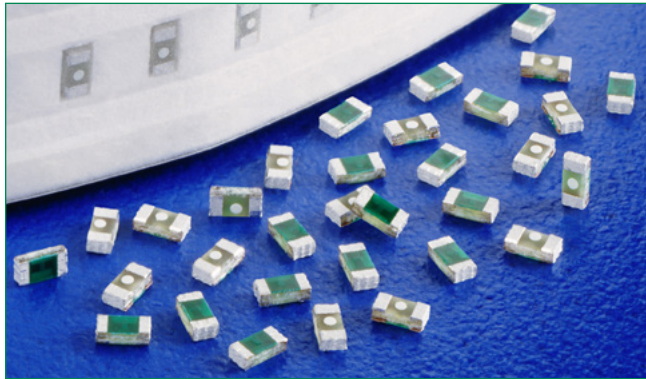


### 435 Series 0402 Fast-Acting Fuse





#### Description

The 435 Series are fast-acting surface mount thin-film fuses. Their ultra-small size (0402 size) makes them ideal for secondary protection of circuits used in space constrained applications such as hand-held portable electronic devices.

This series is 100% lead-free and meet the requirements of the RoHS directive. New Halogen-Free 435 Series fuses are available—to order use the “HF” suffix. See Part Numbering section for additional information.

#### Agency Approvals

Agency	Agency File Number	Ampere Range
	E10480	0.250A - 5.0A
	29862	0.250A - 5.0A

#### Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time at 25°C
100%	0.250A - 5A	4 hours, Minimum
200%	0.375A - 5A	5 secs., Maximum
300%	0.250A	5 secs., Maximum
300%	0.375A - 5A	0.2 sec., Maximum

#### Additional Information



Datasheet



Resources



Samples

#### Features



- 50A interrupt rating at 32VDC
- Small size with current ratings of 0.25 to 5.0 amperes
- RoHS compliant, Lead-Free and Halogen-Free
- Enhanced Breaking Capacity, High I<sup>2</sup>t
- Maximum protection of sensitive circuits as fuses are designed to open consistently in <5sec at 200% overload.
- Recognized to UL/CSA/ NMX 248-1 and UL/CSA/ NMX 248-14

#### Applications

Secondary protection for space constrained applications such as:

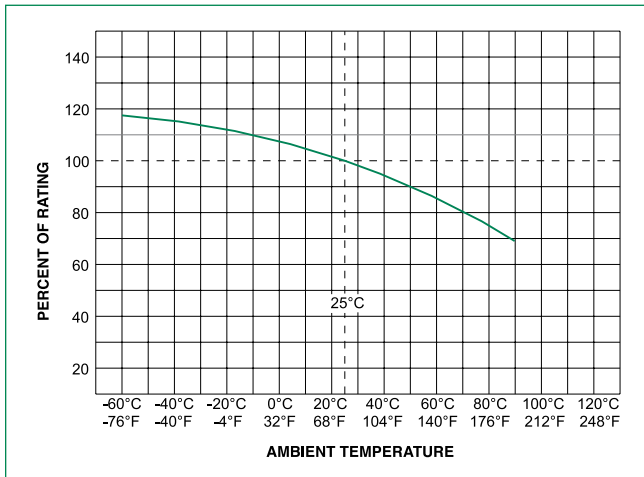
- Cell phones
- Battery packs
- Digital cameras
- DVD players
- Hard disk drives.

#### 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)	Nom Voltage Drop (mV)	Nom Power Dissipation (W)	Agency Approvals	
									
