


## Features

- Industry's lowest internal resistance
- Switches at optimum temperature
- Axial leaded, with flexible design options available
- Fully compatible with current industry standards
- Weldable nickel terminals
- Agency recognition: 
- RoHS compliant\*

## MF-SVS 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			Ohms at 23 °C	Amperes at 23 °C	Seconds at 23 °C	Watts at 23 °C	
			Hold	Trip	Min.	Max.	Typ.	Max.				Typ.			
MF-SVS170	10	100	1.7	4.1	0.018	0.032	0.023	0.064		8.5	5.0	2.1			
MF-SVS175	10	100	1.75	4.2	0.017	0.031	0.022	0.063		8.5	5.0	2.1			
MF-SVS210	10	100	2.1	5.0	0.010	0.020	0.016	0.040		10.5	5.0	2.4			
MF-SVS230	10	100	2.3	5.2	0.010	0.018	0.014	0.036		12.5	5.0	2.6			

### Environmental Characteristics

Operating Temperature.....	-40 °C to +85 °C
Storage Conditions.....	+40 °C max. 70 % R.H. max.
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-SVS Series

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech.....	Verify dimensions and materials.....	Per MF physical description
Resistance.....	In still air @ 23 °C.....	$R_{min} \leq R \leq R_{1max}$
Time to Trip.....	At specified current, $V_{max}$ , 23 °C.....	$T \leq$ 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 .....	E174545 <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 <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 <a href="http://www.tuvdotcom.com/">http://www.tuvdotcom.com/</a> Follow link to "other certificates", enter File No. 2057213	

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

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-SVS170	3.3	2.8	2.3	1.7	1.3	1.0	0.8	0.5	0.1
MF-SVS175	3.4	2.9	2.3	1.75	1.3	1.1	0.8	0.5	0.1
MF-SVS210	3.8	3.3	2.7	2.1	1.6	1.3	1.1	0.8	0.4
MF-SVS230	4.2	3.6	3.0	2.3	1.8	1.4	1.1	0.8	0.4

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

\*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 battery pack application that requires protection with the lowest possible resistance:
  - Rechargeable battery packs; designed for NiMH and Li-Ion chemical characteristics
  - Cellular / cordless phone rechargeable battery packs
  - Laptop computer battery packs

## MF-SVS Series - PTC Resettable Fuses

**BOURNS®**

### Product Dimensions

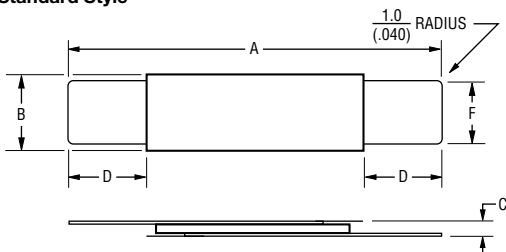
Model	A		B		C		D		F	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
MF-SVS170	16.0 (0.630)	18.0 (0.709)	4.9 (0.193)	5.5 (0.216)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)
MF-SVS170N	22.0 (0.866)	24.0 (0.945)	3.6 (0.142)	3.9 (0.153)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	2.4 (0.094)	2.6 (0.102)
MF-SVS175	16.0 (0.630)	18.0 (0.709)	4.9 (0.193)	5.5 (0.216)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)
MF-SVS175N	22.0 (0.866)	24.0 (0.945)	3.6 (0.142)	3.9 (0.153)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	2.4 (0.094)	2.6 (0.102)
MF-SVS175NL	26.0 (1.024)	28.0 (1.102)	3.6 (0.142)	3.9 (0.153)	0.6 (0.024)	0.9 (0.035)	6.1 (0.240)	7.8 (0.307)	2.4 (0.094)	2.6 (0.102)
MF-SVS210	20.9 (0.823)	23.1 (0.909)	4.9 (0.193)	5.5 (0.216)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)
MF-SVS210N	30.0 (1.181)	32.0 (1.260)	3.6 (0.142)	3.9 (0.153)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	2.4 (0.094)	2.6 (0.102)
MF-SVS230	20.9 (0.823)	23.1 (0.909)	4.9 (0.193)	5.5 (0.216)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)

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

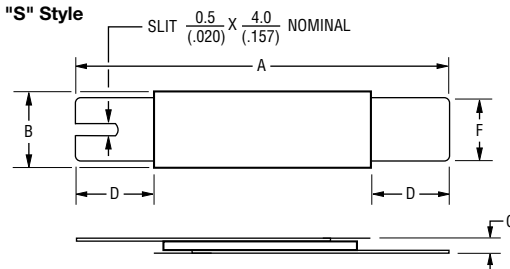
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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.

