Features

- Surface Mount Device
- Reduced footprint size
- High voltage surge capabilities
- Assists in meeting ITU K.20/K.21/K.45 specifications
- RoHS compliant*
- Agency recognition:

Applications

Provides overcurrent protection in:

- Customer Premise Equipment (CPE)
- Central Office (CO)
- Access/Outside Plant Equipment

MF-SM013/250V - Telecom PTC Resettable Fuses

Electrical Characteristics

Model	Max. Operating Voltage	Max. Interrupt Ratings		Hold Current	Initial Resistance		One Hour Post-Trip Resistance	Tripped Power Dissipation
		Volts (V)	Amps (A)	Amps at 23 °C	Ohms at 23 °C	Ohms at 23 °C	Ohms at 23 °C	Watts at 23 °C
	Volts	Max.	Max.	I_H	Min.	Max.	Max.	Typ.
MF-SM013/250V	60	250	3.0	0.13	4.0	7.0	16.0	3.0

Environmental Characteristics

Operating Temperature	-40 °C to +85 °C	
Maximum Device Surface Temperature in Tripped State	125 °C	
Passive Aging	+85 °C, 1000 hours	±15 % typical resistance change
Humidity Aging	+85 °C, 85 % R.H. 1000 hours	±15 % typical resistance change
Thermal Shock	MIL-STD-202F, Method 107G,	±15 % typical resistance change
	+125 °C to -55 °C,10 times	±15 % typical resistance change
Solvent Resistance	MIL-STD-202, Method 215B	No change
Lead Solerability	ANSI/J-STD-002	
Flammability	IEC 695-2-2	No flame for 60 secs.
Vibration	MIL-STD-883C, Method 2007.1, Condition A	No change

Test Procedures And Requirements For Model MF-SM013/250V Series

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech.	Verify dimensions and materials	Per MF physical description
Resistance	In still air @ 23 °C	Rmin ≤ R ≤ Rmax
Time to Trip	At specified current, Vmax, 23 °C	T ≤ max. time to trip (seconds)
Hold Current	30 min. at Ihold	No trip
Trip Cycle Life	Vmax, Imax, 100 cycles	No arcing or burning
Trip Endurance	Vmax, 48 hours	No arcing or burning
Solderability	MIL-STD-202F, Method 208F	95 % min. coverage

UL File Number E174545

TÜV File Number R2057213

Thermal Derating Chart - I_{hold}/I_{trip} (Amps)

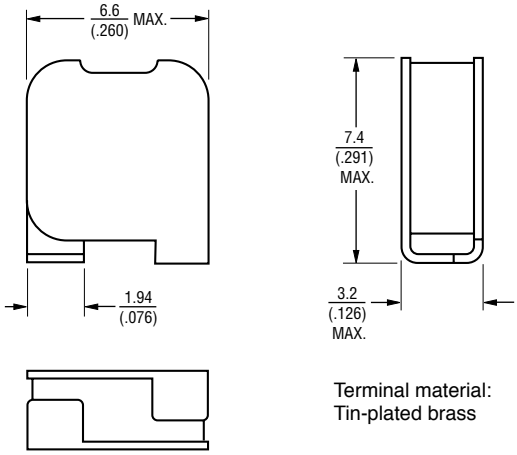
Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-SM013/250V	0.21 / 0.42	0.18 / 0.37	0.16 / 0.31	0.13 / 0.26	0.10 / 0.23	0.09 / 0.18	0.08 / 0.15	0.07 / 0.12	0.05 / 0.10

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

MF-SM013/250V - Telecom PTC Resettable Fuses

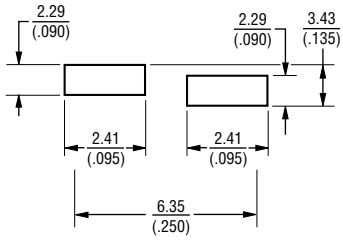
BOURNS®

Product Dimensions



Terminal material:
Tin-plated brass

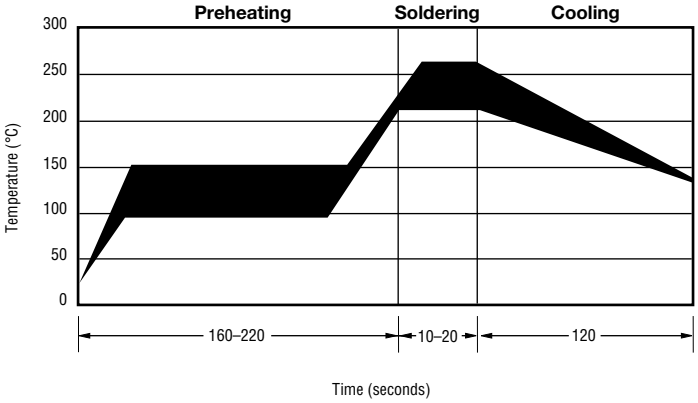
Recommended Pad Layout



DIMENSIONS: MM / (INCHES)

Packaging:
TAPE & REEL: 1000 pcs. per reel

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.

