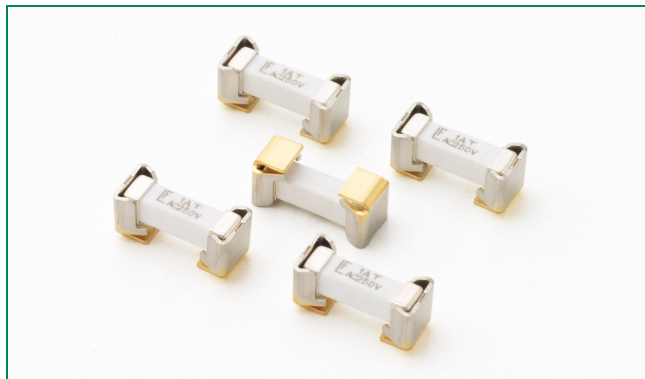



## 160 Series Fuse and Clip Assembly



### Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE
	E14721	0.5A - 5A

### Electrical Characteristics for Series

% of Ampere Rating	Opening Time
100%	4 hours, Minimum
250%	120 seconds, Maximum

### Additional Information



Datasheet



Resources



Samples

### Description

The 160 Series product is a metal fuse clip with pre-installed Littelfuse 443 Series Fuse. This fuse and clip combination can be automatically installed in PC Boards in one efficient manufacturing operation. It permits quick and easy fuse replacement without exposing the PC Boards and other components to risks of rework solder heat as required with direct surface mount fuses.

It is designed to enable compliance with the RoHS directive. This product is fully compatible with lead-free solder alloy and higher temperature profiles associated with lead-free assembly.


### Features

- Offer low profile easily-replaceable fuse alternative compatible with automated PCB surface mount equipment
- Come supplied with Littelfuse 443 Series Time-Lag 250V Nano<sup>2</sup>® Fuse
- RoHS compliant and Halogen Free
- Clip fully compatible with RoHS/lead-free solder alloys and higher temperature profiles associated with lead-free assembly
- 0.5A - 5A ampere rating available

### Applications

- AC/DC power adaptor
- Telecom equipment system power
- Portable system built-in AC/DC converter
- High voltage DC/DC converter
- Lighting System
- LED Lighting

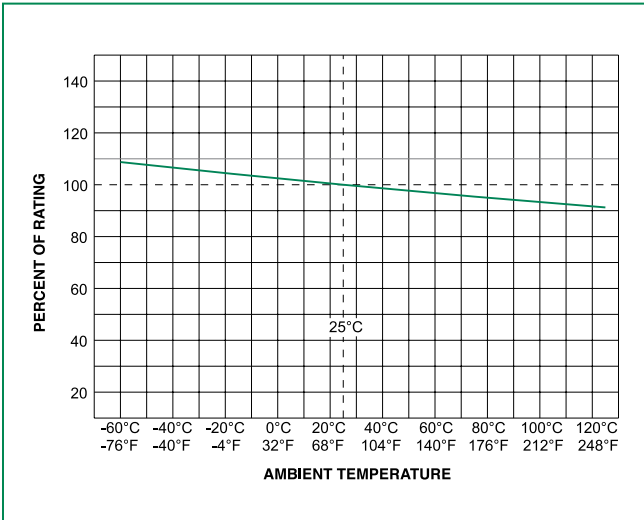
### Electrical Specifications by Item

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)	Nominal Voltage Drop (mV)	Agency Approvals
							
0.50	0.50	250	50 A @ 250 VAC	.5974	1.96	334	X
0.75	0.75	250		.2729	2.25	223	X
1.00	001.	250		.1826	9.00	207	X
1.50	01.5	250		.1100	15.21	210	X
2.00	002.	250		.0511	18.50	117	X
2.50	02.5	250		.0392	22.20	156	X
3.00	003.	250		.0276	59.29	103	X
3.50	03.5	250		.0199	59.34	87	X
4.00	004.	250		.0160	68.10	83	X
5.00	005.	250		.0115	122.39	73	X

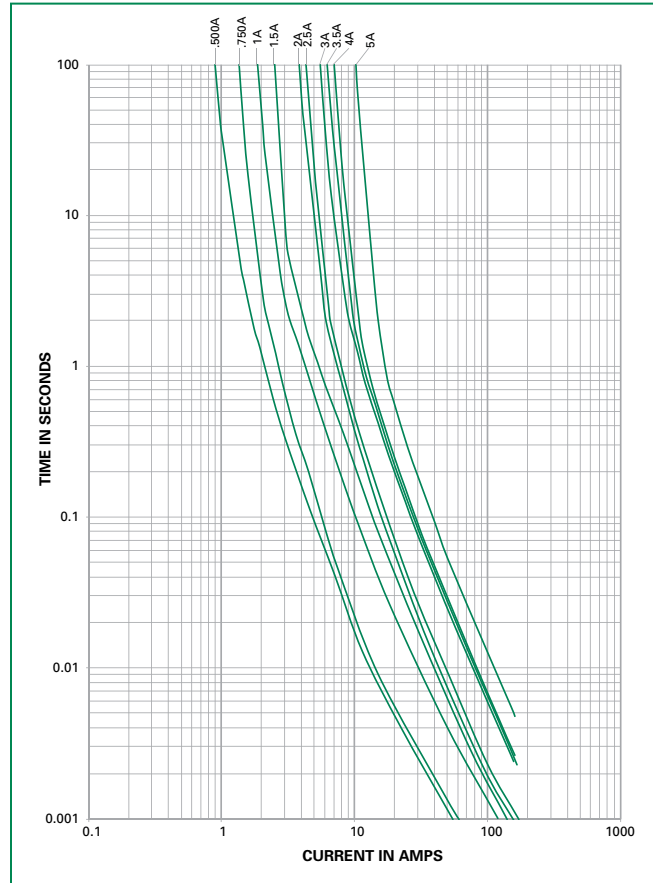
Notes:

