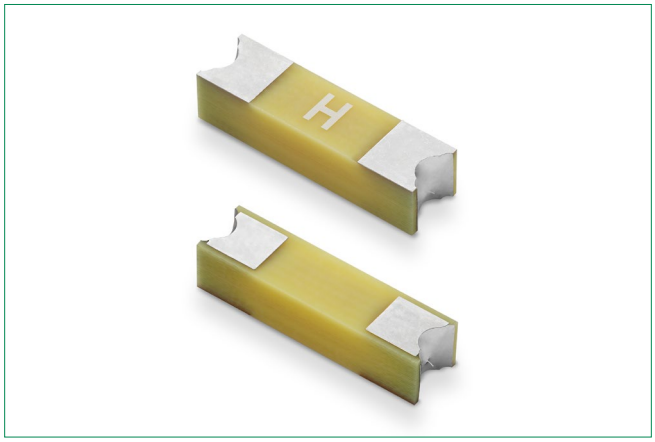
823A Series
1000VDC Rated



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 recources at www.littelfuse.com

Agency Approvals

Agency	Agency File Number	Ampere Range
c UL us	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)[4]	Interrupting Rating[1]	Nominal Cold Resistance (Ohms)[2]	Nominal Melting I^2t (A^2sec)[3]	Nominal Voltage Drop (mV)	Agency Approvals c UL us
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^2t values measured at 1ms opening time
4. Pollution degree 2 level as per IEC 60664-1

Revised: GD. 11/06/24

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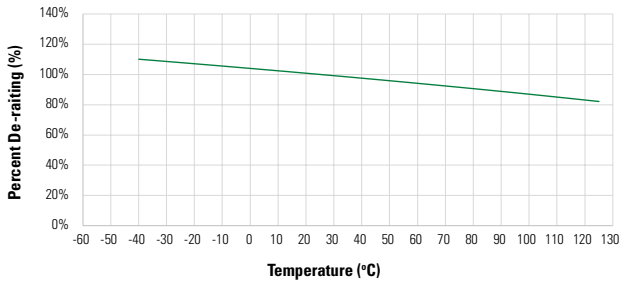
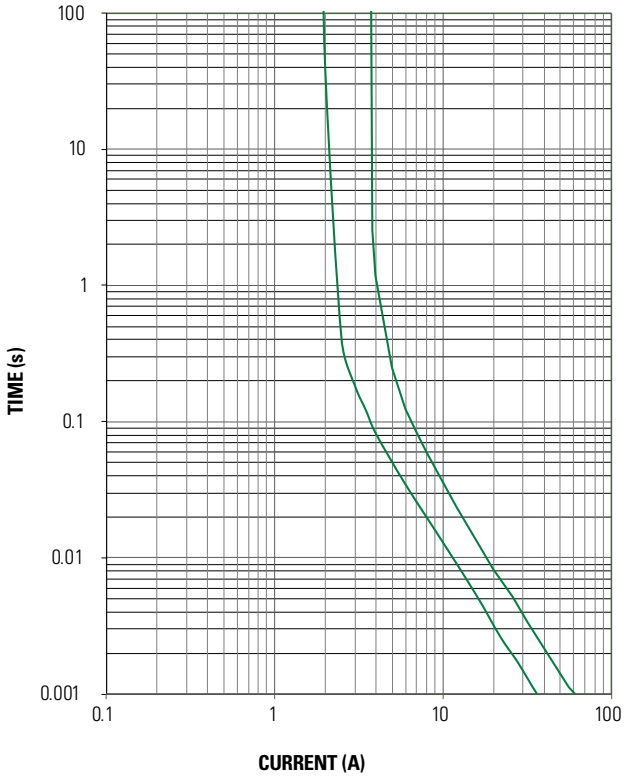
Temperature Re-rating Curve



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 85ºC, the fuse should be rerated as follows:
$I = (0.75)(0.90)I_{RAT} = (0.675)I_{RAT}$

Average Time Current Curves



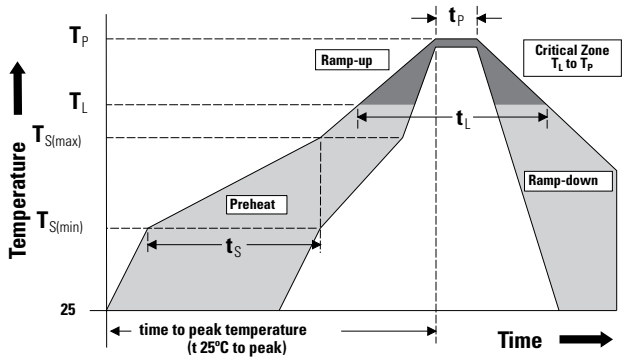
Pulse Cycle Withstand Capability

No. of Pulses to withstand	Ratio of Pulse I2t to Nominal I2t
100,000	Pulse I^2t = 10% of Nominal Melting I^2t
10,000	Pulse I^2t = 20% of Nominal Melting I^2t
1,000	Pulse I^2t = 38% of Nominal Melting I^2t
100	Pulse I^2t = 48% of Nominal Melting I^2t

Soldering Parameters

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

Wave Soldering Parameters	260°C Peak Temperature, 3 seconds max.



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823A Series
1000VDC Rated

Product Characteristics

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

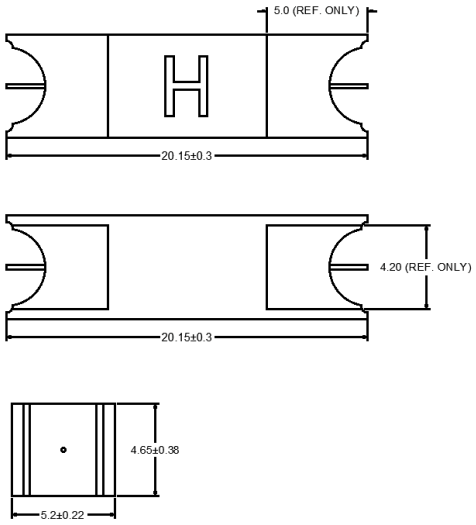
Operational Life	MIL-STD-202, Method 108, Test Condition D
Resistance to Solvents	MIL-STD-202, Method 215
Mechanical Shock	MIL-STD-202, Method 213, Test Condition C
High Frequency Vibration	MIL-STD-202, Method 204
Resistance to Soldering Heat	MIL-STD-202, Method 210 (Test K modified)

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

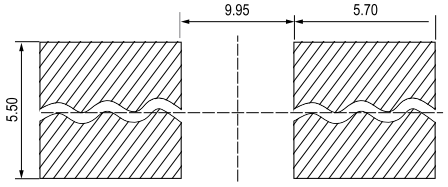
Solderability	JESD22-B102E Method 1[a]
Moisture Resistance	MIL-STD-202 Method 106
Moisture Sensitivity Level 1	IPC/JEDEC J-STD-020D Level 1
Terminal Strength	AEC Q200-006
Board Bend/Flex	AEC Q200-005

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

0823 001. M R A

- **AEC-Q200 Compliant**
- **Packing Code**
  R = Tape and Reel
- **Quantity Code**
  M = 1000 pieces
- **Series**
- **Amp Code**
  Refer to Electrical Characteristics Table

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