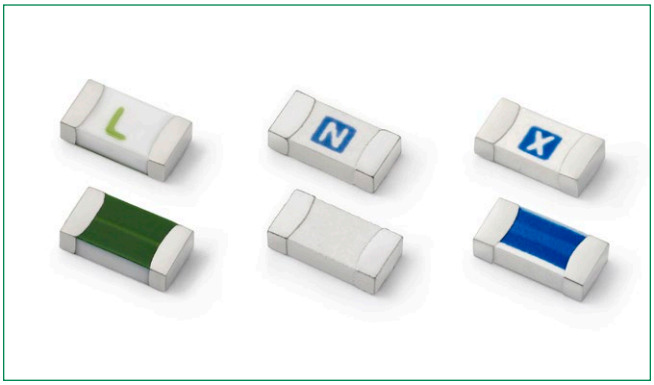
437 Series – 1206 Fast-Acting Fuse



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

- 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

Applications

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

Agency Approvals

Agency	Agency File Number	Ampere Range
c UL us	E10480	0.250A - 8A
	29862	0.250A - 8A

Electrical Characteristics for Series

% 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

Additional Information

Datasheet | Resources | Samples

Electrical Specifications by Item

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	
								c UL us	
0.25	.250	125	50 A @ 125 V AC/DC	2.29	0.003	0.78	0.195	x	x
0.375	.375	125		1.33	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
0.75	.750	63		0.665	0.064	0.45	0.338	x	x
1.0	001.	63		0.42	0.1	0.41	0.41	x	x
1.25	1.25	63		0.318	0.256	0.4	0.5	x	x
1.5	01.5	63		0.209	0.324	0.39	0.585	x	x
1.75	1.75	63		0.071	0.075	0.27	0.473	x	x
2.0	002.	63		0.058	0.225	0.2	0.4	x	x
2.5	02.5	45	50A @ 45V AC/63V DC	0.043	0.441	0.15	0.375	x	x
3.0	003.	45		0.033	0.506	0.14	0.42	x	x
3.5	03.5	45		0.027	0.777	0.13	0.455	x	x
4.0	004.	45		0.022	1.024	0.13	0.52	x	x
5.0	005.	45		0.0159	2.3	0.13	0.65	x	x
7.0	007.	32	50 A @ 32 V AC/35 V DC	0.01	5.02	0.13	0.91	x	x
8.0	008.	32		0.008	7.23	0.13	1.04	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.

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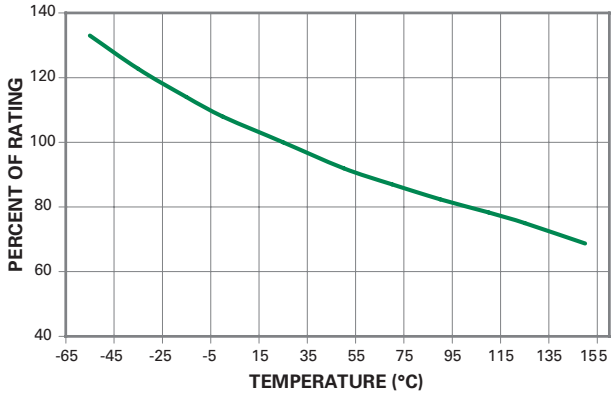
Temperature Re-rating Curve



Note:

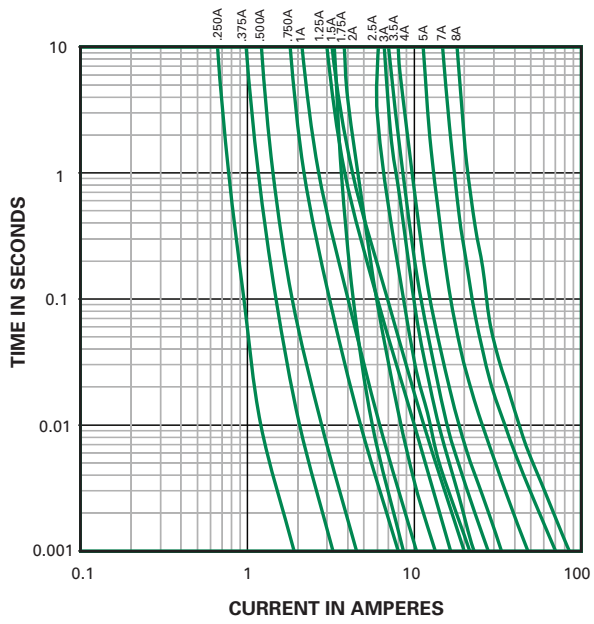
1. Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

Example:

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

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

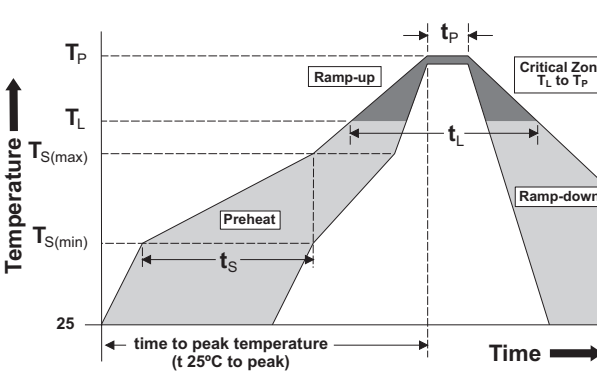
Average Time Current Curves



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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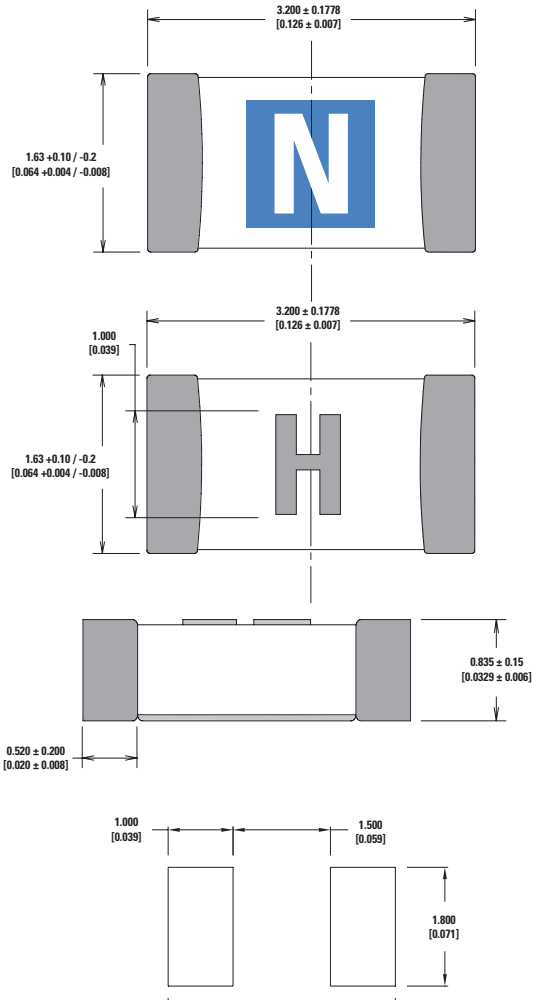
Surface Mount Fuses
Ceramic Fuse > 437 Series

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

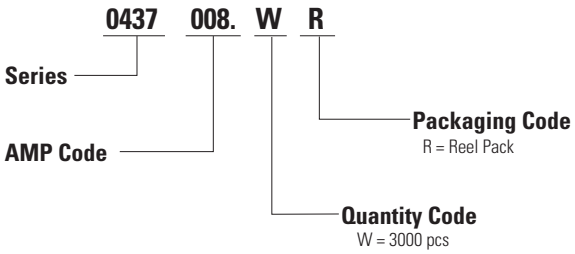


Part Marking System

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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