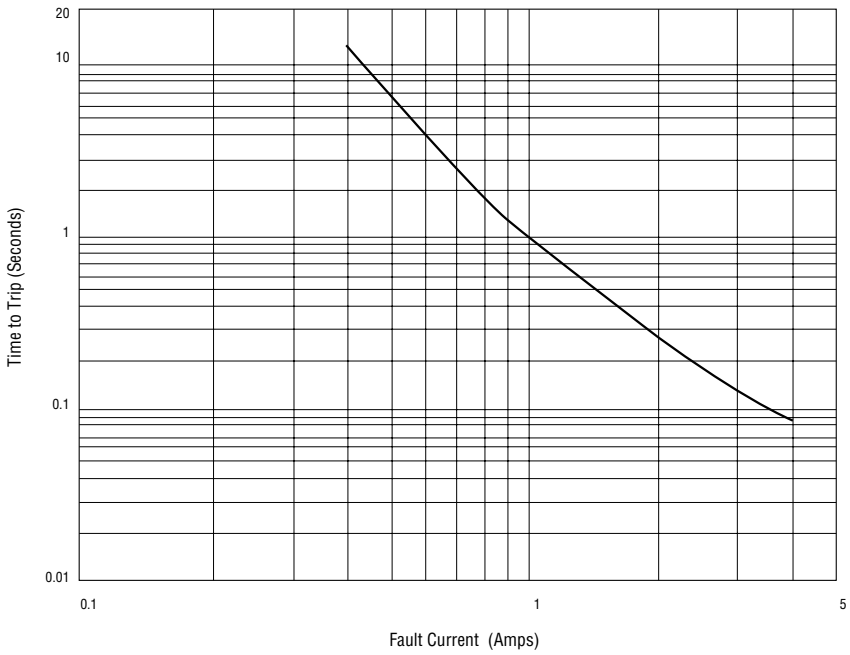
Storage Recommendations

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-SM013/250V - Telecom PTC Resettable Fuses

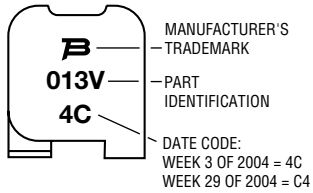
BOURNS®

Typical Time to Trip at 23 °C



Typical Part Marking

Represents total content. Layout may vary.



How to Order

MF - SM 013/250V - 2

Multifuse® Product Designator

Series
SM = Surface Mount Component

Hold Current, Ihold
013 = 0.13 Amps

Max. Interrupt Voltage, V
250 = 250 Volts

Telecom Options
V = Vertical Profile (Surface Mount Products Only)

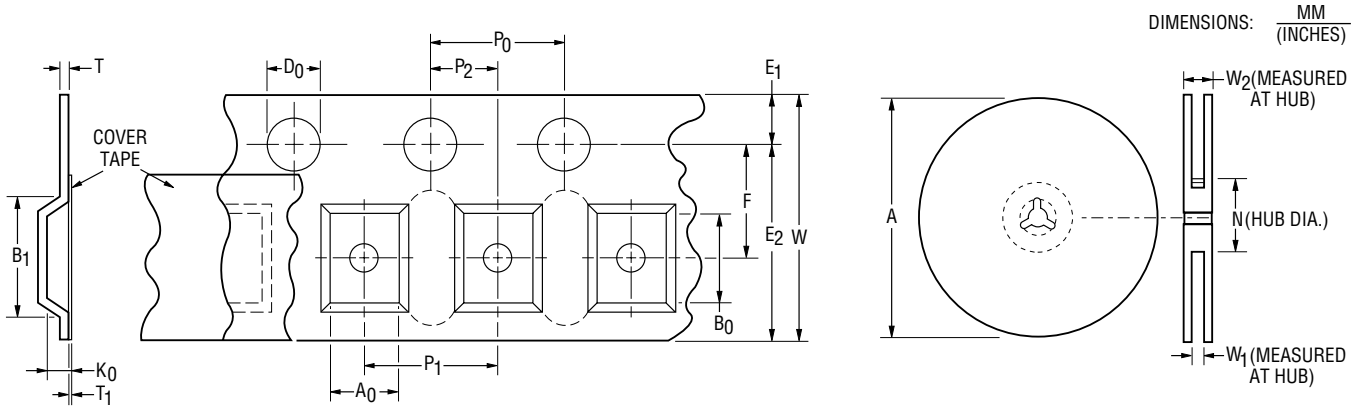
Packaging Options
- 0 = Bulk Packaging
- 2 = Tape and Reel*

*Packaged per EIA486-B

MF-SM/250V Series Tape and Reel Specifications

BOURNS®

Tape Dimensions	MF-SM013/250V per EIA 481-1
W	16.0 ± 0.3 (0.630 ± 0.012)
P_0	4.0 ± 0.1 (0.157 ± 0.004)
P_1	8.0 ± 0.1 (0.315 ± 0.004)
P_2	2.0 ± 0.1 (0.079 ± 0.004)
A_0	3.3 ± 0.1 (0.130 ± 0.004)
B_0	6.66 ± 0.1 (0.262 ± 0.004)
B_1 max.	7.2 (0.283)
D_0	1.5 ± 0.1 (0.059 ± 0.004)
F	7.5 ± 0.1 (0.295 + 0.004)
E_1	1.75 ± 0.1 (0.069 ± 0.004)
E_2 min.	14.25 (0.561)
T max.	045 (0.018)
T_1 max.	0.1 (0.004)
K_0	7.0 (0.276)
Leader min.	390 (15.35)
Trailer min.	160 (6.30)
Reel Dimensions	
A max.	340 (13.39)
N min.	50 (1.97)
W_1	16.4 (0.646)
W_2 max.	22.4 (0.882)



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.