

## Applications

Almost anywhere there is a low voltage power supply and a load to be protected, including:

- Computers & peripherals
- General electronics
- Automotive applications

## MF-SM Series - PTC Resettable Fuses

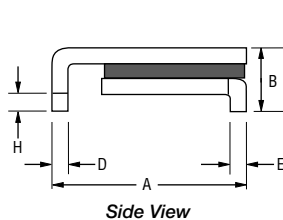
# BOURNS®

### Product Dimensions

Model	A		B	C	D		E		F		G		H
	Min.	Max.	Max.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
MF-SM030	6.73 (0.265)	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM050	6.73 (0.265)	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM075	6.73 (0.265)	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM075/60	6.73 (0.265)	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM100	6.73 (0.265)	7.98 (0.314)	3.0 (0.118)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM100/33	6.73 (0.265)	7.98 (0.314)	3.0 (0.118)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM125	6.73 (0.265)	7.98 (0.314)	3.0 (0.118)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM150	8.00 (0.315)	9.50 (0.374)	3.0 (0.118)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM150/33	8.00 (0.315)	9.50 (0.374)	3.0 (0.118)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM185/33	8.00 (0.315)	9.50 (0.374)	3.0 (0.118)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM200	8.00 (0.315)	9.50 (0.374)	3.0 (0.118)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM250	8.00 (0.315)	9.50 (0.374)	3.0 (0.118)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM260	6.73 (0.265)	7.98 (0.314)	3.0 (0.118)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)
MF-SM300	6.73 (0.265)	7.98 (0.314)	3.0 (0.118)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)

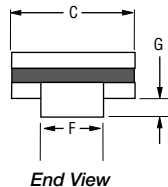
Packaging:

TAPE & REEL: MF-SM030, 050, 075, 075/60, 100, 100/33, 125, 260, 300 = 2000 pcs. per reel;  
MF-SM150, 150/33, 185/33, 200, 250 = 1500 pcs. per reel.

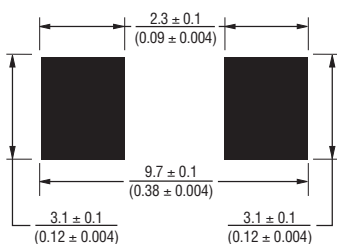


DIMENSIONS: MM  
(INCHES)

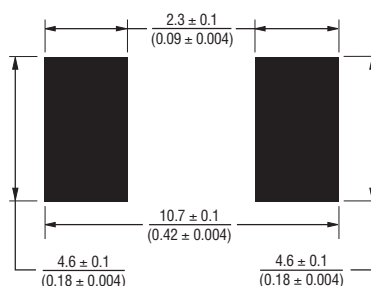
Terminal material:  
Tin-plated brass



Recommended Pad Layout  
MF-SM030, 050, 075, 075/60, 100, 100/33, 125, 260, 300



Recommended Pad Layout  
MF-SM150, 150/33, 185/33, 200, 250



### How to Order

#### MF - SM 100/33 - 2 - 99

Multifuse® Product Designator \_\_\_\_\_  
Series \_\_\_\_\_  
SM = Surface Mount Component  
Hold Current,  $I_{hold}/V_{max}^*$   
030 - 300 (0.3 - 3.0 Amps)  
Packaging Options  
- 2 = Tape and Reel\*\*

Part Number Suffix Option \_\_\_\_\_

- 99 = As of date code April 1, 2005 all MF-SM models are RoHS compliant. The suffix "-99" can be used if a new part number is required to reference the RoHS compliance.

Examples:

MF-SM030-2.....Tape and reel packaging  
MF-SM030-2-99.....Tape and reel packaging with part number suffix option  
MF-SM150-2.....Tape and reel packaging  
MF-SM150/33-2-99...Tape and reel packaging with part number suffix option

\*  $V_{max}$  entry applies only to models MF-SM075/60, MF-SM100/33, MF-SM150/33 & MF-SM185/33.

