Features

- Compact design to save board space - 0805 footprint
- Small size results in very fast time to react to fault events
- Symmetrical design
- Low profile
- RoHS compliant* and halogen free**
- Agency recognition: c UL us, TÜV

Applications

- USB port protection - USB 2.0, 3.0 & OTG
- HDMI 1.4 Source protection
- PC motherboards - Plug and Play protection
- Mobile phones - Battery and port protection
- PDAs / digital cameras
- Game console port protection

MF-PSMF Series - PTC Resettable Fuses

Electrical Characteristics

Model	V max. Volts	I max. Amps	I_{hold}	I_{trip}	Resistance		Max. Time To Trip		Tripped Power Dissipation
			Amperes at 23 °C		Ohms at 23 °C		Amperes at 23 °C	Seconds at 23 °C	Watts at 23 °C
			Hold	Trip	$R_{Min.}$	$R_{1Max.}$			Typ.
MF-PSMF010X	15	40	0.10	0.30	1.0	7.5	0.5	1.5	0.5
MF-PSMF010/24X***	24	80	0.10	0.30	1.0	7.5	0.5	1.5	0.5
MF-PSMF020X	9	40	0.20	0.50	0.65	3.5	8.00	0.02	0.5
MF-PSMF035X	6	40	0.35	0.75	0.250	1.200	8.00	0.10	0.5
MF-PSMF050X	6	40	0.50	1.00	0.150	0.900	8.00	0.10	0.5
MF-PSMF075X	6	40	0.75	1.50	0.090	0.350	8.00	0.20	0.6
MF-PSMF110X	6	40	1.10	2.20	0.060	0.210	8.00	0.30	0.6

***TÜV approval pending.

Environmental Characteristics

Operating Temperature	-40 °C to +85 °C	
Passive Aging	+85 °C, 1000 hours	±5 % typical resistance change
Humidity Aging	+85 °C, 85 % R.H. 1000 hours	±5 % typical resistance change
Thermal Shock	+85 °C to -40 °C, 20 times	±10 % typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change
Vibration	MIL-STD-883C, Method 2007.1, Condition A	No change

Test Procedures And Requirements For Model MF-PSMF 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 ≤ R1max
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	ANSI/J-STD-002	95 % min. coverage

UL File Number	E174545
	http://www.ul.com/ Follow link to Certifications, then UL File No., enter E174545
TÜV Certificate Number	R 50171531
	http://www.tuvdotcom.com/ Follow link to “other certificates”, enter File No. 50171531

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-PSMF010X	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05
MF-PSMF010/24X	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05
MF-PSMF020X	0.28	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
MF-PSMF035X	0.47	0.44	0.39	0.35	0.30	0.27	0.24	0.20	0.14
MF-PSMF050X	0.68	0.62	0.55	0.50	0.40	0.37	0.33	0.29	0.23
MF-PSMF075X	1.00	0.90	0.79	0.75	0.63	0.57	0.53	0.42	0.35
MF-PSMF110X	1.45	1.35	1.20	1.10	0.92	0.84	0.75	0.65	0.52

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

** Bourns considers a product to be “halogen free” if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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.

Additional Applications

■ Automotive electronic control modules

MF-PSMF Series - PTC Resettable Fuses

BOURNS®

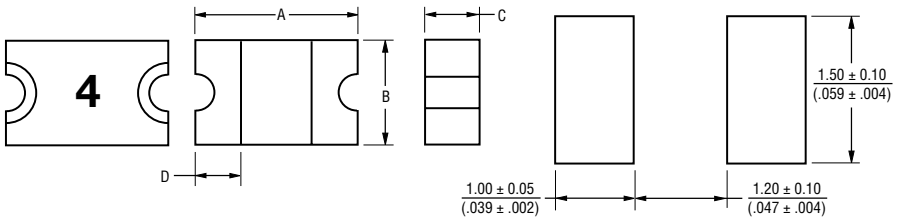
Product Dimensions

Model	A		B		C		D
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
MF-PSMF010X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.48 (0.019)	0.85 (0.033)	0.20 (0.008)
MF-PSMF010/24X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.48 (0.019)	0.85 (0.033)	0.20 (0.008)
MF-PSMF020X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.48 (0.019)	0.85 (0.033)	0.20 (0.008)
MF-PSMF035X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.48 (0.019)	0.85 (0.033)	0.20 (0.008)
MF-PSMF050X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.48 (0.019)	0.85 (0.033)	0.20 (0.008)
MF-PSMF075X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.75 (0.030)	1.25 (0.049)	0.20 (0.008)
MF-PSMF110X	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.75 (0.030)	1.25 (0.049)	0.20 (0.008)

Packaging: 3000 pcs. per reel.

