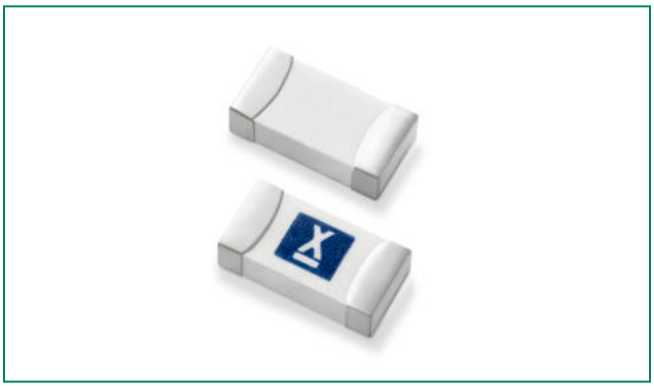
407 Series – 1206 Time-Lag Fuse



Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE
c UL us	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^2t 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
- UL Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- 100% Lead-free, RoHS compliant and Halogen-free
- Suitable for both leaded and lead-free reflow/wave soldering
- Ultra high I^2t 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

Revised: 09/14/20

Electrical Specifications by Item

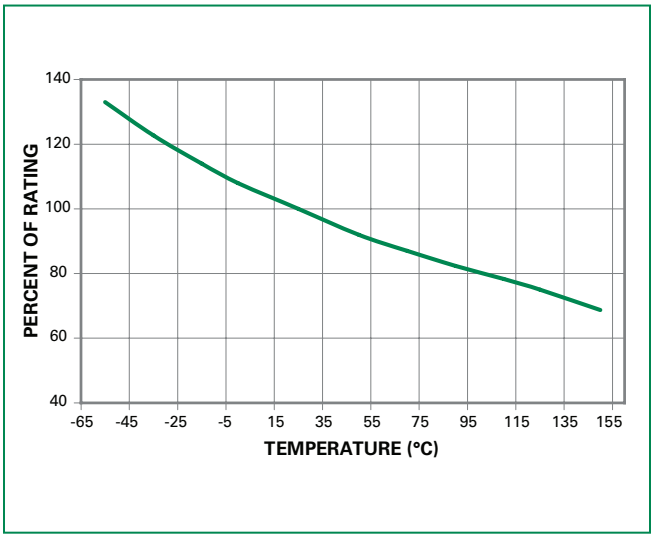
Ampere Rating (A)	Amp Code	Max. Voltage Rating (V)	Interrupting Rating (AC/DC)[1]	Nominal Resistance (Ohms)[2]	Nominal Melting I²t (A²Sec.)[3]	Nominal Voltage Drop At Rated Current (V)[4]	Nominal Power Dissipation At Rated Current (W)	Agency Approval cULus
1.00	001.	63	50A@63VDC	0.360	0.142	0.456	0.456	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:

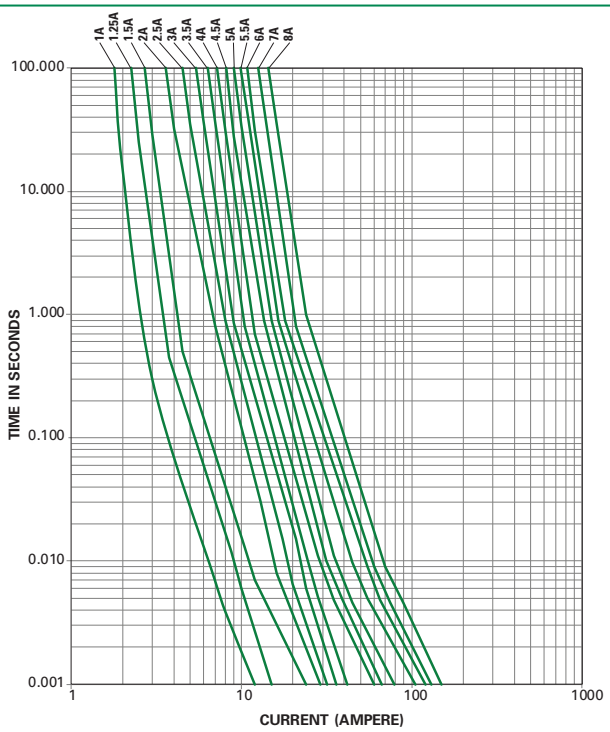
Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

Example:

For continuous operation at 75° C, the fuse should be rerated as follows:

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

Average Time Current Curves



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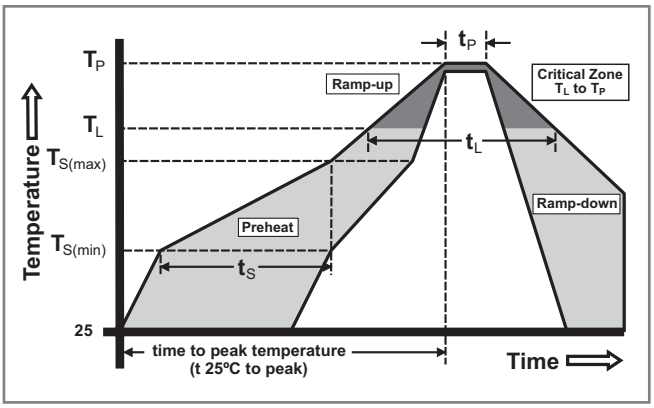
Soldering Parameters

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

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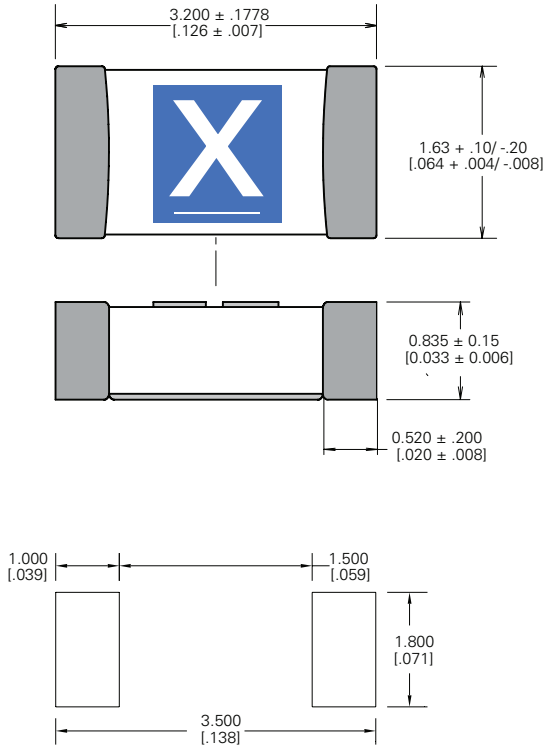
Dimensions

All dimentions 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	O	006.	V
003.	P	007.	W
03.5	R	008.	X

Part Numbering System

0407 008. W R

SERIES

AMP CODE
Refer to Electrical Characteristics Table

PACKING ODE
R = Reel pack

QUANTITY CODE
W = 3000 pieces

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