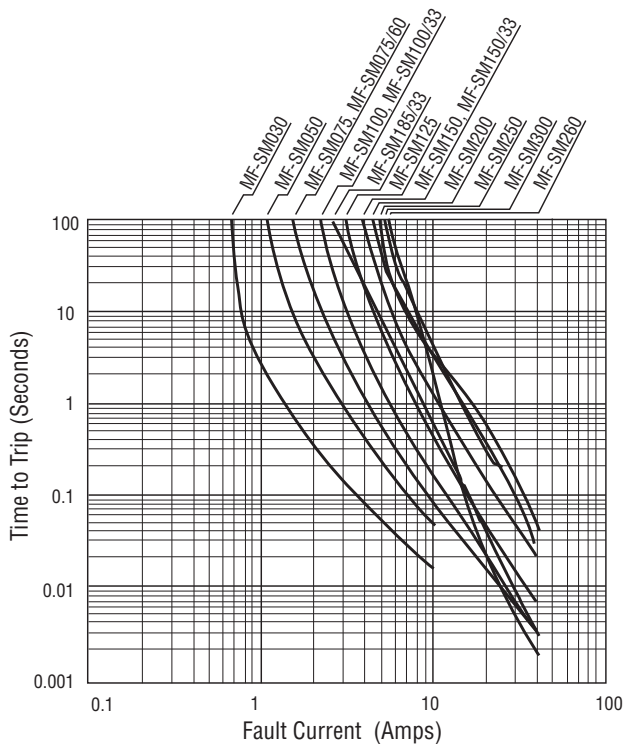
\*\* Packaged per EIA-481-2

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.

# MF-SM Series - PTC Resettable Fuses

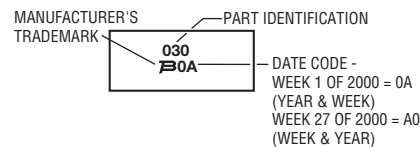
**BOURNS®**

## Typical Time to Trip at 23 °C

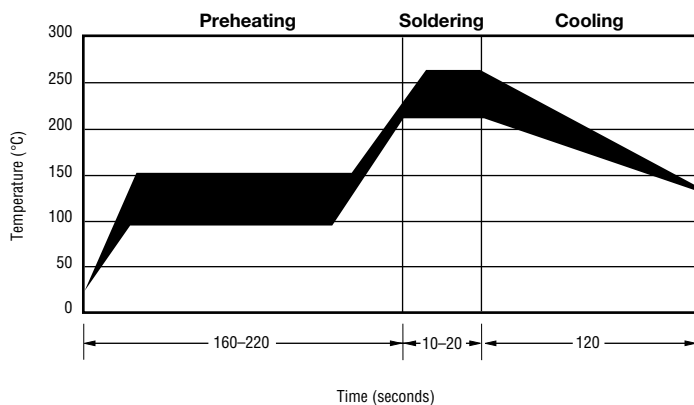


## Typical Part Marking

Represents total content. Layout may vary.



## Solder Reflow Recommendations



### Solder reflow

- Recommended reflow methods: IR, vapor phase oven, hot air oven.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Gluing the devices is not recommended.
- Recommended maximum paste thickness is 0.25 mm (.010 inch).
- Devices can be cleaned using standard industry methods and solvents.

### Note:

- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

### Rework

- A device should not be reworked.

## Storage Recommendations

The recommended long term storage conditions for Multifuse® Polymer PTC devices are 40 °C maximum and 70 % RH maximum. All devices should remain in the original sealed packaging prior to use. Devices may not conform with data sheet specifications if these storage recommendations are exceeded. Devices stored in this manner have an indefinite shelf life.

MF-SM SERIES, REV.R, 01/14

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.

**MF-SM, MF-SM/33, MF-SM/60 & MF-SM/250 Series Tape and Reel Specifications**

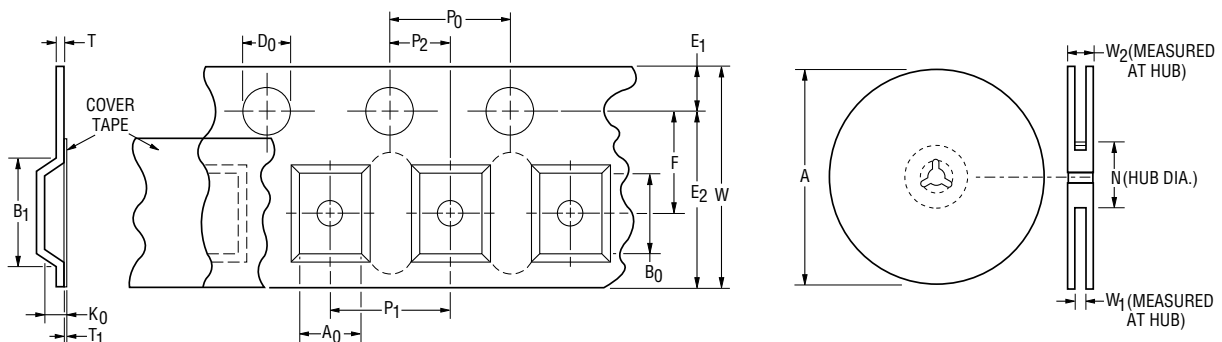


NOTE: Effective December 1, 2010 (product date code V0), the cover tape was changed to the new 3M™ Universal Cover Tape (UCT).

