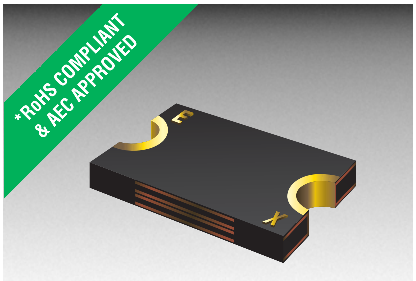

BOURNS®

Features

- High power ratings
- Compliant with AEC-Q200 Rev-C- Stress Test Qualification for Passive Components in Automotive Applications
- Low profile
- Compatible with Pb and Pb-free solder reflow profiles
- RoHS compliant* and halogen free**
- Surface mount packaging for automated assembly
- Agency recognition:
- Standard 7555 mm (2920 mils) footprint

MF-LSMF 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-LSMF185/33X	33.0	40	1.85	3.70	0.045	0.150	8.0	2.50	1.5
MF-LSMF260X	24.0	20	2.60	5.20	0.020	0.075	8.0	5.00	1.5
MF-LSMF300X	6.0	40	3.00	5.00	0.015	0.048	8.0	20.00	1.5
MF-LSMF300/24X	24.0	20	3.00	5.20	0.020	0.075	8.0	5.00	1.5

*** Features Multifuse® Free Xpansion Design™ for MF-LSMF Series.

Environmental Characteristics

Operating Temperature	-40 °C to +85 °C	
Maximum Device Surface Temperature in Tripped State	125 °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-LSMF 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

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*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

**Bourns is using the definition that appears to be the prevalent definition used as the industry standard at this time. The Bourns definition of “halogen-free” is: Bromine (Br) content: ≤ 900 ppm; Chlorine (Cl) content: ≤ 900 ppm; Total Br + Cl content: ≤1500 ppm.

Applications

- Automotive electronics
- Industrial controls
- IEEE ports
- Portable electronics

MF-LSMF Series - PTC Resettable Fuses

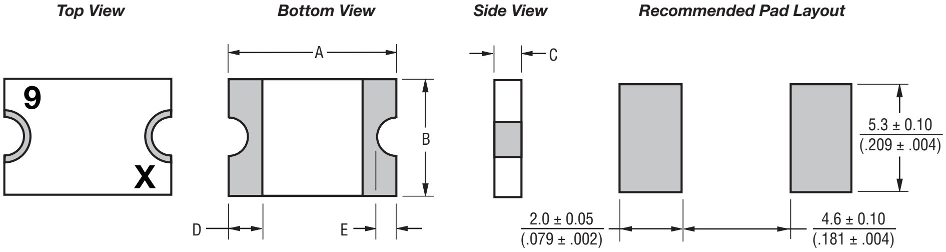
BOURNS®

Product Dimensions

Model	A		B		C		D	E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.	Max.
MF-LSMF185/33X	6.73 (0.265)	7.98 (0.312)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)	0.30 (0.012)	0.25 (.010)	2.00 (.079)
MF-LSMF260X	6.73 (0.265)	7.98 (0.312)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)	0.30 (0.012)	0.25 (.010)	2.00 (.079)
MF-LSMF300X	6.73 (0.265)	7.98 (0.312)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)	0.30 (0.012)	0.25 (.010)	2.00 (.079)
MF-LSMF300/24X	6.73 (0.265)	7.98 (0.312)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)	0.30 (0.012)	0.25 (.010)	2.00 (.079)

Packaging: 3000 pcs. per reel.

