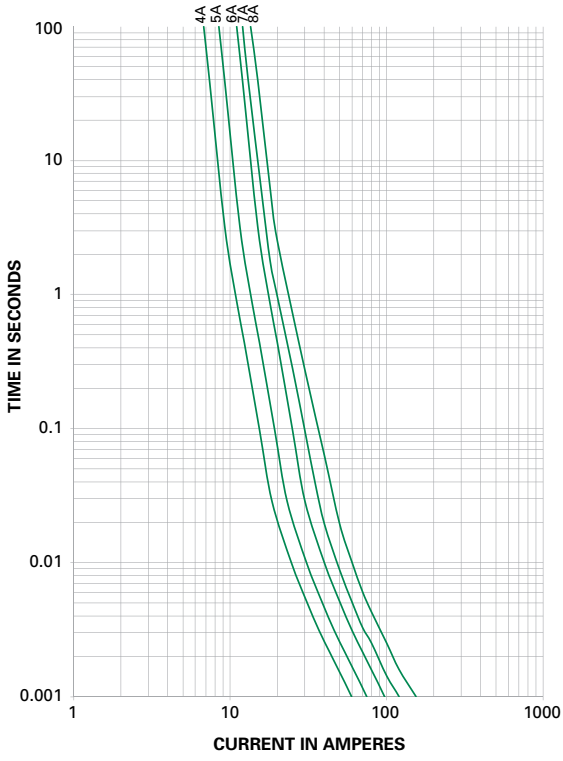
1. Rerating depicted in this curve is in addition to the standard rerating of 20% for continuous operation.

Example:

For continuous operation at 75 degrees celsius, the fuse should be rerated as follows:

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

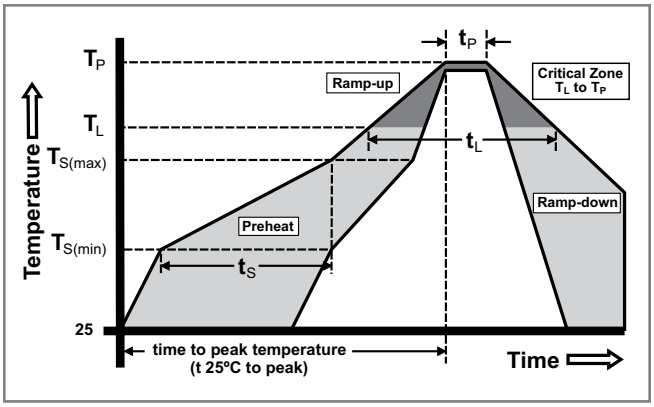
Average Time Current Curves



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.

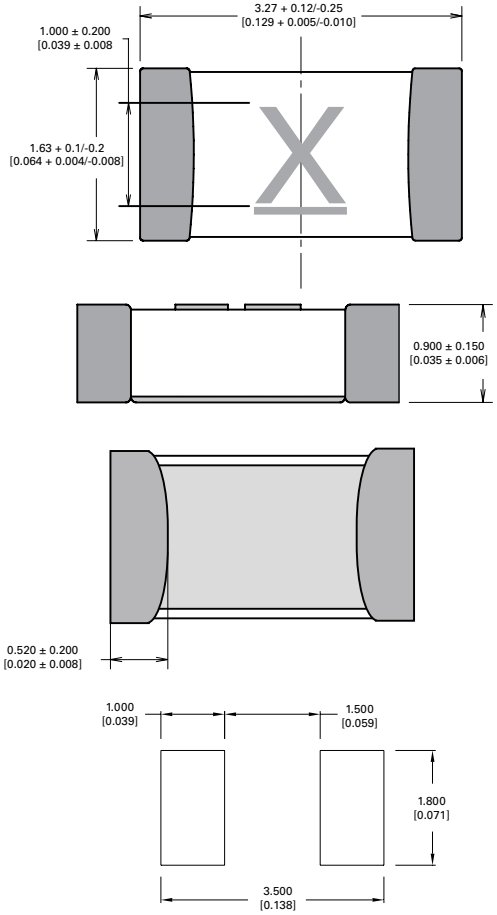


Product Characteristics

Materials	**Body:** Advanced Ceramic **Terminations:** Ag / Ni / Sn (100% Lead-free) **Element Cover Coating:** Lead-free Glass
Moisture Sensitivity Level	IPC/JEDEC J-STD-020C, Level 1
Solderability	IPC/EIC/JEDEC J-STD-002B, Condition B
Humidity Test	MIL-STD-202, Method 103B, Conditions D
Resistance to Solder Heat	MIL-STD-202, Method 210F, Condition B

Moisture Resistance	MIL-STD-202, Method 106G
Thermal Shock	MIL-STD-202, Method 107G, Condition B
Mechanical Shock	MIL-STD-202, Method 213B, Condition A
Vibration	MIL-STD-202, Method 201A
Vibration, High Frequency	MIL-STD-202, Method 204D, Condition D
Dissolution of Metallization	IPC/EIC/JEDEC J-STD-002B, Condition D
Terminal Strength	IEC 60127-4

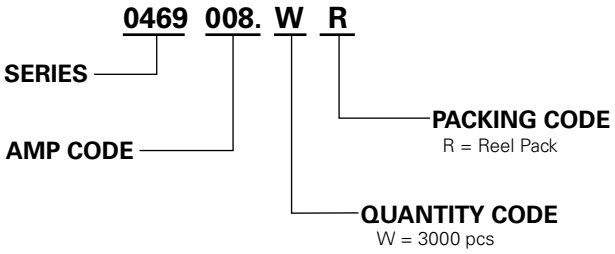
Dimensions



Part Marking System

Amp Code	Marking Code
001.	H
1.25	J
01.5	K
002.	N
02.5	O
003.	P
03.5	R
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