



## Features

- Axial leaded
- Fully compatible with current industry standards
- Weldable nickel terminals
- Very low internal resistance
- Low switching temperature
- Agency recognition: <sup>®</sup>
- RoHS compliant\*

## MF-VS Series - PTC Resettable Fuses

### Electrical Characteristics

| Model    | V max. Volts | I max. Amps | I <sub>hold</sub> | I <sub>trip</sub> | Initial Resistance |       |       | 1 Hour (R <sub>1</sub> ) Post-Trip Resistance | Max. Time to Trip |                  | Tripped Power Dissipation |
|----------|--------------|-------------|-------------------|-------------------|--------------------|-------|-------|---|-------------------|------------------|---------------------------|
|          |              |             | Amperes at 23 °C  |                   | Ohms at 23 °C      |       |       | Ohms at 23 °C                                 | Amperes at 23 °C  | Seconds at 23 °C | Watts at 23 °C            |
|          |              |             | Hold              | Trip              | Min.               | Max.  | Typ.  | Max.  |                   |                  | Typ.                      |
| MF-VS170 | 16           | 100         | 1.7               | 3.4               | 0.030              | 0.052 | 0.040 | 0.105   | 8.5               | 3.0              | 1.4                       |
| MF-VS210 | 16           | 100         | 2.1               | 4.7               | 0.018              | 0.030 | 0.022 | 0.060   | 10.0              | 5.0              | 1.5                       |

### Environmental Characteristics

|   |  |
|---|--|
| Operating/Storage Temperature .....                       | -40 °C to +85 °C   |
| Maximum Device Surface Temperature in Tripped State ..... | 125 °C   |
| Passive Aging .....                                       | +60 °C, 1000 hours..... ±10 % typical resistance change            |
| Humidity Aging .....                                      | +60 °C, 85 % R.H. 1000 hours ..... ±10 % typical resistance change |
| Thermal Shock .....                                       | MIL-STD-202F, Method 107G..... ±5 % typical resistance change      |
|   | +85 °C to -40 °C, 10 times   |
| Vibration .....   | MIL-STD-883C,..... No change                                       |
|   | Condition A  |

### Test Procedures And Requirements For Model MF-VS Series

| Test                         | Test Conditions   | Accept/Reject Criteria                   |
|------------------------------|---|--|
| Visual/Mech. ....            | Verify dimensions and materials .....   | Per MF physical description              |
| Resistance .....             | In still air @ 23 °C .....  | R <sub>min</sub> ≤ R ≤ R <sub>1max</sub> |
| Time to Trip .....           | At specified current, V <sub>max</sub> , 23 °C .....  | T ≤ max. time to trip (seconds)          |
| Hold Current .....           | 30 min. at I <sub>hold</sub> .....  | No trip                                  |
| Trip Cycle Life .....        | V <sub>max</sub> , I <sub>max</sub> , 100 cycles .....  | No arcing or burning                     |
| Trip Endurance .....         | V <sub>max</sub> , 48 hours .....   | No arcing or burning                     |
| UL File Number .....         | E174545<br><a href="http://www.ul.com/">http://www.ul.com/</a> Follow link to Certifications, then UL File No., enter E174545   |  |
| CSA File Number .....        | CA110338<br><a href="http://directories.csa-international.org/">http://directories.csa-international.org/</a> Under "Certification Record" and "File Number" enter 110338-0-000 |  |
| TÜV Certificate Number ..... | R 02057213<br><a href="http://www.tuvdotcom.com/">http://www.tuvdotcom.com/</a> Follow link to "other certificates", enter File No. 2057213                                     |  |

### Thermal Derating Chart - I<sub>hold</sub> (Amps)

| Model    | Ambient Operating Temperature |        |      |       |       |       |       |       |       |
|----------|-------------------------------|--------|------|-------|-------|-------|-------|-------|-------|
|          | -40 °C                        | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
| MF-VS170 | 3.2                           | 2.7    | 2.2  | 1.7   | 1.3   | 1.1   | 0.8   | 0.6   | 0.1   |
| MF-VS210 | 4.1                           | 3.5    | 2.9  | 2.1   | 1.6   | 1.3   | 1.0   | 0.7   | 0.1   |

\*I<sub>trip</sub> is approximately two times I<sub>hold</sub>.

