

# 823A Series

## 1000VDC Rated



### Description

Littelfuse 823A Series AEC-Q200 qualified high voltage rated fuse with high interrupting ratings. These are the SMD equivalent/ version of the Through Hole 5x20 high voltage fuse.

### Features and Benefits

- AEC-Q200 qualified
- High Reliability Solderless Fuse
- Operating temperature of -40°C to 125°C
- Lead-free – compatible with lead-free solder and higher temperature profiles
- Halogen-free and Pb-Free part fuse

### Applications

- Automotive - Fuel Cell Cooling Systems
- Battery Management Systems (BMS)
- HV DC/DC Converter
- LCD Inverter
- White Goods
- Power Supplies
- Battery Disconnect Unit (BDU)

### Web Resources



Download ECAD models, order samples, and find technical resources at [www.littelfuse.com](http://www.littelfuse.com)

### Agency Approvals

Agency	Agency File Number	Ampere Range
cULUS	E10480	1A - 2A

### Electrical Characteristics for Series

% of Ampere Rating	Opening Time
100%	4 hours, Minimum
250%	120 seconds, Maximum

### Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max Voltage Rating (V) <sup>4</sup>	Interrupting Rating <sup>1</sup>	Nominal Cold Resistance (Ohms) <sup>2</sup>	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec) <sup>3</sup>	Nominal Voltage Drop (mV)	Agency Approvals cULUS
1	001.	1000VDC	100A @ 1000VDC	0.1780	1.30	221	x
2	002.	1000VDC		0.0515	2.88	136	x

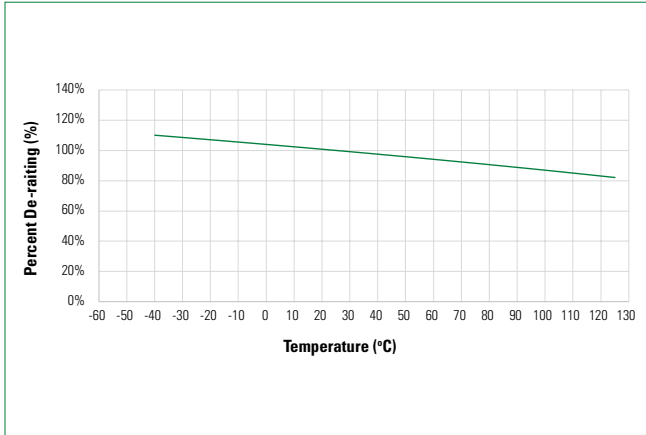
#### Notes:

1. DC interrupting rating tested with time constant less than 0.043ms at 1,000VDC.
2. Cold resistance measured at less than 10% of rated current at 25°C.
3. I<sup>2</sup>t values measured at 1ms opening time
4. Pollution degree 2 level as per IEC 60664-1

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### Temperature Re-rating Curve



**Note:**  
Re-rating depicted in this curve is in addition to the standard re-rating of 25% for continuous operation.

**Example:**  
For continuous operation at 85°C, the fuse should be rerated as follows:  
 $I = (0.75)(0.90)_{\text{RAT}} = (0.675)_{\text{RAT}}$

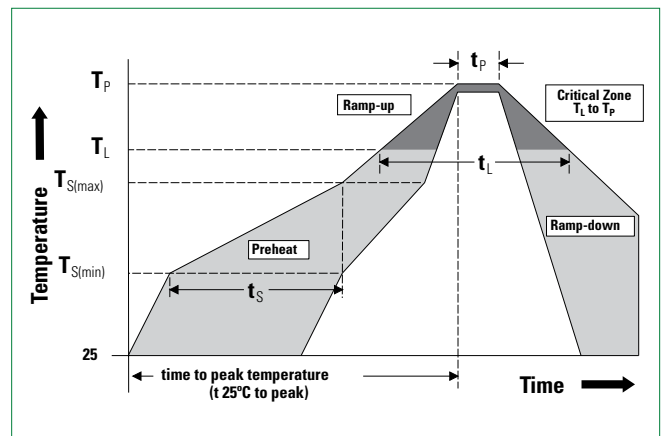
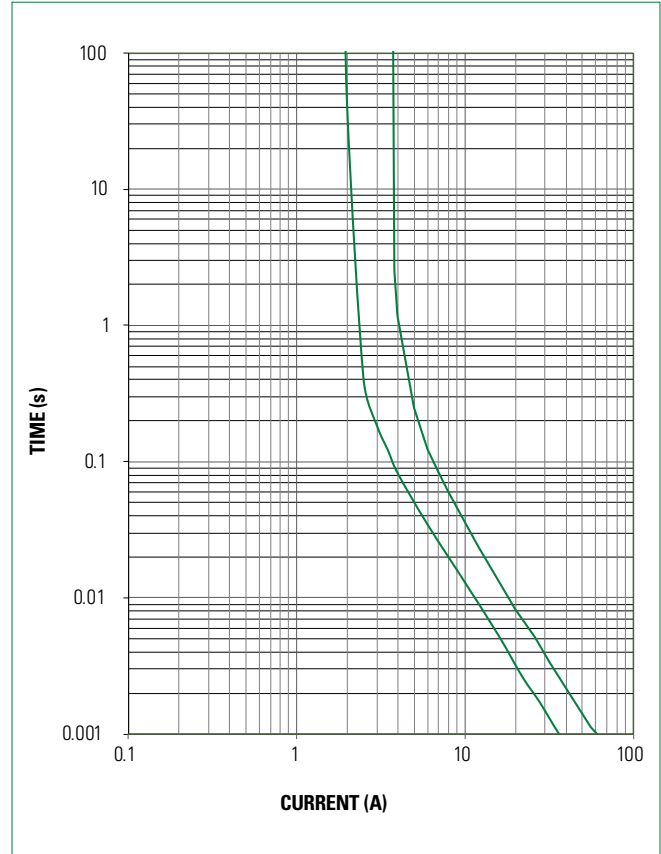
### Pulse Cycle Withstand Capability

