



## Features

- 3.6 mm narrow design axial strap
- Fully compatible with current industry standards
- Weldable nickel terminals
- Very low internal resistance
- Low switching temperature
- RoHS compliant\*, lead free

## 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 Narrow Body Series - PTC Resettable Fuses

### Electrical Characteristics

Model	V max. Volts	I max. Amps	$I_{hold}$	$I_{trip}$	Initial Resistance			1 Hour ( $R_1$ ) 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-VS170N	12	100	1.7	3.4	0.030	0.052	0.040	0.105	8.5	3.0	1.4
MF-VS175NL	12	100	1.75	3.5	0.029	0.051	0.038	0.102	8.75	3.0	1.4
MF-VS210N	12	100	2.1	4.7	0.018	0.030	0.024	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, Condition A No change

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

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech.	Verify dimensions and materials	Per MF physical description
Resistance	In still air @ 23 °C	$R_{min} \leq R \leq R_{max}$
Time to Trip	At specified current, $V_{max}$ , 23 °C	$T \leq \text{max. time to trip (seconds)}$
Hold Current	30 min. at $I_{hold}$	No trip
Trip Cycle Life	$V_{max}$ , $I_{max}$ , 100 cycles	No arcing or burning
Trip Endurance	$V_{max}$ , 48 hours	No arcing or burning
UL File Number	E 174545S	
CSA File Number	CA 110338	
TÜV File Number	R2057213	

### Thermal Derating Chart - $I_{hold}$ (Amps)

Model	Ambient Operating Temperature			
	0 °C	23 °C	60 °C	85 °C
MF-VS170N	2.2	1.7	0.8	0.1
MF-VS175NL	2.25	1.75	0.85	0.1
MF-VS210N	2.9	2.1	1.0	0.1

$I_{trip}$  is approximately two times  $I_{hold}$ .

## Additional Features

- Patents pending

# MF-VS Narrow Body 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-VS170N	22.0 (0.866)	24.0 (0.945)	3.6 (0.142)	3.9 (0.154)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	2.4 (0.094)	2.6 (0.102)	Std.
MF-VS175NL	26.0 (1.024)	28.0 (1.102)	3.6 (0.142)	3.9 (0.154)	0.6 (0.024)	0.9 (0.035)	6.1 (0.240)	7.8 (0.307)	2.4 (0.094)	2.6 (0.102)	Std.
MF-VS210N	30.0 (1.181)	32.0 (1.260)	3.6 (0.142)	3.9 (0.154)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	2.4 (0.094)	2.6 (0.102)	Std.

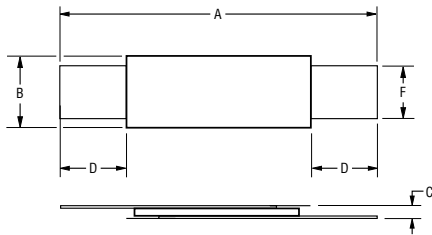
Packaging: Bulk - 500 pcs. per bag. Tape and Reel - Consult factory.

Leads: 1/4 Hardened Nickel 0.125 mm (.005 ") nom.

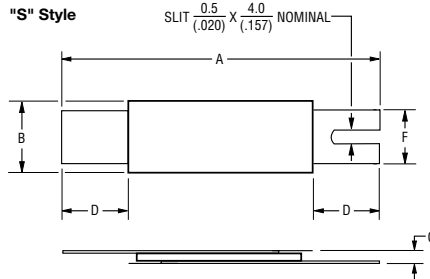
DIMENSIONS =  $\frac{\text{MM}}{\text{(INCHES)}}$

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

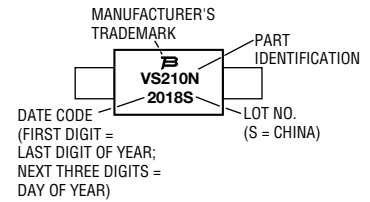


#### "S" Style



#### Typical Part Marking

Represents total content. Layout may vary.