Tape Dimensions	MF-SM030, 050, 075, 100, 125, 260, 300; MF-SM075/60; MF-SM-100/33 per EIA-481-2	MF-SM150, 200, 250; MF-SM-150/33, MF-SM-185/33; MF-SM013/250 per EIA 481-2
	W	$16.0 \pm 0.3$ (0.630 ± 0.012)
P <sub>0</sub>	$4.0 \pm 0.1$ (0.157 ± 0.004)	$4.0 \pm 0.1$ (0.157 ± 0.004)
P <sub>1</sub>	$8.0 \pm 0.1$ (0.315 ± 0.004)	$12.0 \pm 0.1$ (0.472 ± 0.004)
P <sub>2</sub>	$2.0 \pm 0.1$ (0.079 ± 0.004)	$2.0 \pm 0.1$ (0.079 ± 0.004)
A <sub>0</sub>	$5.7 \pm 0.1$ (0.224 ± 0.004)	$6.9 \pm 0.1$ (0.272 ± 0.004)
B <sub>0</sub>	$8.1 \pm 0.1$ (0.319 ± 0.004)	$9.6 \pm 0.1$ (0.378 ± 0.004)
B <sub>1</sub> max.	$12.1$ (0.476)	$12.1$ (0.476)
D <sub>0</sub>	$1.5 + 0.1/-0.0$ (0.059 + 0.004/-0)	$1.5 + 0.1/-0.0$ (0.059 + 0.004/-0)
F	$7.5 \pm 0.1$ (0.295 ± 0.004)	$7.5 \pm 0.1$ (0.295 ± 0.004)
E <sub>1</sub>	$1.75 \pm 0.1$ (0.069 ± 0.004)	$1.75 \pm 0.1$ (0.069 ± 0.004)
E <sub>2</sub> min.	$14.25$ (0.561)	$14.25$ (0.561)
T max.	$0.6$ (0.024)	$0.6$ (0.024)
T <sub>1</sub> max.	$0.1$ (0.004)	$0.1$ (0.004)
K <sub>0</sub>	$3.4 \pm 0.1$ (0.134 ± 0.004)	$3.4 \pm 0.1^*$ (0.134 ± 0.004)*
Leader min.	$390$ (15.35)	$390$ (15.35)
Trailer min.	$160$ (6.30)	$160$ (6.30)
<b>Reel Dimensions</b>		
A max.	$360$ (14.17)	$360$ (14.17)
N min.	$50$ (1.97)	$50$ (1.97)
W <sub>1</sub>	$16.4 + 2.0/-0.0$ (0.646 + 0.079/-0)	$16.4 + 2.0/-0.0$ (0.646 + 0.079/-0)
W <sub>2</sub> max.	$22.4$ (0.882)	$22.4$ (0.882)

\* Model MF-SM013/250 =  $\frac{3.8 \pm 0.1}{(0.150 \pm 0.004)}$

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



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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Bourns:

[MF-SM260-2](#) [MF-SM050/60-2](#) [MF-SM125-2](#) [MF-SM200-2](#) [MF-SM150/33-2](#) [MF-SM100/33-2](#) [MF-SM100-2-006](#)  
[MF-SM150-2-006](#) [MF-SM125-2-006](#) [MF-SM150-2](#) [MF-SM050-2](#) [MF-SM030-2](#) [MF-SM030-2-99](#) [MF-SM100/33-2-99](#)  
[MF-SM150/33-2-99](#) [MF-SM300-2](#) [MF-SM300-2-99](#) [MF-SM100-2-99](#) [MF-SM050-2-99](#) [MF-SM200-2-99](#) [MF-SM260-2-](#)  
[99](#) [MF-SM150-2-99](#) [MF-SM200-2-006](#) [MF-SM075-2-99](#) [MF-SM125-2-99](#) [MF-SM075-2](#) [MF-SM075-2-006](#) [MF-](#)  
[SM030-2-006](#) [MF-SM050-2-006](#) [MF-SM100-2](#) [MF-SM075/60-2](#) [MF-SM075/60-2-99](#) [MF-SM185/33-2](#)