DIMENSIONS: MM (INCHES)

Top View *Bottom View* *Side View* *Recommended Pad Layout*



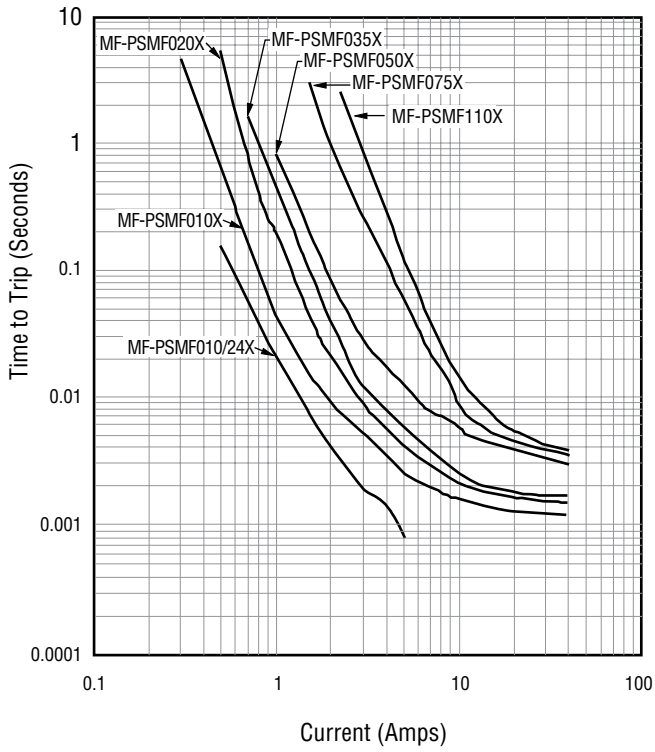
Terminal material:
Nickel/gold plated.

Termination pad solderability:
Standard Au finish:
Meets ANSI/J-STD-002 Category 2.

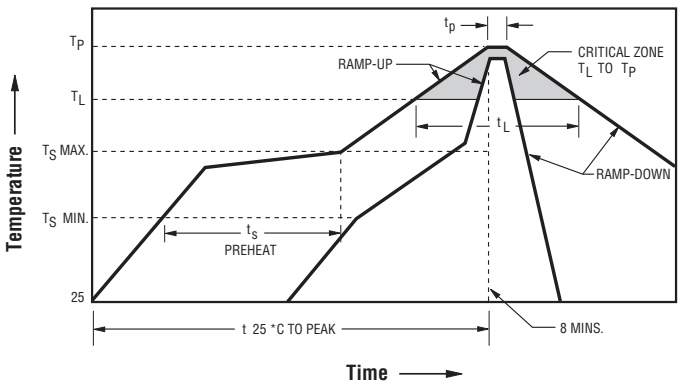
Recommended Storage:
40 °C max./70 % RH max.

Typical Time to Trip at 23 ˚C

The Time to Trip curves represent typical performance of a device in a simulated application environment. Actual performance in specific customer applications may differ from these values due to the influence of other variables.



Solder Reflow Recommendations



Notes:

- MF-FSML models cannot be wave soldered or hand soldered. Please contact Bourns for soldering recommendations.
- All temperatures refer to topside of the package, measured on the package body surface.
- If reflow temperatures exceed the recommended profile, devices may not meet the published specifications.
- Compatible with Pb and Pb-free solder reflow profiles.
- Excess solder may cause a short circuit, especially during hand soldering. Please refer to the Multifuse® Polymer PTC Soldering Recommendation guidelines.
- Designed for single solder reflow operations.

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (TS_{max} to T_p)	3 °C / second max.
PREHEAT: Temperature Min. (TS_{min}) Temperature Max. (TS_{max}) Time (ts_{min} to ts_{max})	 150 °C 200 °C 60~180 seconds
TIME MAINTAINED ABOVE: Temperature (T_l) Time (t_L)	 217 °C 60~150 seconds
Peak / Classification Temperature (T_P)	260 °C
Time within 5 °C of Actual Peak Temperature (t_p)	20~40 seconds
Ramp-Down Rate	6 °C / second max.
Time within 25 °C to Peak Temperature	8 minutes max.

How to Order

MF - PSMF 010 /24 X - 2

Multifuse® Product Designator

Series
PSMF = 0805 Surface Mount Component

Hold Current, Ihold
010-110 (0.10 - 1.10 Amps)

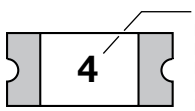
Higher Voltage Option
Blank = Standard Voltage
/24 = 24 V

Multifuse® freeXpansion™ Design

Packaging
Packaged per EIA 481-1
-2 = Tape and Reel

Typical Part Marking

Represents total content. Layout may vary.