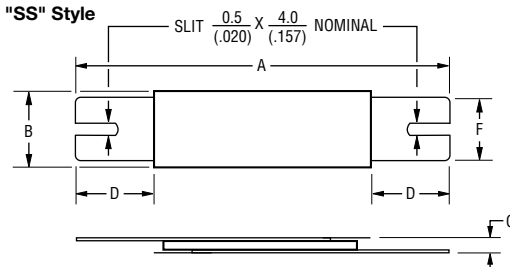
### Standard Style



### "S" Style



### "SS" Style

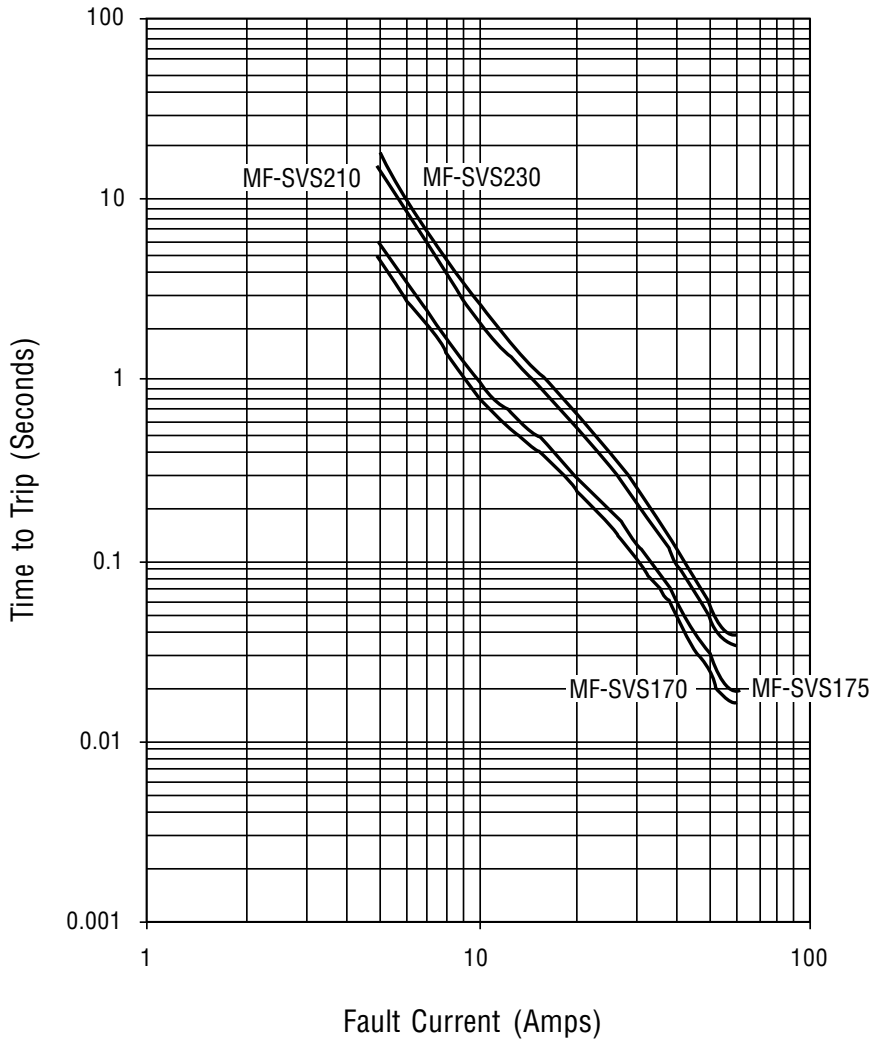


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## Typical Time to Trip at 23 °C



## How to Order

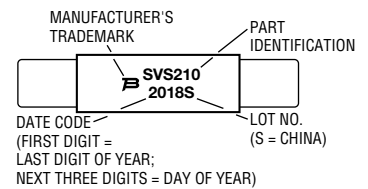
**MF - SVS 210 -**

- Multifuse®
- Product Designator
- Series
- SVS = Axial Leaded "Strap" Component
- Hold Current,  $I_{hold}$  170-230 (1.70 - 2.30 Amps)
- Narrow Device Option N = Narrow (3.6mm)
- 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 Part Marking

Represents total content. Layout may vary.



MF-SVS, REV. Z, 03/13

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