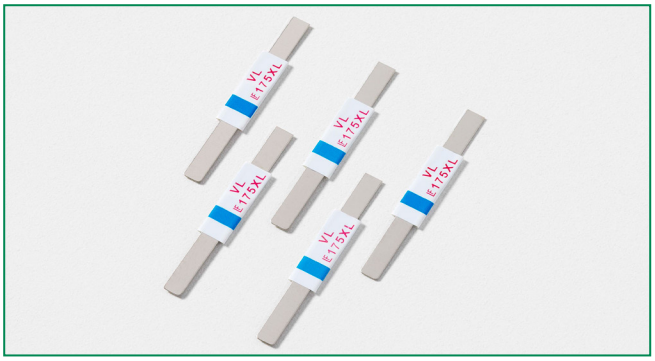
VL Series



Description

The new VL Series device provides reliable, noncycling protection against overcharging and short circuits events for rechargeable battery cells where resettable protection is desired.

Features

- RoHS compliant and lead–free
- Weldable Nickel terminals
- Slim, low profile design
- Compact design saves board space
- Low resistance

Agency Approvals

AGENCY	AGENCY FILE NUMBER
c UL us	E183209
TÜV	R50119583

Applications

- Rechargeable battery cell protection

Electrical Characteristics

Part Number	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	P_d max. (W)	Maximum Time To Trip		Resistance			Agency Approvals	
						Current (A)	Time (Sec.)	R_{min} (Ω)	R_{typ} (Ω)	R_{1max} (Ω)	c UL us	TÜV
12VL175XL	1.75	4.20	12	100	1.4	8.75	5.00	0.017	0.031	0.062	X	X

I_{hold} = Hold current: maximum current device will pass without tripping in 20°C still air.
I_{trip} = Trip current: minimum current at which the device will trip in 20°C still air.
V_{max} = Maximum voltage device can withstand without damage at rated current (I max)
I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
P_d = Power dissipated from device when in the tripped state at 20°C still air.
R_{min} = Minimum resistance of device in initial (un-soldered) state.
R_{typ} = Typical resistance of device in initial (un-soldered) state.
R_{1max} = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

Temperature Rerating

	Ambient Operation Temperature							
	-40°C	-20°C	0°C	20°C	40°C	50°C	60°C	70°C
Part Number	Hold Current (A)							
12VL175XL	3.5	2.9	2.4	1.75	1.3	1.0	0.8	0.3

WARNING

- Users shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses
- Circuits with inductance may generate a voltage (L di/dt) above the rated voltage of the PPTC device.

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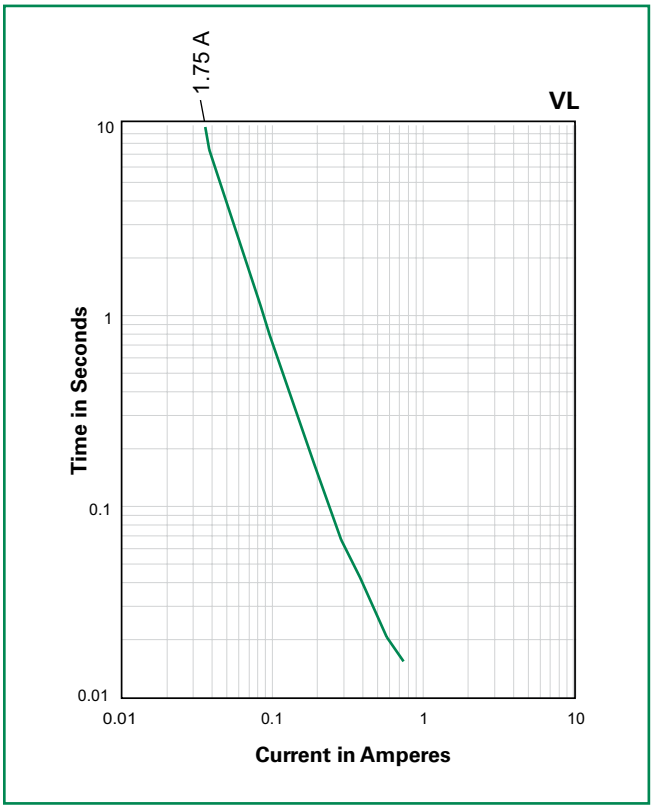
POLY-FUSE® Resettable PTCs