1. Cold resistance measured at less than 10% of rated current at 23°C.
2. Agency Approval Table Key: X=Approved or Certified, P=Pending.

**Temperature Derating Curve**

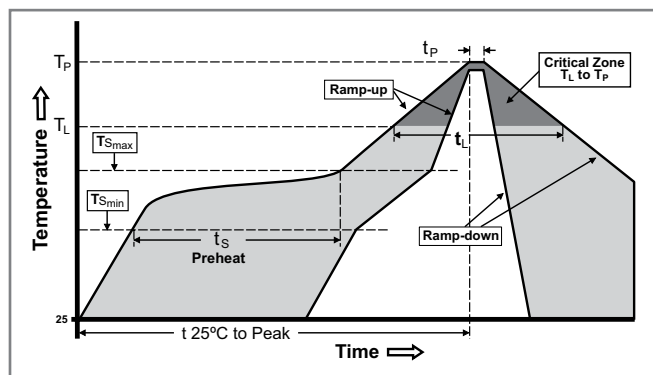


**Average Time Current Curves**



**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)	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 ( $T_p$ )	260 <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	

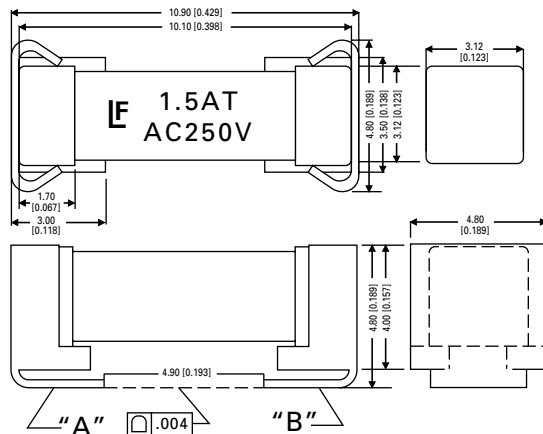


## Product Characteristics

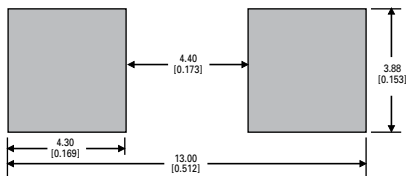
<b>Materials</b>	<b>Body:</b> Ceramic <b>Cap:</b> Silver-plated Brass
<b>Product Marking</b>	Brand, Ampere Rating, Voltage Rating, UMF Logo
<b>Insulation Resistance</b> (after Opening)	MIL-STD-202, Method 302, Test Condition A (10,000 ohms, Minimum)
<b>Solderability</b>	MIL-STD-202, Method 208
<b>Resistance to Soldering Heat</b>	MIL-STD-202, Method 210, Test Condition B (10 seconds at 260°C)
<b>Moisture Sensitivity Level</b>	Level 1 J-STD-020C

<b>Operating Temperature</b>	-55°C to 125°C with proper derating
<b>Thermal Shock</b>	MIL-STD-202F, Method 107G, Test Condition B (5 cycles, -65°C to 125°C)
<b>Vibration</b>	MIL-STD-202F, Method 201A (10-55 Hz)
<b>Moisture Resistance</b>	MIL-STD-202, Method 106, High Humidity (90-98%RH), Heat (65°C)
<b>Salt Spray</b>	MIL-STD-202F, Method 101D, Test Condition B
<b>Mechanical Shock</b>	MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 msecs.)

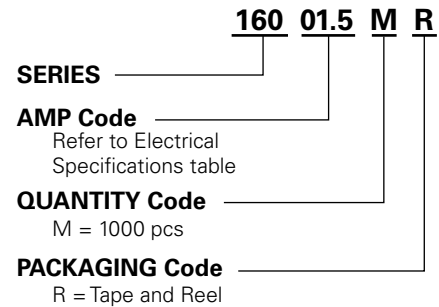
## Dimensions



Recommended Pad Layout



## Part Numbering System



**Example:**  
1.5 amp product is  
016001.5 MR

## Packaging

Form Factor	Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
Surface Mount	24mm Tape and Reel	EIA-RS 481-2 (IEC 286, part 3)	1000	MR