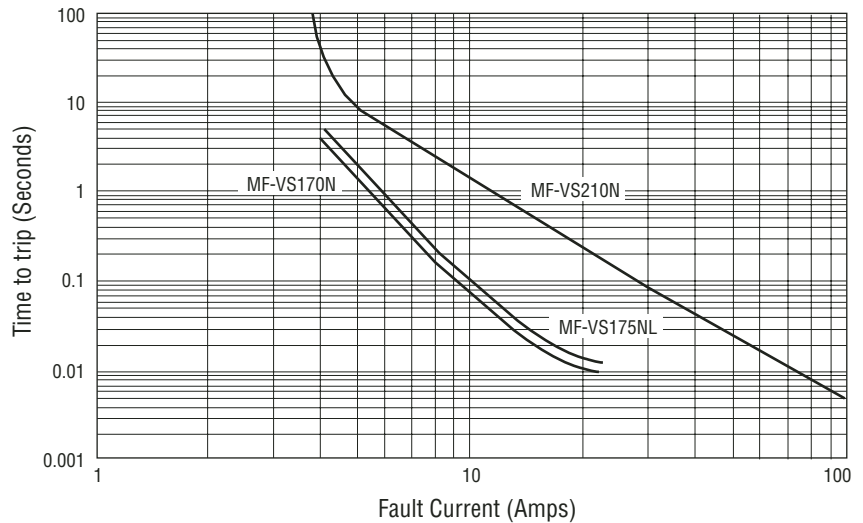
#### How To Order

### MF - VS 210 N

- Multifuse® Product Designator
- Series
  - VS = Axial Leaded "Strap" Component
- Hold Current,  $I_{hold}$ 
  - 170-210 (1.70 - 2.10 Amps)
- Narrow Device Option
  - N = Narrow (3.6 mm)
- Lead Option
  - S = Slotted Lead Option (one side)
  - SS = Slotted Lead Option (two sides)
- Longer Lead Option
  - L = Longer Leads
- Insulating Option
  - U = Non-Insulated Option
- Packaging Option
  - 0 = Bulk Packaging
  - 2 = Tape and Reel\* (Consult factory)

\*Packaged per EIA 486-B

#### Typical Time to Trip at 23 °C

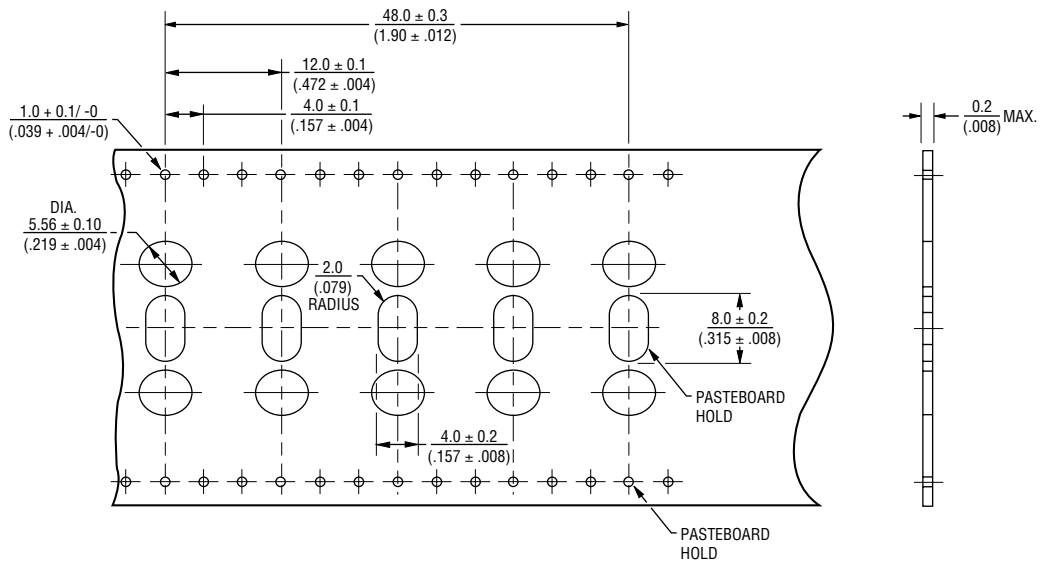


MF-VSN SERIES, REV. D, 11/04

Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

# MF-S, MF-LS, MF-LR and MF-VS Series Tape and Reel Specifications **BOURNS®**

## Taped Component Dimensions



## Reel Dimensions