0.250	.250	32	50A @32VDC <sup>2</sup>	0.3600 <sup>1</sup>	0.0025	92.49	0.0231	x	x
0.375	.375	32		0.1930 <sup>1</sup>	0.0035	84.64	0.03174	x	x
0.500	.500	32		0.1600 <sup>1</sup>	0.0053	93.35	0.04668	x	x
0.750	.750	32		0.1050 <sup>1</sup>	0.0120	101.84	0.07638	x	x
1.00	001.	32		0.0730 <sup>1</sup>	0.0200	87.45	0.08745	x	x
1.25	1.25	32		0.0600 <sup>1</sup>	0.0350	96.37	0.12046	x	x
1.50	01.5	32		0.0470 <sup>1</sup>	0.0560	86.70	0.13005	x	x
1.75	1.75	32		0.0390 <sup>1</sup>	0.0750	81.13	0.14198	x	x
2.00	002.	32		0.0300 <sup>1</sup>	0.1000	70.62	0.14120	x	x
2.50	02.5	32		0.0200 <sup>1</sup>	0.1560	55.25	0.13813	x	x
3.00	003.	32		0.0170 <sup>1</sup>	0.2032	60.58	0.18740	x	x
3.50	03.5	32		0.0150 <sup>1</sup>	0.3017	57.84	0.20244	x	x
4.00	004.	32		0.0105 <sup>1</sup>	0.3084	57.00	0.22800	x	x
5.00	005.	32		0.0085 <sup>1</sup>	0.5310	52.44	0.26220	x	x

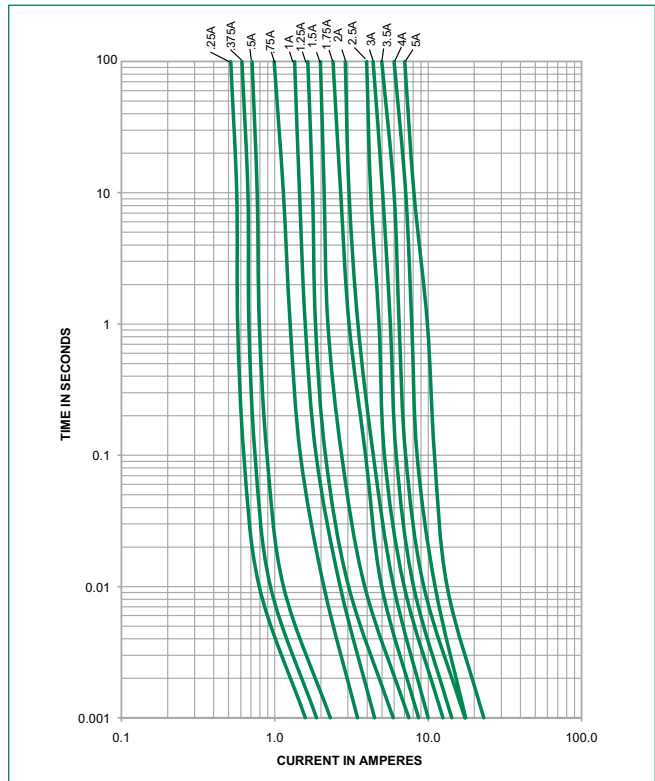
1. Measured at 10% of rated current, 25°C.  
2. Measured at rated voltage.

**Temperature Re-rating Curve**



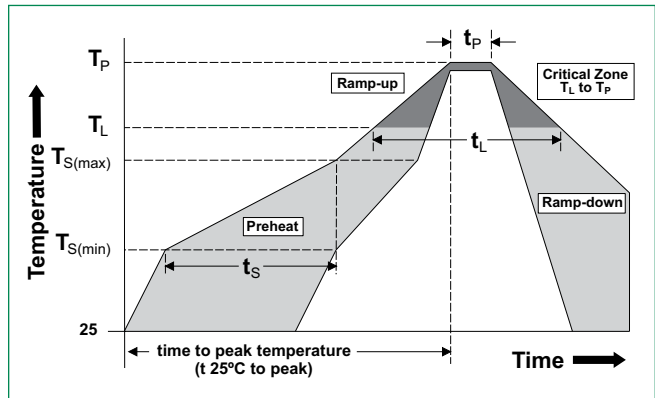
**Notes:**  
 1. Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.  
**Example:**  
 For continuous operation at 70 degrees celsius, the fuse should be derated as follows:  
 $I = (0.75)(0.60)I_{RAT} = (0.60)I_{RAT}$   
 2. The temperature derating curve represents the nominal conditions. For questions about temperature derating curve, please consult Littelfuse technical support for assistance.