No. of Pulses to withstand	Ratio of Pulse I <sup>2</sup> t to Nominal I <sup>2</sup> t
100,000	Pulse I <sup>2</sup> t = 10% of Nominal Melting I <sup>2</sup> t
10,000	Pulse I <sup>2</sup> t = 20% of Nominal Melting I <sup>2</sup> t
1,000	Pulse I <sup>2</sup> t = 38% of Nominal Melting I <sup>2</sup> t
100	Pulse I <sup>2</sup> t = 48% of Nominal Melting I <sup>2</sup> t

### Soldering Parameters

<b>Reflow Condition</b>		Pb – Free assembly
<b>Pre Heat</b>	- Temperature Min (Ts(min))	150°C
	- Temperature Max (Ts(max))	200°C
	- Time (Min to Max) (ts)	60 - 180 secs
<b>Average ramp up rate (Liquidus Temp (TL) to peak)</b>		5°C/second max.
<b>TS(max) to TL - Ramp-up Rate</b>		5°C/second max.
<b>Reflow</b>	- Temperature (TL) (Liquidus)	217°C
	- Time (tL)	60 - 150 secs
<b>Peak Temperature (TP)</b>		260+0/-5 °C
<b>Time within 5°C of actual peak Temperature (tp)</b>		20 – 40 seconds
<b>Ramp-down Rate</b>		5°C/second max.
<b>Time 25°C to peak Temperature (TP)</b>		8 minutes max.
<b>Do not exceed</b>		260°C
<b>Wave Soldering Parameters</b>		260°C Peak Temperature, 3 seconds max.

### Average Time Current Curves



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### Product Characteristics

<b>Materials</b>	Body: Epoxy Resin Terminations: Cu/Ni/Sn (100% Pb Free)
<b>Product Marking</b>	Body: Current Rating (Code)
<b>Insulation Resistance</b>	IEC 60127-4 (0.1MΩ Min)

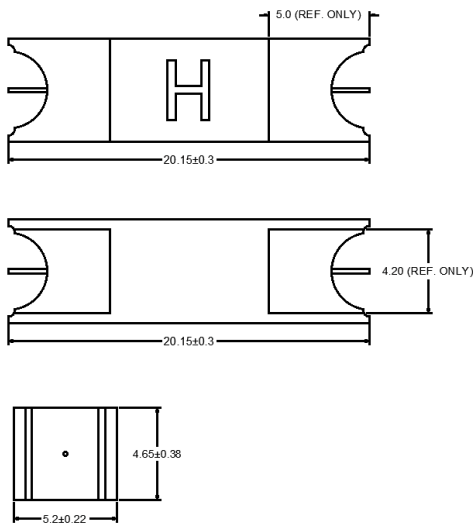
<b>High Temperature Storage</b>	MIL-STD-202, Method 108
<b>Thermal Shock Test</b>	JESD22 Method A104C
<b>Biased Humidity</b>	MIL-STD-202, Method 103, 85C/85% RH with 10% operating power for 1000 hrs

<b>Operational Life</b>	MIL-STD-202, Method 108, Test Condition D
<b>Resistance to Solvents</b>	MIL-STD-202, Method 215
<b>Mechanical Shock</b>	MIL-STD-202, Method 213, Test Condition C
<b>High Frequency Vibration</b>	MIL-STD-202, Method 204
<b>Resistance to Soldering Heat</b>	MIL-STD-202, Method 210 (Test K modified)

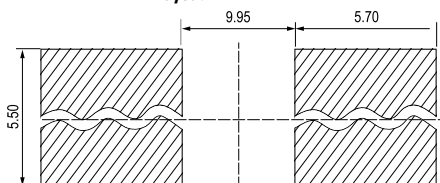
<b>Solderability</b>	JESD22-B102E Method 1 <sup>a</sup>
<b>Moisture Resistance</b>	MIL-STD-202 Method 106
<b>Moisture Sensitivity Level 1</b>	IPC/JEDEC J-STD-020D Level 1
<b>Terminal Strength</b>	AEC Q200-006
<b>Board Bend/Flex</b>	AEC Q200-005

Note: a) Meet at least 50% solder filler height and voids on terminal less than 5% area

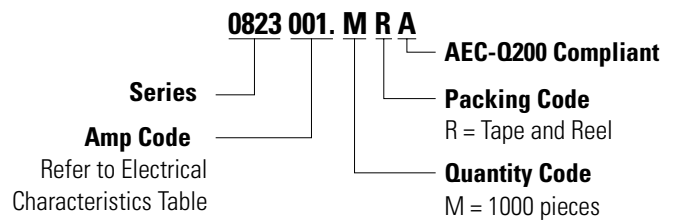
### Dimensions in mm



### Recommended Pad Layout



### Part Numbering System



### Part Marking System

Amp Code	Marking Code
001.	H
002.	F

### Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
Tape and Reel	EIA-481-D	1000	MR

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