

## 467 Series 0603 Fast-Acting Fuse





### **Agency Approvals**

	AGENCY	AGENCY FILE NUMBER	AMPERE RANGE		
	c <b>'71</b> 0' us	E10480	0.250A - 5A		
•	<b>®</b> .	29862	0.250A - 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	

### **Description**

The 467 Series Fast-Acting Surface Mount Fuse (SMF) is an ultra small (0603 size) thin-film device designed for secondary protection of circuits used in space constrained applications such as hand-held portable electronic devices. This series is 100% lead-free and meets the requirements of the RoHS directive. New Halogen-Free 467 Series fuses are available-to order use the "HF" suffix. See Part Numbering section for additional information..

#### **Features**

- Compatible with leadfree solders and higher temperature profiles
- High performance materials provide improved performance in elevated ambient temperature applications
- Marked on top surface with code to allow amp rating identification without . testing
- Low profile for height sensitive applications

- Flat top surface for pickand-place operations
- Element covering material is resistant to industry standard cleaning operations
- Mounting pad and electrical performance is identical to Littelfuse 431 and 434 Series products
- Halogen free, Lead-free and RoHS compliant

### **Additional Information**

**Electrical Specifications by Item** 







Samples

### **Applications**

Secondary protection for space constrained applications:

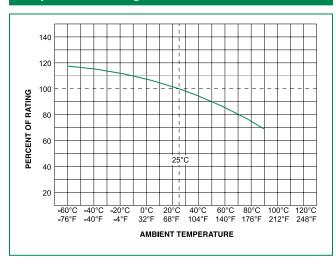
- Cell phones
- DVD players
- Battery packs
- · Hard disk drives.
- Digital cameras

	•	•							
Ampere		Max		• I Resistance	Nominal Melting I²t (A²sec)	Nom Voltage Drop (mV)	Nom Power Dissipation (W)	Agency Approvals	
Rating (A)	Rating Amp	Voltage Rating (V)	Interrupting Rating					c <b>'71</b> °us	<b>(1)</b>
0.250	.250	32		0.5650	0.0014	158.56	0.0396	X	Х
0.375	.375	32		0.3000	0.0035	128.03	0.0480	х	Х
0.500	.500	32	50A @32V AC/DC	0.1870	0.0087	138.50	0.0693	Х	Х
0.750	.750	32		0.1170	0.0171	123.30	0.0925	х	Х
1.00	001.	32		0.0700	0.0212	67.40	0.0674	х	Х
1.25	1.25	32	35A @32V AC/DC	0.0510	0.0518	84.32	0.1054	х	Х
1.50	01.5	32	13A @65V DC	0.0385	0.0766	71.60	0.1074	Х	Х
1.75	1.75	32		0.0310	0.0903	78.75	0.1378	х	Х
2.00	002.	32		0.0280	0.1891	78.22	0.1564	Х	Х
2.50	02.5	32		0.0210	0.2066	76.10	0.1903	х	Х
3.00	003.	32	35A @32V AC/DC	0.0170	0.2403	75.04	0.2251	Х	Х
3.50	03.5	32		0.0139	0.4306	65.30	0.2286	х	Х
4.00	004.	32		0.0118	0.8410	63.10	0.2524	Х	Х
5.00	005.	32		0.0089	0.9000	61.20	0.3060	Х	Х
1 Mary 1997 (1 may 1970 - 2 Mary 1997 (1 may 1997)									

<sup>1.</sup> Measured at 10% of rated current, 25°C. 2. Measured at rated voltage.



### **Temperature Rerating Curve**



#### Note:

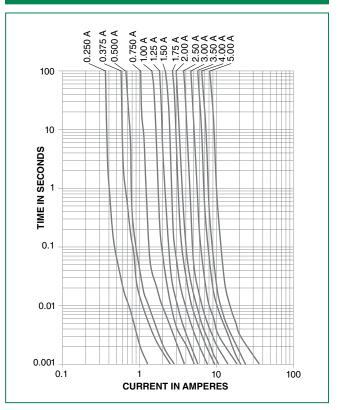
 Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

#### Example:

For continuous operation at 70 degrees celsius, the fuse should be derated as follows: I =  $(0.75)(0.80)I_{BAT} = (0.60)I_{BAT}$ 

The temperature derating curve represents the nominal conditions. For questions about temperature derating curve, please consult Littelfuse technical support for assistance.

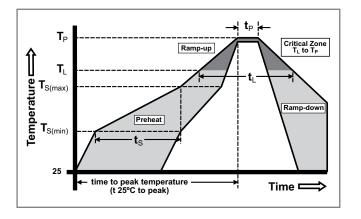
### **Average Time Current Curves**



### **Soldering Parameters**

Reflow Co	ndition	Pb – Free assembly	
	-Temperature Min (T <sub>s(min)</sub> )	150°C	
Pre Heat	-Temperature Max (T <sub>s(max)</sub> )	200°C	
	-Time (Min to Max) (t <sub>s</sub> )	60 – 180 secs	
Average ra (T <sub>L</sub> ) to pea	amp up rate (Liquidus Temp k	5°C/second max	
T <sub>S(max)</sub> to T	- Ramp-up Rate	5°C/second max	
Reflow	-Temperature (T <sub>L</sub> ) (Liquidus)	217°C	
nellow	-Temperature (t <sub>L</sub> )	60 – 150 seconds	
PeakTemp	perature (T <sub>P</sub> )	250+ <sup>0/-5</sup> °C	
Time with Temperate	in 5°C of actual peak ure (t <sub>p</sub> )	20 – 40 seconds	
Ramp-dov	vn Rate	5°C/second max	
Time 25°C	to peakTemperature (T <sub>P</sub> )	8 minutes Max.	
Do not exc	ceed	260°C	





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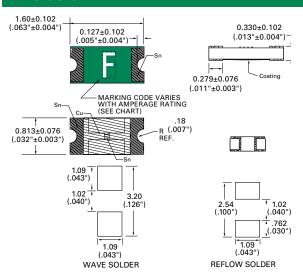


### **Product Characteristics**

Materials	Body: Advanced High Temperature Substrate Terminations: 100% Tin over Nickel over Copper Element Cover Coat: Conformal Coating	
Operating Temperature	– 55°C to 90°C. Consult temperature re-rating curve chart. For operation above 90°C contact Littelfuse.	
Humidity	MIL-STD-202, Method 103, Condition D	

Thermal Shock	Withstands 5 cycles of – 55°C to 125°C		
Vibration	Per MIL-STD-202		
Insulation Resistance (After Opening)	Greater than 10,000 ohms.		
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition D		

### **Dimensions**



### **Part Marking System**

Amp Code	Marking Code
.250	D
.375	E
.500	F
.750	G
001.	Н
1.25	J
01.5	K
1.75	L

Amp Code	Marking Code
002.	N
02.5	0
003.	Р
03.5	R
004.	S
005.	Т

### **Packaging**

Packaging	Packaging	Quantity	Quantity &
Option	Specification		Packaging Code
8mm Tape and Reel	EIA-481 Rev. D (IEC 60286, part 3)	5000	NR

### **Part Numbering System**

# <u>0467002.NRHF</u>

SERIES

**AMP Code** 

The dot is poisitioned before the Packaging Suffix with whole ratings and within the numbering sequence for fractional ratings. Refer to Amp Code column in the Electrical Specifications table.

PACKAGING Code

NR = Tape and Reel, 5000 pcs

'HF' SUFFIX HALOGEN FREE ITEM Example:

1.5 amp product is 0467**01.5**NRHF (2 amp product shown above).

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