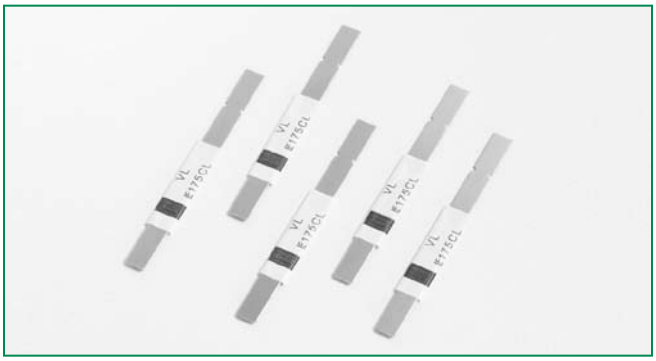
RoHS Pb VL Series



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
c UL us	E183209
TÜV	R50082521

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
12VL170	1.70	4.10	12	100	1.4	8.50	5.00	0.018	0.032	0.064	X	X
12VL175L	1.75	4.20	12	100	1.4	8.75	5.00	0.017	0.031	0.062	X	X
12VL175XL	1.75	4.20	12	100	1.4	8.75	5.00	0.017	0.031	0.062	X	X
12VL230	2.30	5.00	12	100	1.5	10.00	5.00	0.012	0.018	0.036	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.

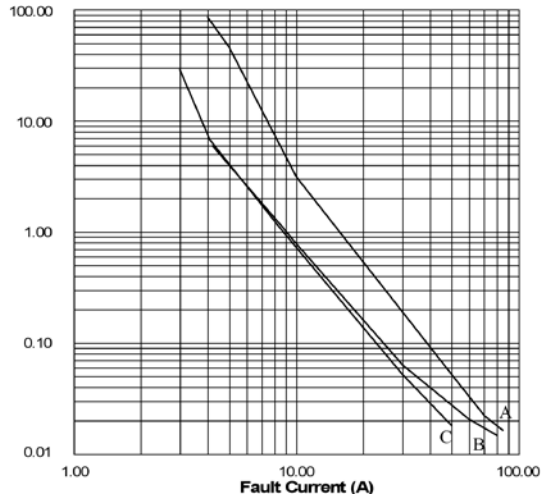
Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

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Temperature Rerating

	Ambient Operation Temperature							
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C
Part Number	Hold Current (A)							
12VL170	3.5	2.9	2.4	1.70	1.2	1.0	0.7	0.3
12VL175L	3.5	2.9	2.4	1.75	1.3	1.0	0.8	0.3
12VL175XL	3.5	2.9	2.4	1.75	1.3	1.0	0.8	0.3
12VL230	5.0	4.2	3.4	2.30	1.7	1.3	0.9	0.4

Average Time Current Curves



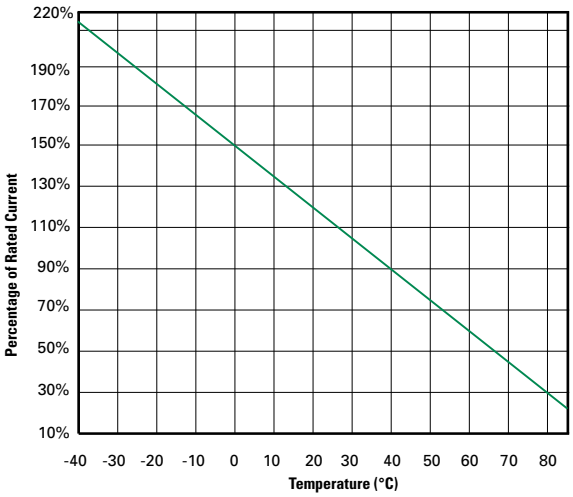
A: 12VL230

B: 12VL175L, 12VL175XL

C: VLD170F

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



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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 ±30% typical resistance change
Thermal Shock	MIL-STD-202G, Method 107G +85°C to -40°C 10 times ±5% typical resistance change
Vibration	MIL-STD-883C, Method 2026 No change

Dimensions

Figure 1

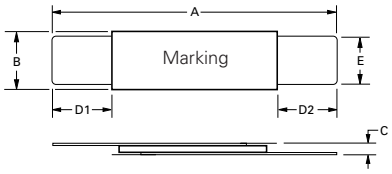
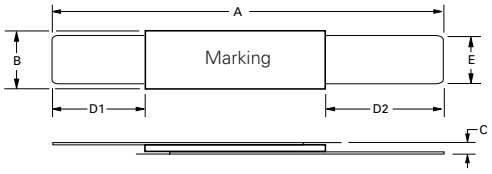


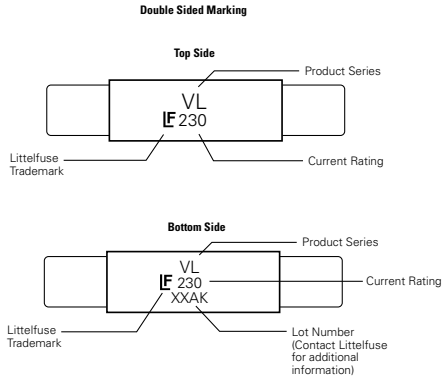
Figure 2



Part Number	A				B				C				D1				D2				E				Fig.
	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.	
12VL170	0.82	0.91	20.80	23.20	0.14	0.15	3.50	3.90	--	0.03	--	0.80	0.18	0.26	4.50	6.50	0.18	0.26	4.50	6.50	0.01	0.26	2.40	2.60	1
12VL175L	1.15	1.25	29.30	31.70	0.11	0.13	2.90	3.30	--	0.03	--	0.80	0.20	0.27	5.20	6.80	0.39	0.49	10.00	12.50	0.02	0.49	2.40	2.60	2
12VL175XL	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	0.01	0.29	2.40	2.60	1
12VL230	0.82	0.91	20.90	23.10	0.19	0.21	4.90	5.30	--	0.03	--	0.80	0.16	0.23	4.10	5.80	0.16	0.23	4.10	5.80	0.01	0.23	3.90	4.10	2

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Part Marking System



Part Numbering System

12 VL 175 XL U

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

Packaging

I_{hold} (A)	Packaging Option	Quantity	Quantity & Packaging Codes
All Ratings	Bulk	500	U

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