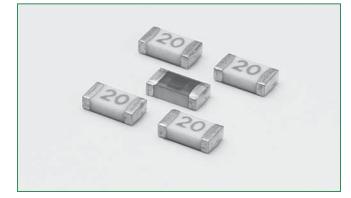
ROHS (P) HF 501 Series – High Current 1206 Fast-Acting Fuse





ittelfuse

Expertise Applied | Answers Delivered

Agency Approvals					
AGENCY	AGENCY FILE NUMBER	AMPERE RANGE			
91	E10480	10A - 20A			
(SP)	LR29862	10A - 20A			

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time at 25°C
100%	10A – 20A	4 Hours, Minimum
350%	10A – 20A	5 Seconds, Maximum

Electrical Specifications by Item

Description

The 501 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 temperature up to 150°C.

The general design ensures excellent temperature stability and performance reliability.

The high I²t values which is typical in the Littelfuse Ceramic Fuse family, ensure high inrush current withstand capability.

Features

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- Operating Temperature from -55°C to +150°C
 - Designed to provide over-current protection in high current voltage regulator module (VRM) applications
- 100% Lead-free, RoHS compliant and Halogenfree
 - Suitable for both leaded and lead-free reflow / wave soldering

Applications

- Voltage Regulator Module (VRM) Equipment
- Notebook PC
- DC-DC Converter

Ampere	•	Max. Voltage	Interrupting	Nominal	nal Nominal Nominal Voltage Nominal Power		Agency Approvals		
Rating (A)	Amp Code	Rating (V)	Rating (DC) ¹	Resistance (Ohms)²	Melting I ² T (A ² Sec.) ³	Drop At Rated Current (V)⁴	Dissipation At Rated Current (W)	71	()
10	010.	24		0.00427	10.385	0.05679	0.5679	x	х
12	012.	24		0.00321	20.341	0.04891	0.5870	x	х
15	015.	24	150 A @ 24 VDC	0.00250	36.100	0.04605	0.6908	x	х
20	020.	24		0.00200	54.760	0.05936	1.1871	x	х

Notes:

1. 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. For other I²t data refer to chart.
- 4. Nominal Voltage Drop measured at rated current after temperature has stabilized and with fuse mounted on board with 3-oz Cu trace.

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 Rerating Curve" for additional rerating information.

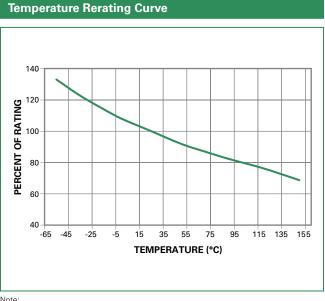
Devices designed to be mounted with marking code facing up.

Surface Mount Fuses

Ceramic Fuse > 501 Series



Average Time Current Curves

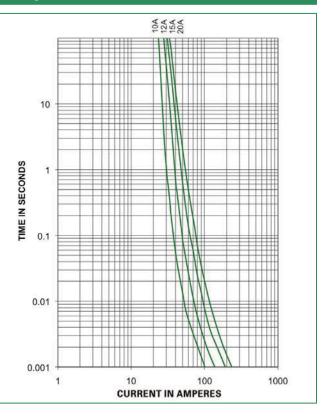


Note:

1. Rerating depicted in this curve is in addition to the standard rerating of 20% for continuous operation.

Example:

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

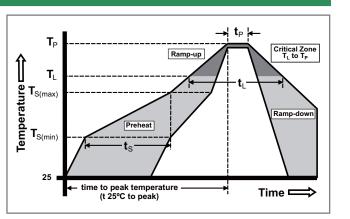


Soldering Parameters

Reflow Condition		Pb – free assembly	
	-Temperature Min (T _{s(min)})	150°C	
Pre Heat	-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)		3°C/second max.	
T _{S(max)} to T _L - Ramp-up Rate		5°C/second max.	
Deflesse	-Temperature (T_L) (Liquidus)	217°C	
Reflow	-Temperature (t _L)	60 – 150 seconds	
PeakTemperature (T _P)		260 ^{+0/-5} °C	
Time within 5°C of actual peak Temperature (t _p)		10 – 30 seconds	
Ramp-down Rate		6°C/second max.	
Time 25°C to peak Temperature (T _P)		8 minutes max.	
Do not exceed		260°C	
Do not exc	ceed	260°C	

Wave Soldering

260°C, 10 seconds max.





Surface Mount Fuses

Ceramic Fuse > 501 Series

Product Characteristics

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

Moisture Resistance	MILSTD-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	
	010.	10	
	012.	12	
	015.	15	
	020.	20	

Part Numbering System			
<u>0501</u> 020. V	V <u>R</u>		
SERIES			
AMP CODE	PACKING CODE R = Reel Pack		
	QUANTITY CODE W = 3000 pcs		

Packaging

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