**Average Time Current Curves**



**Soldering Parameters**

<b>Reflow Condition</b>		Pb - Free assembly
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (Min to Max) ( $t_s$ )	60 - 120 secs
<b>Average ramp up rate (Liquidus Temp (<math>T_L</math>) to peak)</b>		5°C/second max
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		5°C/second max
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Temperature ( $t_L$ )	60 - 150 seconds
<b>Peak Temperature (<math>T_p</math>)</b>		250 <sup>+0/-5</sup> °C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		20 - 40 seconds
<b>Ramp-down Rate</b>		5°C/second max
<b>Time 25°C to peak Temperature (<math>T_p</math>)</b>		8 minutes Max.
<b>Do not exceed</b>		260°C
<b>Wave Soldering</b>	260°C, 10 seconds max.	

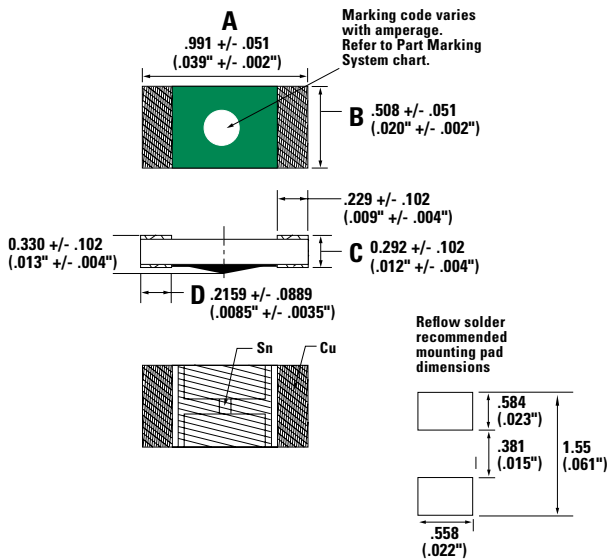


### Product Characteristics

<b>Materials</b>	<b>Body:</b> Epoxy / Glass Substrate; Parts with 'HF' suffix: Halogen Free Epoxy / Glass <b>Terminations:</b> 100% Tin over Nickel over Copper <b>Device Weight:</b> 0.316mg
<b>Terminal Strength</b>	MIL-STD-202, Method 211, Test Condition A
<b>Insulation Resistance</b>	After Opening: Greater than 10,000Ohms

<b>Operating Temperature</b>	-55°C to 90°C. Consult temperature re-rating curve chart. For operation above 90°C please contact Littelfuse.
<b>Thermal Shock</b>	Withstands 5 cycles of -55°C to 125°C
<b>Vibration</b>	MIL-STD-202, Method 201

### Dimensions



Unit	A	B	C	D
inch min	0.037	0.018	0.008	0.005
inch max	0.041	0.022	0.016	0.012
mm min	0.94	0.457	0.190	0.127
mm max	1.04	0.559	0.394	0.305

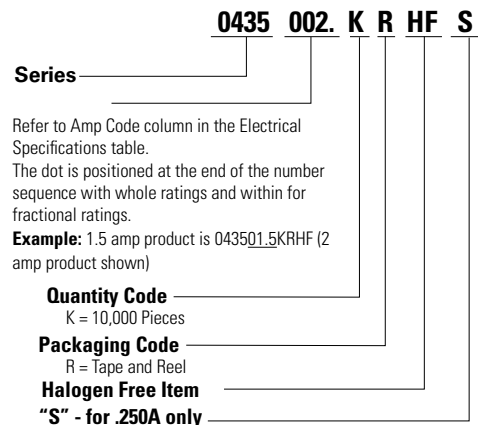
### Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
8mm Tape and Reel	EIA-481 Rev. D (IEC 60286, part 3)	10000	KR

### Part Marking System

Amp Code	Marking Code
0.250	□X□
0.375	□·□
0.500	□·□
0.750	□·□
001.	□□□
1.25	□·□
01.5	□□□
1.75	□·□
002.	□·□
02.5	□·□
003.	□□□
03.5	□·□
004.	□□□
005.	□·□

### Part Numbering System



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[R06.000.8](#) [R06.100.0.75](#) [R06.100.8](#) [R06.100.0.375](#) [R06.000.7](#) [R06.100.7](#) [S0603-S-2.0A](#) [F06F3.5](#) [F12F20](#) [TA3VT2](#) [F12F1](#) [F06F7](#) [F06T3.5](#)  
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