

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
- Compact design saves board space
- Weldable Nickel terminals
- Low resistance
- Slim, low profile design



Applications

- Rechargeable battery cell protection

Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E183209
	R50119583

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)		
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.

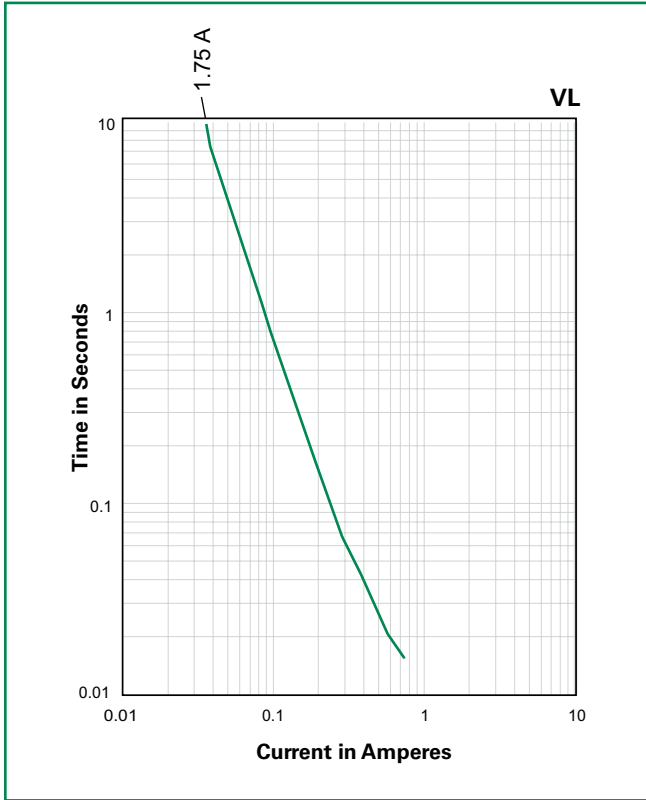
Temperature Derating

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

WARNING

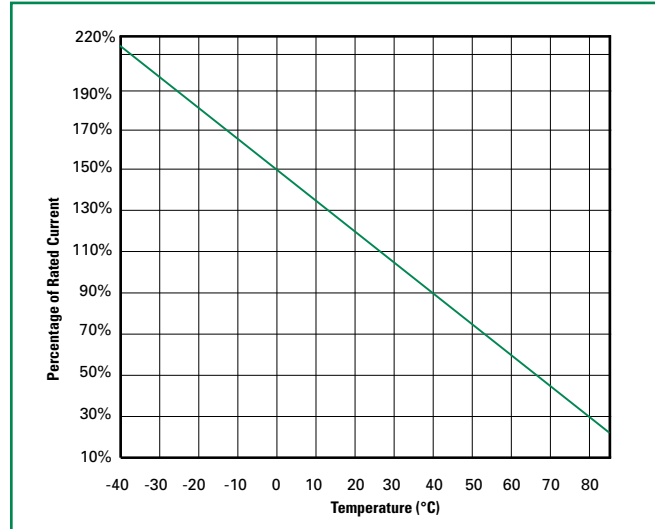
- Users shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects 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.

Average Time Current Curves



The average time current curves and Temperature Rerating curve performance is affected by a number of 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

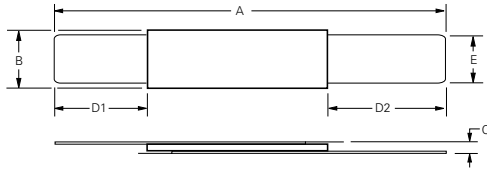


Resources



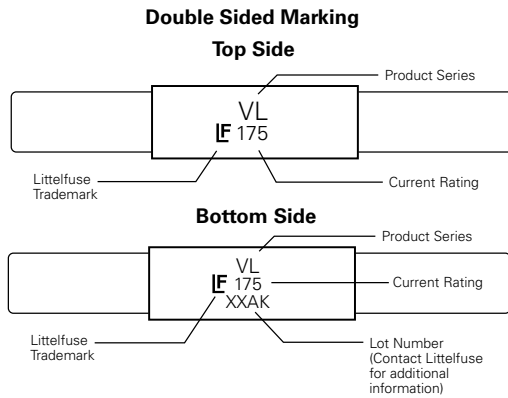
Samples

Dimensions

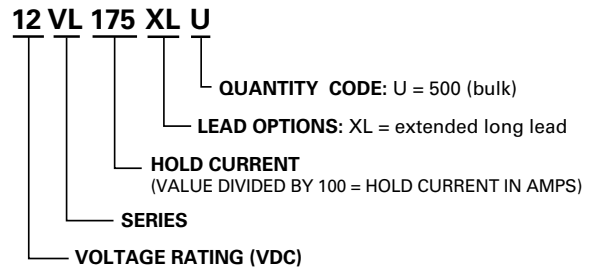


Part Number	Figure	A				B				C				D1		D2		E							
		Inches		mm		Inches		mm		Inches		mm		Inches		mm		Inches		mm					
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.				
12VL175XL	2	1.00	1.11	25.50	28.20	0.14	0.15	3.50	3.90	--	0.03	--	0.80	0.34	0.41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

Part Marking System



Part Ordering Number System



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

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