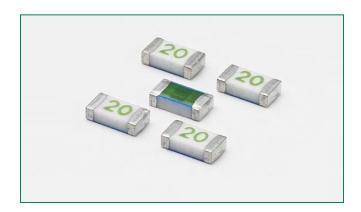
Surface Mount Fuses Ceramic Fuse > 501 Series

501 Series - High Current 1206 Fast-Acting Fuse





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.

Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE	
71 .	E10480	10A - 20A	
⊕ ;	29862	10A - 20A	

Electrical Characteristics for Series

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

Features

- 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

Additional Information







Resources



Samples

Electrical Specifications by Item

Ampere		Max. Voltage	Interrupting	Nominal 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)	<i>9</i> 1	⊕ ;
10	010.	32	150 A @ 32 VDC	0.00427	10.385	0.05679	0.5679	X	Х
12	012.	32		0.00321	20.341	0.04891	0.5870	X	X
15	015.	32		0.00250	36.100	0.04605	0.6908	X	X
20	020.	32		0.00200	54.760	0.05936	1.1871	X	X

Notes:

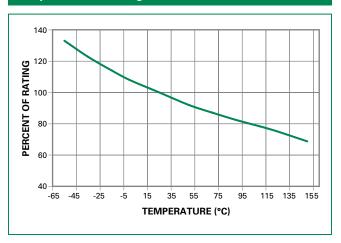
- 1. DC Interrupting Rating tested at rated voltage with time constant < 0.5 msec.
- 2. Nominal Resistance measured with < 10% rated current.
- 3. Nominal Melting I2t measured at 1 msec. opening time. For other I2t data refer to chart.
- 4. Nominal Voltage Drop measured at rated current after temperature 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 Re-rating Curve" for additional re-rating information.

Devices designed to be mounted with marking code facing up.



Temperature Re-rating Curve



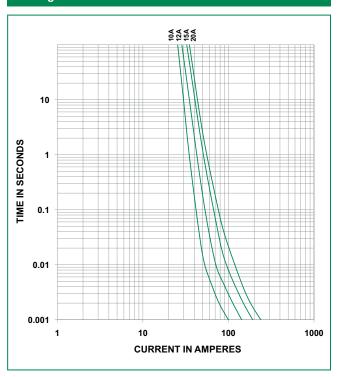
Note:

 Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

Example:

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

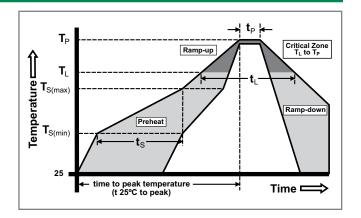
Average Time Current Curves



Soldering Parameters

Reflow Co	ndition	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 R (T _L) to pea	amp-up Rate (LiquidusTemp k)	3°C/second max.	
T _{S(max)} to T _I	- Ramp-up Rate	5°C/second max.	
Reflow	-Temperature (T _L) (Liquidus)	217°C	
nellow	-Temperature (t _L)	60 – 150 seconds	
PeakTemp	erature (T _P)	260+0/-5 °C	
Time with Temperatu	in 5°C of actual peak ure (t _p)	10 – 30 seconds	
Ramp-dov	vn Rate	6°C/second max.	
Time 25°C	to peakTemperature (T _P)	8 minutes max.	
Do not exc	ceed	260°C	

Wave Soldering	260°C, 10 seconds max.
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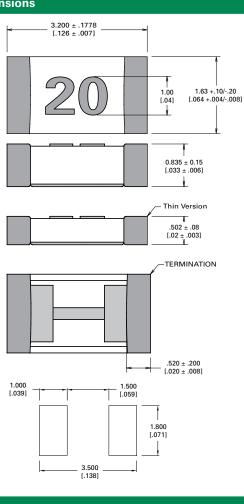
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Product Characteristics

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

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

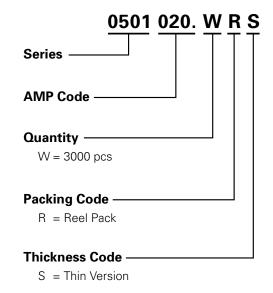
Dimensions



Part Marking System

Amp Code	Marking Code
010.	10
012.	12
015.	15
020.	20

Part Numbering System



Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
8mm Tape and Reel	EIA-481, IEC 60286, Part 3	3000	WR