

# RoHS HF 440 Series, 1206 High I2t Fuse







### **Agency Approvals**

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE
<b>71</b> 2	E10480	1.75A - 8A
<b>⊕</b> ;	Pending	1.75A - 8A

### **Electrical Characteristics for Series**

% of Ampere Rating	Ampere Rating	Opening Time at 25°C
100%	1.75A - 8A	4 hours, Minimum
350%	1.75A - 8A	5 secs., Maximum

### **Description**

The 440 Series is a 100% Lead-free, RoHS compliant and Halogen-free fuse series designed specifically to provide over-current protection to circuits that operate under high working ambient temperatures up to 150°C and high inrush currents.

The general design ensures excellent temperature stability and performance reliability.

This high I2t fuse series is designed to have ultra high inrush current withstand capability to avoid nuisance fuse open.

### **Features**

- Operating Temperature from -55°C to +150°C
- 100% Lead-free, RoHS compliant and Halogen-
- Suitable for both leaded and lead-free reflow / wave soldering
- Ultra high I<sup>2</sup>t values

### **Applications**

- Automotive Electronics
- LCD Displays
- Servers
- Notebook Computers
- **Printers**
- Scanners
- Data Modems
- Hard Disk Drives

### **Electrical Specifications by Item**

Ampere Amp Max.		latamantia a Datia a	Nominal	Nominal Nominal Voltage		Nominal Power	Agency Approvals		
Rating (A)	Amp Code	Voltage Rating (V)	Interrupting Rating (AC/DC) <sup>1</sup>	Resistance (Ohms) <sup>2</sup>	Melting I <sup>2</sup> t (A <sup>2</sup> Sec.) <sup>3</sup>	Drop At Rated Current (V) <sup>4</sup>	Dissipation At Rated Current (W)	<i>9</i> 1	<b>®</b> ;
1.75	1.75	32		0.04121	0.3312	0.07769	0.136	×	х
2	002.	32		0.03582	0.4326	0.07921	0.158	×	Х
2.5	02.5	32		0.026706	0.8191	0.0747	0.187	X	Х
3	003.	32	50 A @ 32 V AC/DC	0.022	1.232	0.07418	0.223	×	х
3.5	03.5	32		0.01877	1.789	0.07566	0.265	×	х
4	004.	32		0.01515	2.601	0.07088	0.284	×	Х
5	005.	32		0.01119	4.761	0.06544	0.327	X	Х
7	007.	32		0.00794	8.464	0.06963	0.487	х	Х
8	008.	32		0.00646	12.95	0.065526	0.524	х	Х

### Notes:

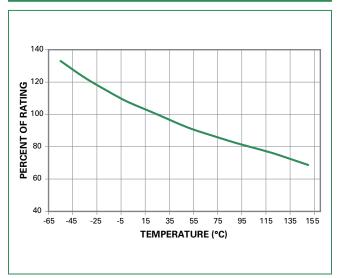
- AC Interrupting Rating tested at rated voltage with unity power factor. DC Interrupting Rating tested at rated voltage with time constant < 0.8 msec.
- 2. Nominal Resistance measured with < 10% rated current.
- 3. Nominal Melting I2t measured at 1 msec, opening time.
- 4. Nominal Voltage Drop measured 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 Derating Curve" for additional derating information.

Devices designed to be mounted with marking code facing up.



## **Temperature Derating Curve**



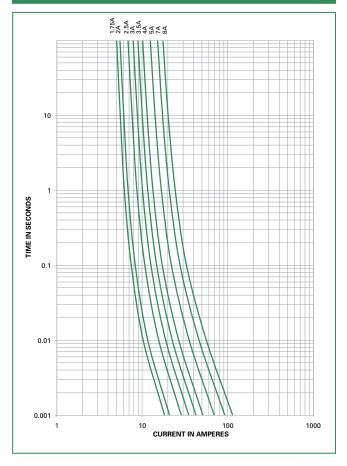
#### Note

 Derating depicted in this curve is in addition to the standard derating of 20% for continuous operation.

#### Example:

For continuous operation at 75 degrees celsius, the fuse should be derated as follows: I =  $(0.80)(0.85)I_{RAT} = (0.68)I_{RAT}$ 

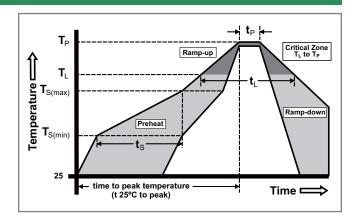
## **Average Time Current Curves**



## **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 seconds	
Average R (T <sub>L</sub> ) to pea	amp-Up Rate (Liquidus Temp k)	3°C/second max.	
T <sub>S(max)</sub> to T <sub>L</sub> - Ramp-up Rate		5°C/second max.	
Reflow	-Temperature (T <sub>L</sub> ) (Liquidus)	217°C	
	-Temperature (t <sub>L</sub> )	60 – 150 seconds	
PeakTemperature (T <sub>p</sub> )		260 <sup>+0/-5</sup> °C	
Time with Temperate	in 5°C of actual peak ure (t <sub>p</sub> )	10 – 30 seconds	
Ramp-down Rate		6°C/second max.	
Time 25°C	to peakTemperature (T <sub>P</sub> )	8 minutes max.	
Do not exceed		260°C	





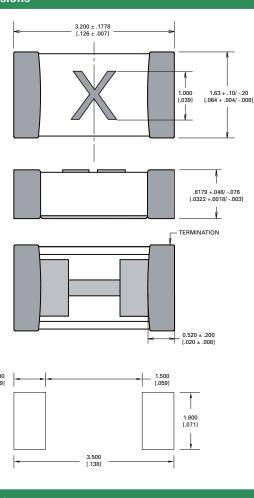


### **Product Characteristics**

Materials  Body: Advanced Ceramic Terminations: Ag / Ni / Sn (100% Lea Element Cover Coating: Lead-free G		
Moisture Sensitivity Level	IPC/JEDEC J-STD-020C, Level 1	
Solderability	IPC/ECA/JEDEC J-STD-002B, Condition C	
<b>Humidity Test</b>	MIL-STD-202, Method 103B, Conditions D	
ESD Immunity IEC 61000-4-2, 8kV Direct		
Resistance to Solder Heat	MIL-STD-202, Method 210F, Condition B	

Moisture Resistance	MIL-STD-202, Method 106G	
Thermal Shock	MIL-STD-202, Method 107G, Condition B	
Mechanical Shock	MIL-STD-202, Method 213B, Condition A	
Vibration	MIL-STD-202, Method 201A	
Vibration, High Frequency	MIL-STD-202, Method 204D, Condition D	
Dissolution of Metallization	IPC/ECA/JEDEC J-STD-002C, Condition D	
Terminal Strength	IEC 60127-4	

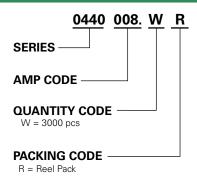
## **Dimensions**



## **Part Marking System**

Amp Code	Marking Code
1.75	L
002.	N
02.5	0
003.	P
03.5	R
004.	s
005.	Т
007.	W
008.	Х

# **Part Numbering System**



# **Packaging**

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
8mm Tape and Reel	EIA-481-1 (IEC 286, part 3)	3000	WR



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