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

# Applications

Any application that requires protection at low resistances:

- Rechargeable battery packs; designed for NiMH and Li-Ion chemical characteristics
- Cellular phones
- Laptop computers

## MF-VS Series - PTC Resettable Fuses **BOURNS®**

### Product Dimensions

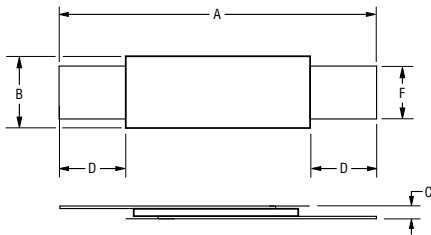
| Model     | A               |                 | B              |                | C              |                | D              |                | F              |                | Pkg. Style |
|-----------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------|
|           | Min.            | Max.            | Min.           | Max.           | Min.           | Max.           | Min.           | Max.           | Min.           | Max.           |            |
| MF-VS170  | 16.0<br>(0.630) | 18.0<br>(0.709) | 4.9<br>(0.193) | 5.5<br>(0.217) | 0.6<br>(0.024) | 0.9<br>(0.035) | 4.1<br>(0.161) | 5.8<br>(0.228) | 3.9<br>(0.154) | 4.1<br>(0.161) | Std.       |
| MF-VS170S | 16.0<br>(0.630) | 18.0<br>(0.709) | 4.9<br>(0.193) | 5.5<br>(0.217) | 0.6<br>(0.024) | 0.9<br>(0.035) | 4.1<br>(0.161) | 5.8<br>(0.228) | 3.9<br>(0.154) | 4.1<br>(0.161) | Std.       |
| MF-VS210  | 20.9<br>(0.823) | 23.1<br>(0.909) | 4.9<br>(0.193) | 5.5<br>(0.217) | 0.6<br>(0.024) | 0.9<br>(0.035) | 4.1<br>(0.161) | 5.8<br>(0.228) | 3.9<br>(0.154) | 4.1<br>(0.161) | Std.       |
| MF-VS210L | 24.0<br>(0.945) | 26.0<br>(1.023) | 4.9<br>(0.193) | 5.5<br>(0.217) | 0.6<br>(0.024) | 0.9<br>(0.035) | 5.0<br>(0.197) | 7.1<br>(0.280) | 3.9<br>(0.154) | 4.1<br>(0.161) | Std.       |
| MF-VS210S | 20.9<br>(0.823) | 23.1<br>(0.909) | 4.9<br>(0.193) | 5.5<br>(0.217) | 0.6<br>(0.024) | 0.9<br>(0.035) | 4.1<br>(0.161) | 5.8<br>(0.228) | 3.9<br>(0.154) | 4.1<br>(0.161) | S          |

Packaging: Bulk - 500 pcs. per bag. Tape and Reel - Consult factory.  
Leads: 1/4 Hardened Nickel 0.125 mm (.005") nom.

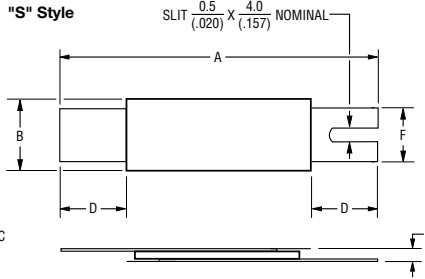
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

NOTE: All "S" style models available with 1 or 2 slots. The dimensions and shape of the leads can be modified to suit the battery pack design. All models are available without insulation wrapping.

