Littelfuse
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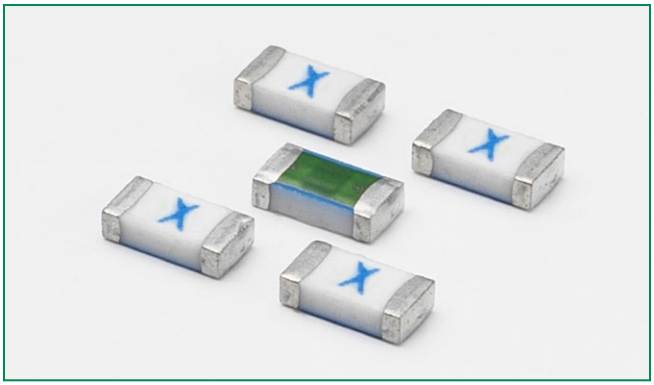
440 Series, 1206 High I²t Fuse



Description

The 440 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 temperatures up to 150ºC and high inrush currents. The general design ensures excellent temperature stability and performance reliability. This high I²t fuse series is designed to have ultra high inrush current withstand capability to avoid nuisance fuse open.

Features

- Operating Temperature from -55ºC to +150ºC
- 100% Lead-free, RoHS compliant and Halogen-free
- Suitable for both leaded and lead-free reflow / wave soldering
- Ultra high I²t values

Applications

- LCD Displays
- Servers
- Notebook Computers
- Printers
- Scanners
- Data Modems
- Hard Disk Drives

Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE
c UL us	E10480	0.25A - 8A
CSA	29862	0.25A - 8A

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time at 25ºC
100%	0.25A - 8A	4 hours, Minimum
350%	0.25A - 8A	5 secs., Maximum

Additional Information

Datasheet | Resources | Samples

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 Approvals	
								c UL us	CSA
0.250	.250	125	50 A @ 125 V AC/DC	2.140	0.00649	0.5260	0.132	x	X
0.375	.375	125		1.216	0.01455	0.4993	0.187	x	X
0.500	.500	63	50 A @ 63 V AC/DC	0.8140	0.02642	0.4831	0.242	x	X
0.750	.750	63	50 A @ 63 V AC/DC	0.4624	0.09312	0.3983	0.299	x	X
1.00	001.	50	50 A @ 50 V DC 50 A @ 50 V AC	0.3096	0.21054	0.3457	0.346	x	X
1.25	1.25	50		0.2265	0.379	0.3240	0.405	x	X
1.50	01.5	50		0.1759	0.50652	0.3215	0.482	x	X
1.75	1.75	32	50 A @ 32 V AC/DC	0.0450	0.3312	0.0777	0.136	x	X
2.00	002.	32		0.0385	0.4326	0.0792	0.158	x	X
2.50	02.5	32		0.02850	0.8191	0.0747	0.187	x	X
3.00	003.	32		0.02252	1.232	0.0742	0.223	x	X
3.50	03.5	32		0.01845	1.789	0.0757	0.265	x	X
4.00	004.	32		0.01553	2.601	0.0709	0.284	x	X
5.00	005.	32		0.0120	4.761	0.0654	0.327	x	X
7.00	007.	32		0.00753	8.464	0.0696	0.487	x	X
8.00	008.	32		0.00634	12.95	0.0655	0.524	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. Contact Littelfuse if application transient surges are less than 1 ms.
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 Derating Curve" for additional derating information.
Devices designed to be mounted with marking code facing up.

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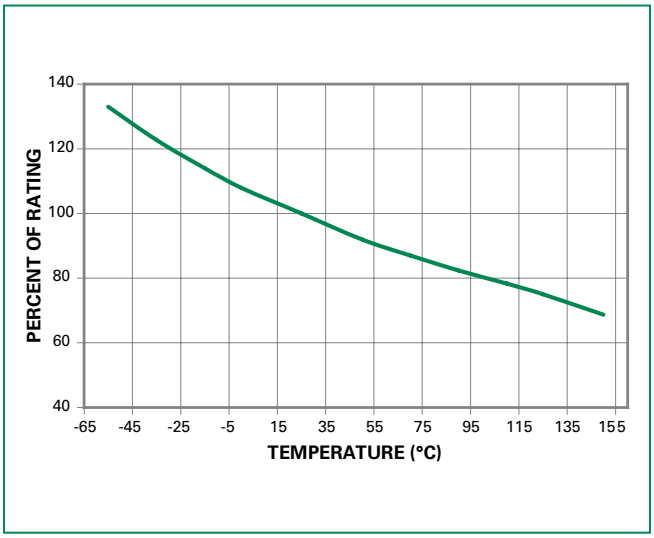
Surface Mount Fuses

Ceramic Fuse > 440 Series

Temperature Rerating Curve



Note:

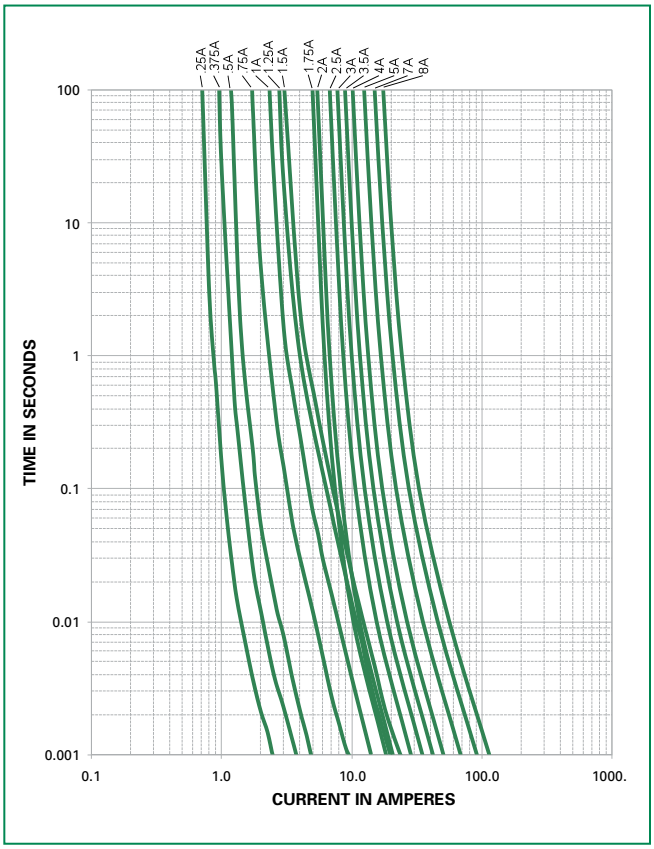
1. Rerating depicted in this curve is in addition to the standard derating of 20% for continuous operation.

Example:

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

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

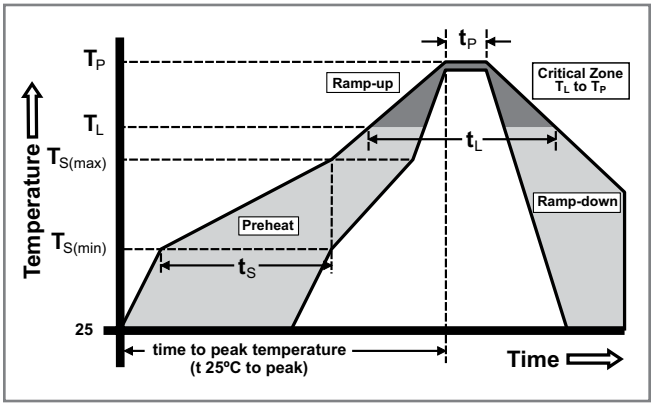
Average Time Current Curves



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.



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Surface Mount Fuses

Ceramic Fuse > 440 Series

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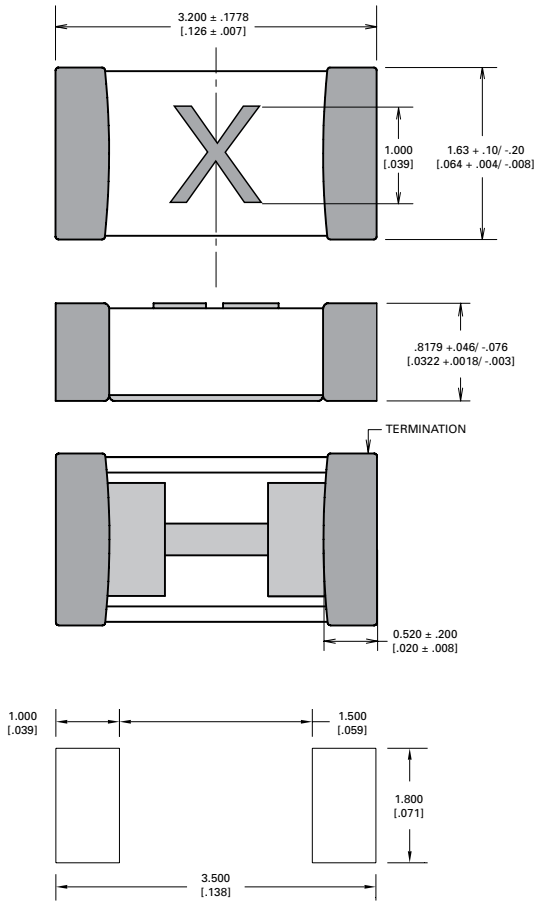
Product Characteristics

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/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

Dimensions



Part Marking System

Amp Code	Marking Code	Amp Code	Marking Code
.250	**D**	002.	**N**
.375	**E**	02.5	**O**
.500	**F**	003.	**P**
.750	**G**	03.5	**R**
001.	**H**	004.	**S**
1.25	**J**	005.	**T**
01.5	**K**	007.	**W**
1.75	**L**	008.	**X**

Part Numbering System

0440 008. W R

SERIES

AMP CODE

QUANTITY CODE
W = 3000 pcs

PACKING CODE
R = Reel Pack

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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