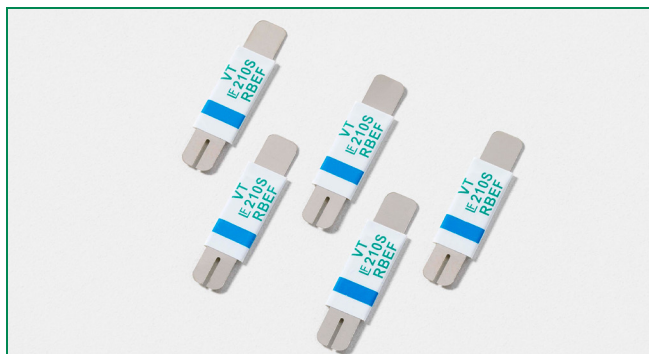


VT Series



Description

The new VT 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



Applications

- Rechargeable battery cell protection
 - Mobile phones
 - Laptop computers

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) |  |  |
| 16VT210S | 2.10 | 4.70 | 16 | 100 | 1.5 | 10.00 | 5.00 | 0.018 | 0.030 | 0.060 | 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.

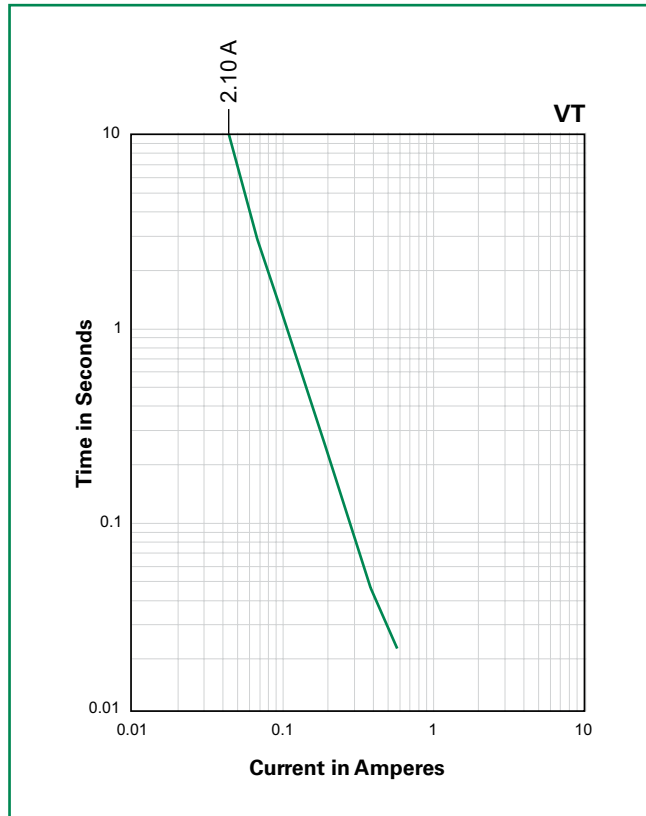
Temperature Derating

| Ambient Operation Temperature | | | | | | | | | |
|-------------------------------|------------------|-------|------|------|------|------|------|------|------|
| | -40°C | -20°C | 0°C | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| Part Number | Hold Current (A) | | | | | | | | |
| 16VT210S | 4.10 | 3.50 | 2.90 | 2.10 | 1.60 | 1.30 | 1.00 | 0.70 | 0.10 |

WARNING

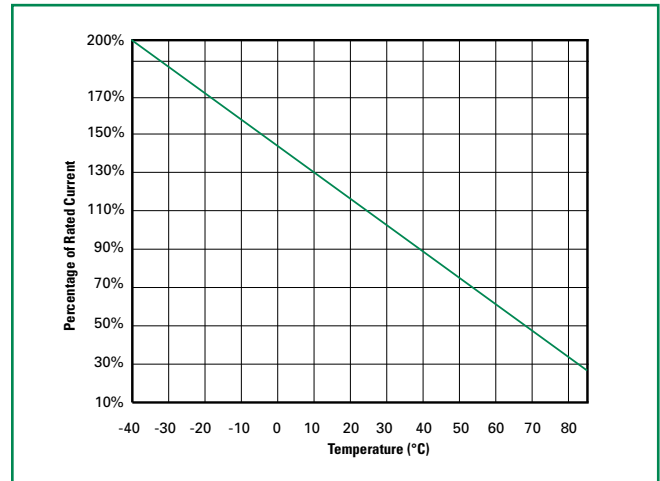
- Users shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects 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 | +70°C, 1000 hours, -/+10% typical resistance change |
| Humidity Aging | +85°C, 85% R.H., 7 days, -/+5% typical resistance change |
| Thermal Shock | MIL-STD-202, Method 107, +85°C/-40°C 20 times -30% typical resistance change |
| Vibration | MIL-STD-883, Method 2007, Condition A, No change |

Additional Information



Datasheet

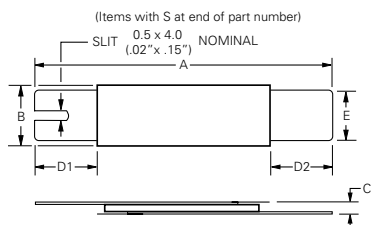


Resources



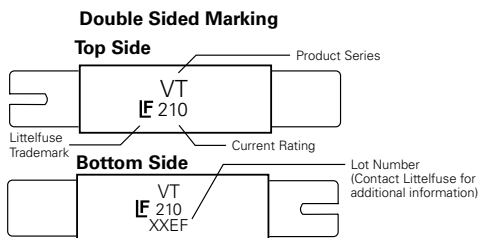
Samples

Dimensions

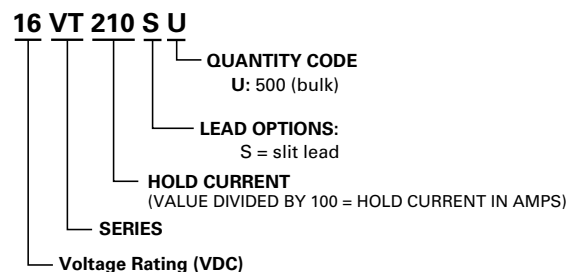


| Part Number | A | | | | B | | | | C | | | | D1 | | | | D2 | | | | E | | | |
|-------------|--------|------|-------|-------|--------|------|------|------|--------|------|------|------|--------|------|------|------|--------|------|------|------|--------|------|------|------|
| | Inches | | mm | | Inches | | 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. |
| 16VT210S | 0.82 | 0.91 | 20.90 | 23.10 | 0.19 | 0.21 | 4.90 | 5.30 | 0.02 | 0.03 | 0.60 | 0.80 | 0.16 | 0.23 | 4.1 | 5.8 | 0.16 | 0.23 | 4.1 | 5.8 | 0.15 | 0.16 | 3.90 | 4.10 |

Part Marking System



Part Ordering Number System



Packaging

| Part Number | Ordering Number | I_{hold} (A) | I_{hold} Code | Packaging Option | Quantity | Quantity & Packaging Codes |
|-------------|-----------------|----------------|-----------------|------------------|----------|----------------------------|
| 16VT210S | 16VT210SU | 2.10 | 210 | Bulk | 500 | U |

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