#### Standard Style

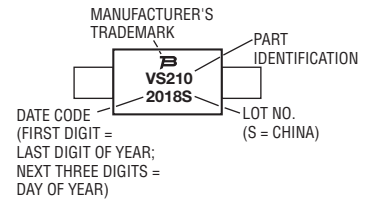


#### "S" Style

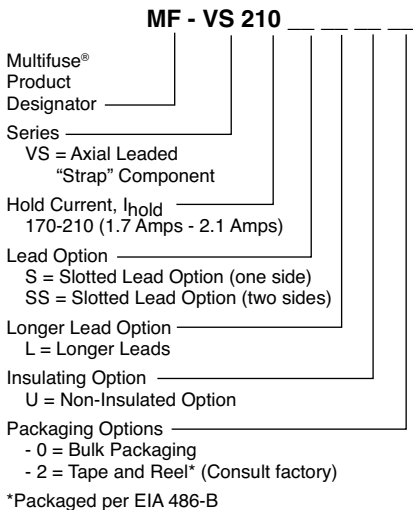


#### Typical Part Marking

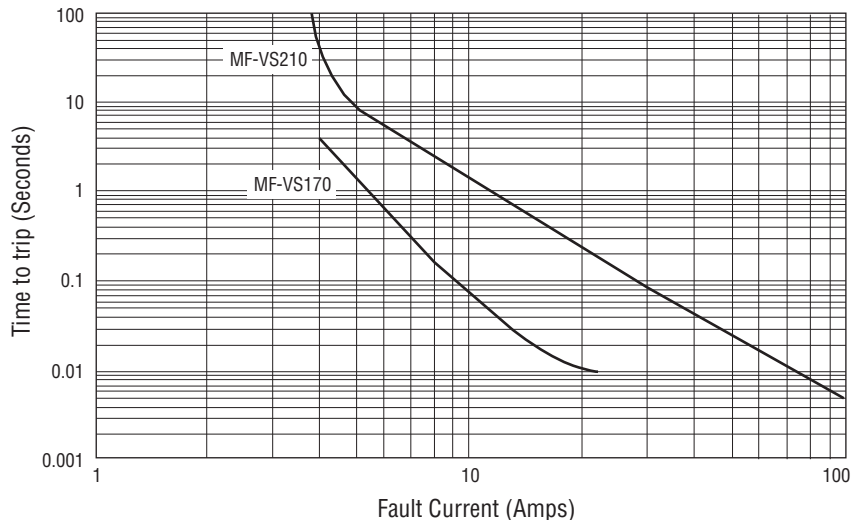
Represents total content. Layout may vary.



### How to Order



### Typical Time to Trip at 23 °C

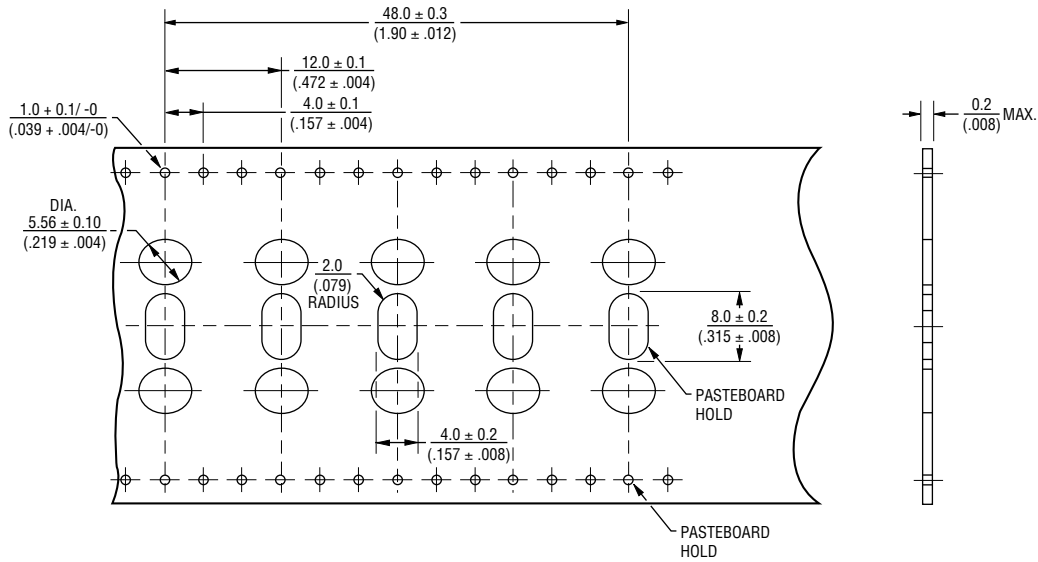


MF-VS SERIES, REV. N, 03/13

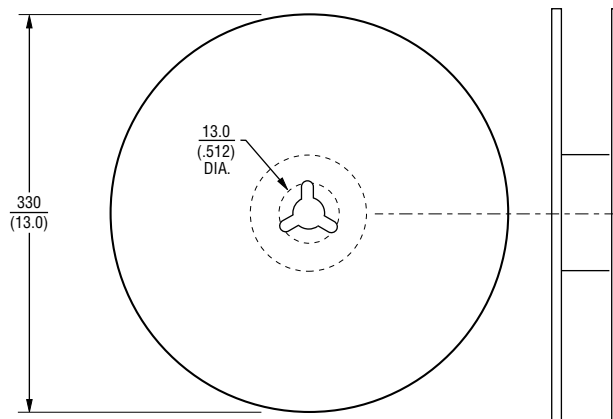
Specifications are subject to change without notice.

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**Taped Component Dimensions**



**Reel Dimensions**



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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