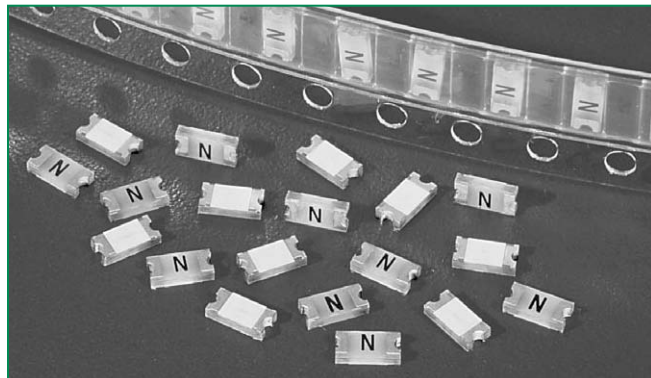


## 433 Series Fuse



### Description



The 433 series fast-acting surface mount fuse series is a small (1206 size) thin-film device designed for secondary protection of circuits used in space constrained applications such as hand-held portable electronic devices.

For RoHS compliant and lead-free design, please refer to the Littelfuse 466 series thin film fuse. For new designs of 7 amp please refer to Littelfuse 429 series thin film fuse.

### Features

- The SlimLine 1206 fuse is an extremely small, low profile design (1206 chip size) utilizing thin-film technology to achieve precise control of electrical characteristics.
- The lower height profile produces a flat surface for improved performance in pick-and-place operations and an alternate solution for height critical application.
- Mounting pad and electrical specification are identical to the popular 429 Series specifications.

### Agency Approvals

Agency	Agency File Number	Ampere Range
	E10480	125mA - 5A
	LR29862	125mA - 5A

### Electrical Characteristics for Series



% of Ampere Rating	Opening Time at 25°C
100%	4 hours, Minimum
200%	5 sec., Maximum
300%	0.2 sec., Maximum

### Applications

Secondary protection for space constrained applications such as:

- Cell phones
- Battery packs
- Digital cameras
- DVD players
- Hard disk drives.

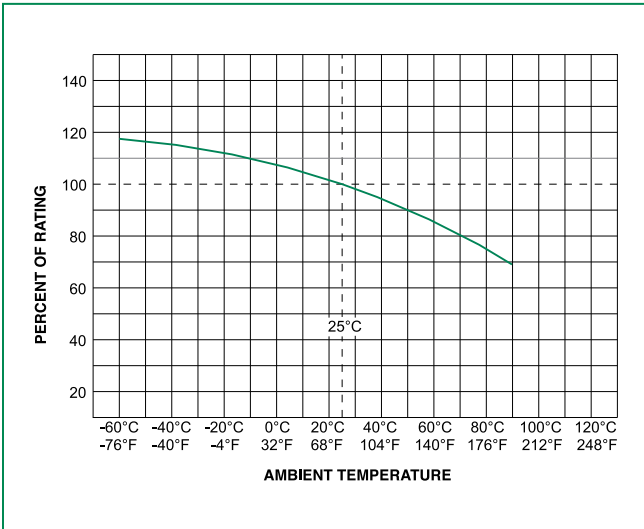
### Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec)	Agency Approvals	
							
0.125	.125	125	50A @125 V AC/DC	3.45000	0.00040	x	x
0.200	.200	125		0.93800	0.00055	x	x
0.250	.250	125		0.62500	0.00100	x	x
0.375	.375	125		0.37500	0.00280	x	x
0.50	.500	63	50A @63 V AC/DC	0.24050	0.00600	x	x
0.60	.600	63		0.21000	0.01310	x	x
0.75	.750	63		0.13700	0.01700	x	x
0.80	.800	63		0.12250	0.03050	x	x
1.00	.001	63		0.09950	0.03500	x	x
1.25	1.25	63		0.07475	0.06500	x	x
1.50	01.5	63		0.06250	0.12500	x	x
1.75	1.75	63		0.05000	0.15000	x	x
2.00	02.0	63		0.03975	0.23000	x	x
2.50	02.5	32		50A @32 V AC/DC	0.03065	0.50000	x
3.00	03.0	32	0.02625		0.70000	x	x
4.00	04.0	24	50A @24 V AC/DC	0.01400	1.0240	x	x
5.00	05.0	24		0.01100	1.6000	x	x

