437 Series
1206 Fast-Acting Fuse



Description

This 100% Lead-free, RoHS compliant and Halogen-free fuse series has been designed specifically to provide over current protection to circuits might encounter high working ambient temperatures (up to 150°C). The general design ensures excellent temperature stability and performance reliability. In addition to this, the high I²t values typical of the Littelfuse Ceramic Fuse family ensure high inrush current withstand capability.

Features & Benefits

- Operating Temperature from -55°C to +150°C
- 100% Lead-free, Halogen-Free and RoHS compliant
- Suitable for both leaded and lead-free reflow / wave soldering
- UL Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- Conforms to EN60127-1 and EN60127-7 (0.5A-8A only)
- CE Mark indicates suitability for European Market
- UKCA Mark indicates suitability for the UK Market

Applications

- LCD Displays
- Servers
- Printers
- Scanners
- Data Modems

Web Resources

Download ECAD models, order samples, and find technical recources at www.littelfuse.com

Electrical Characteristics

% of Ampere Rating	Ampere Rating	Opening Time at 25°C
100%	250mA - 8A	4 hours, Minimum
250%	750mA - 8A	5 seconds, Maximum
350%	250mA -500mA	5 seconds, Maximum
350%	750mA - 8A	1 second, Maximum

Agency Approvals

Agency	Agency File/Certificate Number	Ampere Range
cULus	E10480	0.250A - 8A
CSA	29862	0.250A - 8A
CE	N/A	0.5A - 8A
TÜV	J50519871	0.5A - 8A
UKCA	N/A	0.5A - 8A

Electrical Specifications

Ampere Rating (A)	Amp Code	Max. Voltage Rating (V)	Interrupting Rating[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				
								cULus	CSA	CE	TÜV	UKCA
0.25	.250	125	50 A @ 125 V AC/DC	2.178	0.003	0.78	0.195	x	x	-	-	-
0.375	.375	125		1.265	0.01	0.6	0.225	x	x	-	-	-
0.5	.500	63	50 A @ 63 V AC/DC	0.908	0.018	0.52	0.26	x	x	x	x	x
0.75	.750	63		0.665	0.080	0.45	0.338	x	x	x	x	x
1.0	001.	63		0.42	0.106	0.41	0.41	x	x	x	x	x
1.25	1.25	63		0.318	0.257	0.4	0.5	x	x	x	x	x
1.5	01.5	63		0.209	0.398	0.39	0.585	x	x	x	x	x
1.75	1.75	63		0.071	0.084	0.27	0.473	x	x	x	x	x
2.0	002.	63		0.058	0.225	0.2	0.4	x	x	x	x	x
2.5	02.5	63	50A @ 45V AC/63V DC 50A @ 32V AC/35V DC 50A @ 32V DC	0.043	0.441	0.15	0.375	x	x	x	x	x
3.0	003.	63		0.033	0.506	0.14	0.42	x	x	x	x	x
3.5	03.5	63		0.027	0.777	0.13	0.455	x	x	x	x	x
4.0	004.	63		0.022	1.024	0.13	0.52	x	x	x	x	x
5.0	005.	63		0.0159	2.3	0.13	0.65	x	x	x	x	x
7.0	007.	35	50A @ 32V AC/35V DC 50A @ 32V DC	0.01	5.02	0.13	0.91	x	x	x	x	x
8.0	008.	35		0.0093	7.23	0.13	1.04	x	x	x	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.

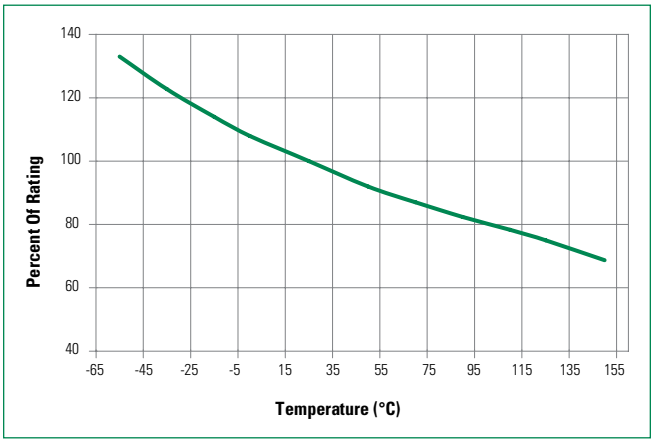
Devices designed to carry rated current for 4 hours minimum. It is recommended that devices be operated continuously at no more than 80% rated current. See "Temperature Re-rating Curve" for additional re-rating information.
Devices designed to be mounted with marking code facing up.
2.5A-5A, (50A @ 45V AC/63V DC- For cURus only, 50 A @ 32 V DC-for CSA only, 50A @ 32 V AC both cURus and CSA

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Temperature Re-rating Curve



Note:

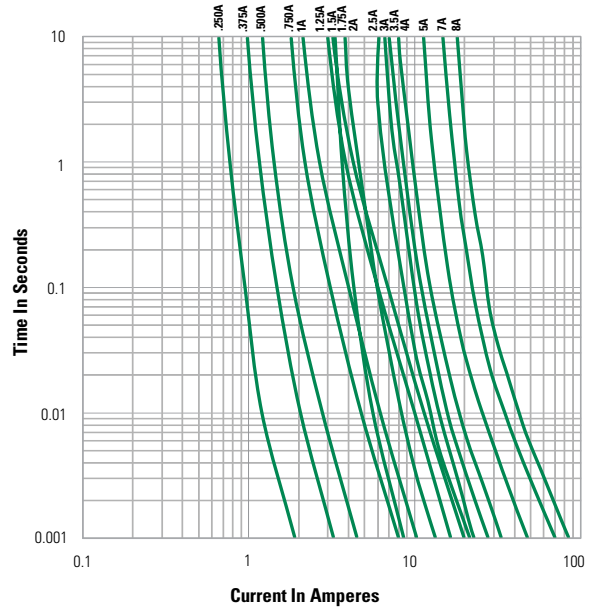
1. Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

Example:

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

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

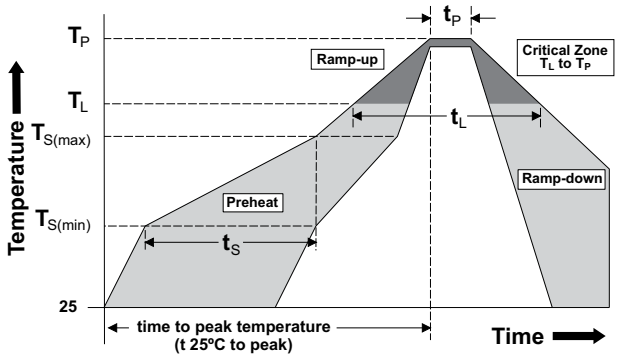
Average Time Current Curves



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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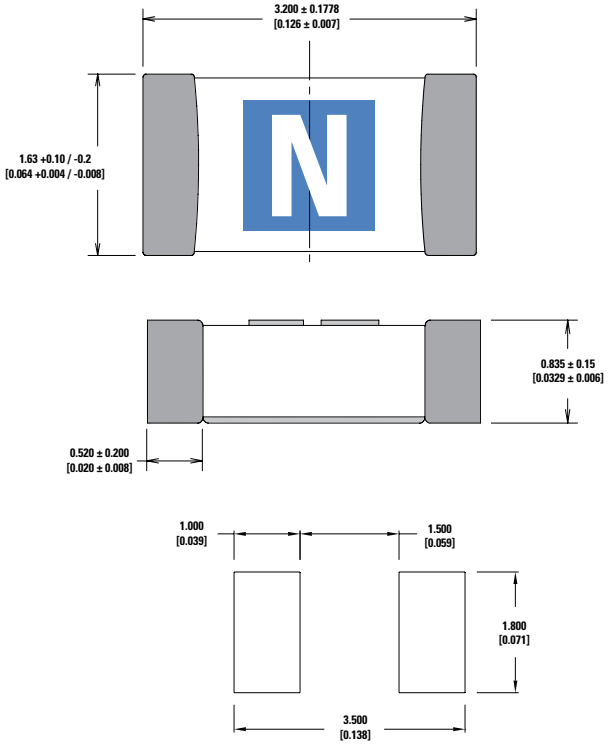
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Product Characteristics

Materials	**Body:** Advanced Ceramic **Terminations:** Ag / Ni / Sn (100% Lead-free) **Element Cover Coating:** Ceramic/Lead-free Glass
Moisture Sensitivity Level	IPC/JEDEC J-STD-020, Level 1
Solderability	IPC/EIC/JEDEC J-STD-002, Condition B
Humidity Test	MIL-STD-202, Method 103, Condition 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/EIC/JEDEC J-STD-002, Condition D
Terminal Strength	IEC 60127-4

Dimensions mm (inches)

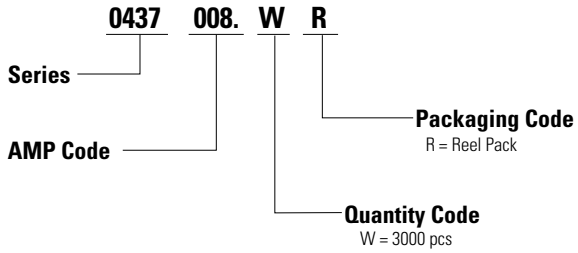


Part Marking System

Amp Code	Marking Code
0.25	**D**
0.375	**E**
0.5	**F**
0.75	**G**
1.0	**H**
1.25	**J**
1.5	**K**
1.75	**L**

Amp Code	Marking Code
2.0	**N**
2.5	**O**
3.0	**P**
3.5	**R**
4.0	**S**
5.0	**T**
7.0	**W**
8.0	**X**

Part Numbering System



Packaging

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

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