PART IDENTIFICATION:
MF-PSMF010X = 1
MF-PSMF010/24X = 1
MF-PSMF020X = 2
MF-PSMF035X = 3
MF-PSMF050X = 4
MF-PSMF075X = 5
MF-PSMF110X = 6

BIWEEKLY DATE CODE WILL APPEAR ON THE PACKAGING LABEL:
WEEK 1 AND 2 = A
WEEK 51 AND 52 = Z

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Tel: +886-2 2562-4117
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The Americas:
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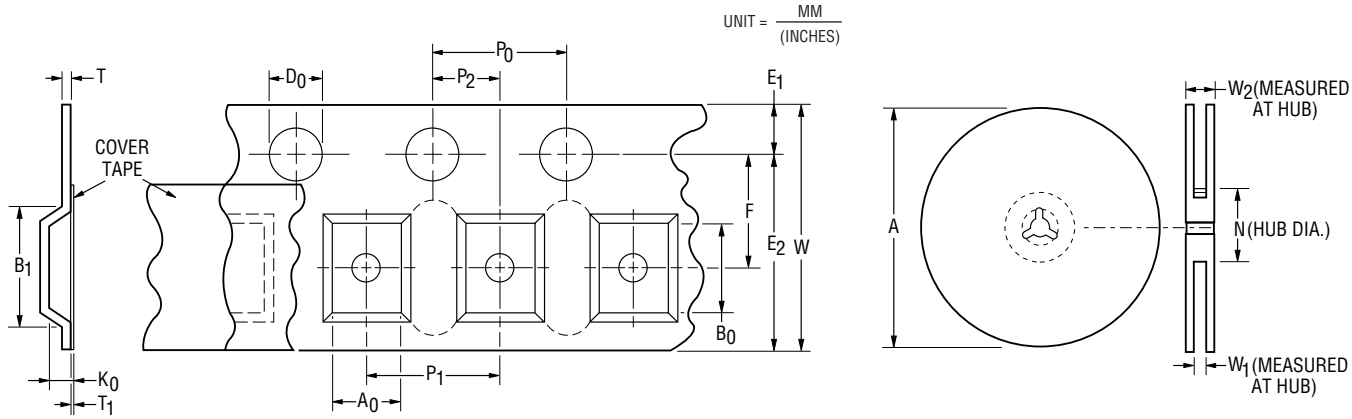
Email: americus@bourns.com

www.bourns.com

MF-PSMF Series Tape and Reel Specifications

BOURNS®

Tape Dimensions	MF-PSMF010X, MF-PSMF010/24X, MF-PSMF020X, MF-PSMF035X & MF-PSMF050X per EIA 481-1	MF-PSMF075X & MF-PSMF110X per EIA 481-1
W	8.0 ± 0.30 (0.315 ± 0.012)	8.0 ± 0.30 (0.315 ± 0.012)
P_0	4.0 ± 0.10 (0.157 ± 0.004)	4.0 ± 0.10 (0.157 ± 0.004)
P_1	4.0 ± 0.10 (0.157 ± 0.004)	4.0 ± 0.10 (0.157 ± 0.004)
P_2	2.0 ± 0.05 (0.079 ± 0.002)	2.0 ± 0.05 (0.079 ± 0.002)
A_0	1.65 ± 0.10 (0.065 ± 0.004)	1.65 ± 0.10 (0.065 ± 0.004)
B_0	2.4 ± 0.10 (0.094 ± 0.004)	2.4 ± 0.10 (0.094 ± 0.004)
B_1 max.	4.35 (0.171)	4.35 (0.171)
D_0	1.50 + 0.10/-0.0 (0.059 + 0.004/-0)	1.50 + 0.10/-0.0 (0.059 + 0.004/-0)
F	3.5 ± 0.05 (0.138 ± 0.002)	3.5 ± 0.05 (0.138 ± 0.002)
E_1	1.75 ± 0.10 (0.069 ± 0.004)	1.75 ± 0.10 (0.069 ± 0.004)
E_2 min.	6.25 (0.246)	6.25 (0.246)
T max.	0.6 (0.024)	0.6 (0.024)
T_1 max.	0.10 (0.004)	0.10 (0.004)
K_0	0.95 ± 0.10 (0.037 ± 0.004)	1.25 ± 0.10 (0.049 ± 0.004)
Leader min.	390 (15.35)	390 (15.35)
Trailer min.	160 (6.30)	160 (6.30)
Reel Dimensions		
A max.	185 (7.28)	185 (7.28)
N min.	50 (1.97)	50 (1.97)
W_1	8.4 + 1.5/ -0.0 (0.331 + 0.059/-0)	8.4 + 1.5/ -0.0 (0.331 + 0.059/-0)
W_2 max.	14.4 (0.567)	14.4 (0.567)



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Mouser Electronics

Authorized Distributor

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

Bourns:

MF-PSMF050X-2 MF-PSMF075X-2 MF-PSMF110X-2 MF-PSMF020X-2 MF-PSMF035X-2 MF-PSMF010X-2