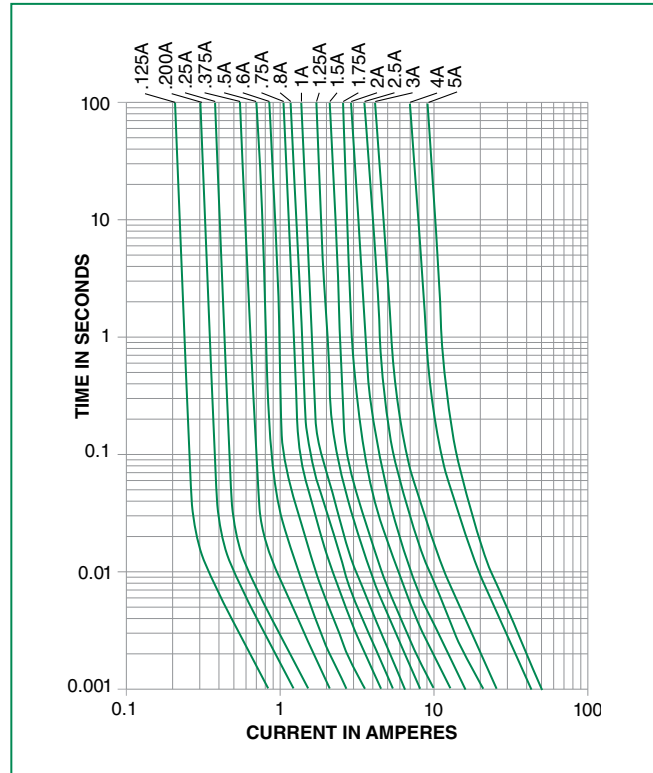
1. Measured at 10% of rated current, 25°C.

2. Measured at rated voltage.

### Temperature Derating Curve

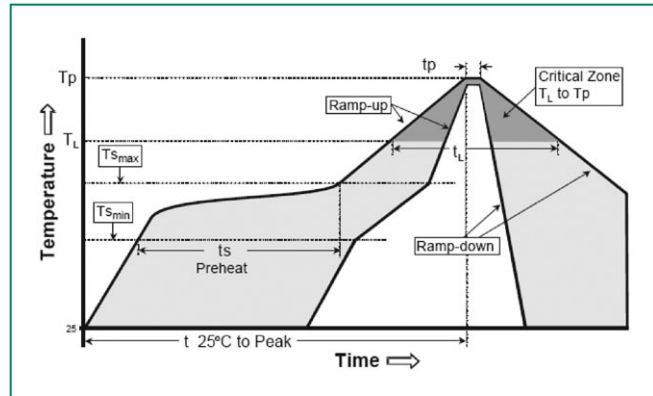


### Average Time Current Curves



### Soldering Parameters - Wave Soldering

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 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		5°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 ( $T_p$ )		250 <sup>+0/-5</sup> °C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes Max.
Do not exceed		260°C

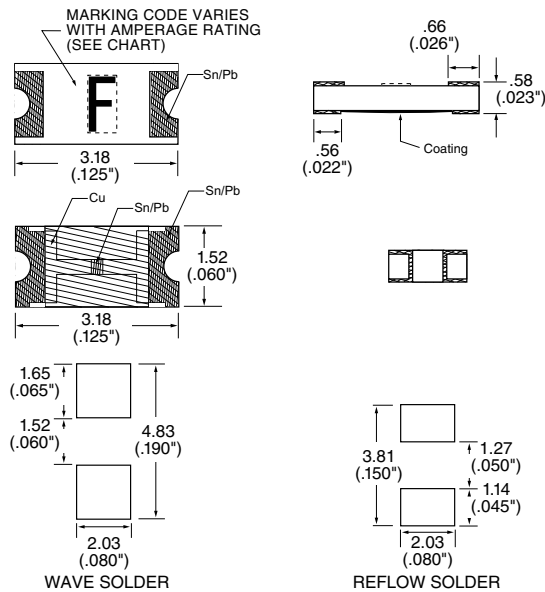


## Product Characteristics

<b>Materials</b>	<b>Body:</b> Epoxy Substrate <b>Terminations:</b> 95% Tin / 5% Lead over Nickel over Copper <b>Element Cover Coat:</b> Conformal Coating
<b>Operating Temperature</b>	- 55°C to 90°C. Consult temperature derating curve chart.
<b>Thermal Shock</b>	Withstands 5 cycles of - 55°C to 125°C

<b>Humidity</b>	MIL-STD-202F Method 103B Condition D
<b>Vibration</b>	Per MIL-STD-202F, Method 201A
<b>Insulation Resistance (After Opening)</b>	Greater than 10,000 ohms.
<b>Resistance to Soldering Heat</b>	Withstands 60 seconds above 200°C and up to 260°C, maximum

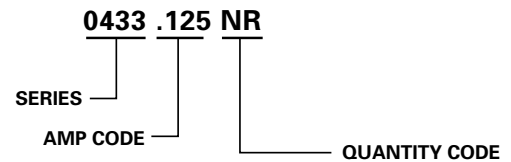
## Dimensions



## Part Marking System

Amp Code	Marking Code
.125	<b>B</b>
.200	<b>C</b>
.250	<b>D</b>
.375	<b>E</b>
.500	<b>F</b>
.600	<b>.6</b>
.750	<b>G</b>
.800	<b>.8</b>
001.	<b>H</b>
1.25	<b>J</b>
01.5	<b>K</b>
1.75	<b>L</b>
002.	<b>N</b>
02.5	<b>O</b>
003.	<b>P</b>
03.5	<b>R</b>
004.	<b>S</b>
005.	<b>T</b>

## Part Numbering System



## Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
Tape & Reel - 8mm tape	EIA RS-481-1 (IEC 286, part 3)	5000	NR