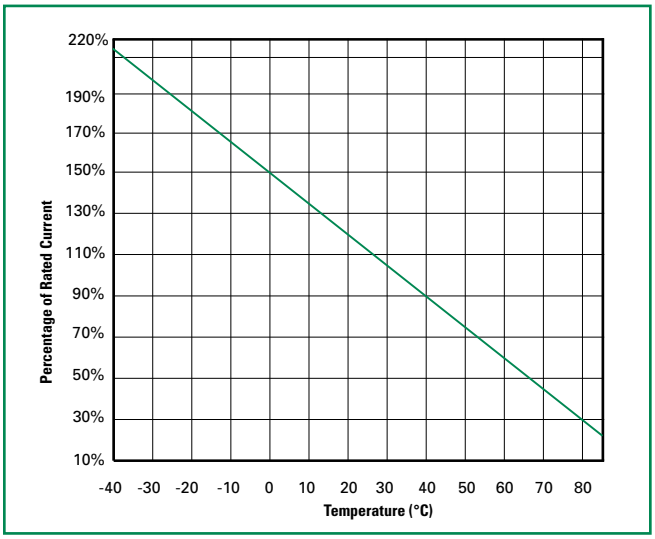
Axial Lead Battery Strap Type > VL Series

Average Time Current Curves



The average time current curves and Temperature Rerating curve performance is affected by a number or variables, and these curves provided as guidance only. Customer must verify the performance in their application.

Temperature Rerating Curve



Note:
Typical Temperature rerating curve, refer to table for derating data

Physical Specifications

Terminal Material	0.13mm nominal thickness, quarter-hard Nickel
Insulating Material	Polyester tape

Environmental Specifications

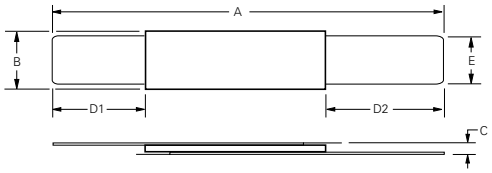
Operating/Storage Temperature	-40°C to +85°C
Passive Aging	+60°C, 1000 hours -/+20% typical resistance change -40°C, 1000 hours -/+5% typical resistance change
Humidity Aging	+60°C, 95% R.H.,1000 hours, -/+10% typical resistance change
Thermal Shock	MIL–STD–202, Method 107, +85°C to -40°C 10 times -/+5% typical resistance change
Vibration	MIL–STD–883, Method 202, No change

Additional Information

Datasheet | **Resources** | **Samples**

Revised: 03/22/17

Dimensions

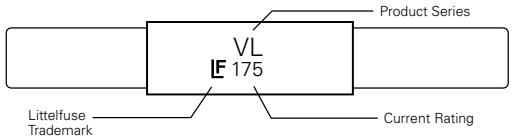


Part Number	Figure	A				B				C				D1				D2				E			
		Inches		mm		Inches		mm		Inches		mm		Inches		mm		Inches		mm		Inches		mm	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min	Max	Min	Max	Min	Max	Min	Max.	Min.	Max.
12VL175XL	2	1.00	1.11	25.50	28.20	0.14	0.15	3.50	3.90	--	0.03	--	0.80	0.34	0.41	8.70	10.30	0.22	0.29	5.70	7.30	0.09	0.10	2.40	2.60

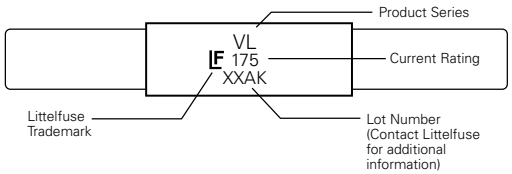
Part Marking System

Double Sided Marking

Top Side



Bottom Side



Part Ordering Number System

12 VL 175 XL U

- **QUANTITY CODE:** U = 500 (bulk)
- **LEAD OPTIONS:** XL = extended long lead
- **HOLD CURRENT** (VALUE DIVIDED BY 100 = HOLD CURRENT IN AMPS)
- **SERIES**
- **VOLTAGE RATING (VDC)**

Packaging

Part Number	Ordering Number	I_{hold} (A)	I_{hold} Codes	Packaging Option	Quantity	Quantity & Packaging Codes
12VL175XL	12VL175XLU	1.75	175	Bulk	500	U

Revised: 03/22/17

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Littelfuse:

12VL170U 12VL175LU 12VL175XLU 12VL230U 12VL175U