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



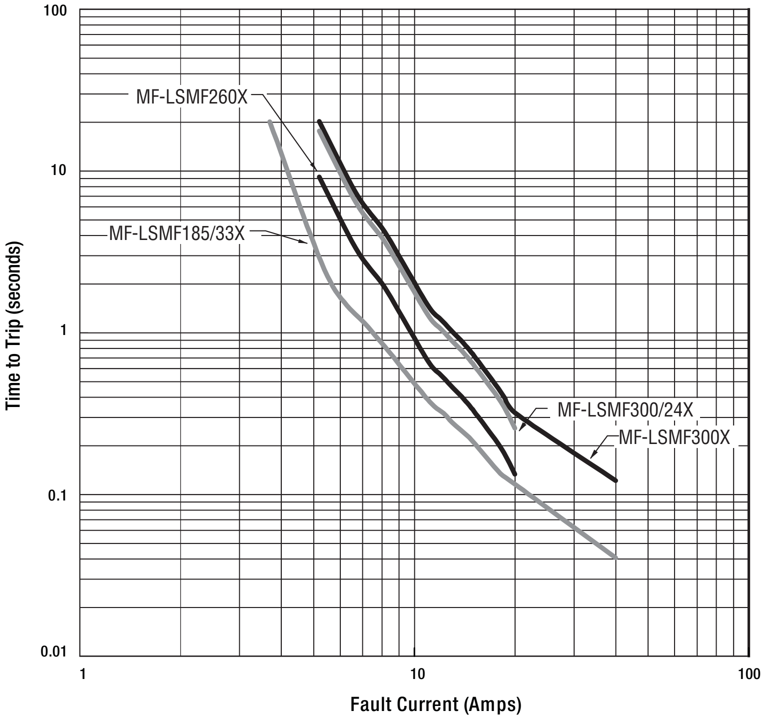
Top View *Bottom View* *Side View* *Recommended Pad Layout*

Terminal material:
Electroless Ni under immersion Au

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

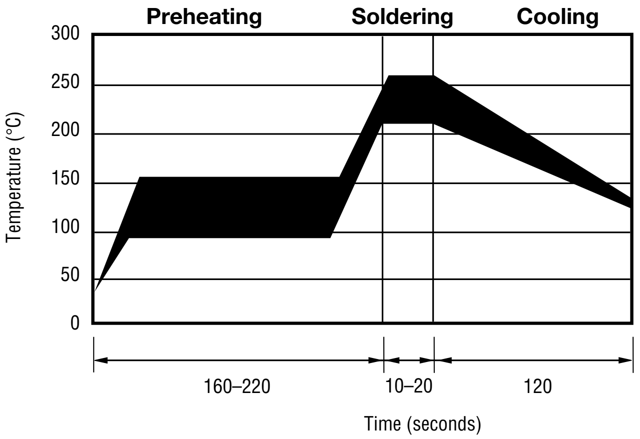


The Time to Trip curves represent typical performance of a device in a simulated application environment. Actual performance in specific customer applications may differ from these values due to the influence of other variables.

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-LSMF185/33X	2.80	2.47	2.17	1.85	1.54	1.39	1.22	1.07	0.85
MF-LSMF260X	3.75	3.35	3.00	2.60	2.35	2.15	2.05	1.80	1.30
MF-LSMF300X	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
MF-LSMF300/24X	4.00	3.55	3.20	3.00	2.50	2.25	2.15	1.85	1.50

Solder Reflow Recommendations



Notes:

- MF-LSMF models cannot be wave soldered. Please contact Bourns for hand soldering recommendations.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
- Compatible with Pb and Pb-free solder reflow profiles.

How to Order

MF - LSMF 185/33X - 2

Multifuse® Product Designator

Series
LSMF = 7555 mm (2920 mils)
Surface Mount Component

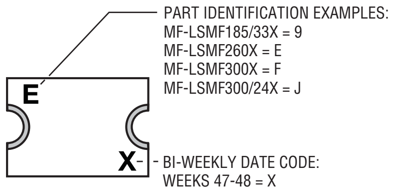
Hold Current, Ihold
185-300 (1.85 Amps - 3.00 Amps)

Higher Voltage Option
/24 = 24 Volt Rated
/33 = 33 Volt Rated
X = Multifuse® freeXpansion™ Design MF-LSMF Series

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

Typical Part Marking

Represents total content. Layout may vary.

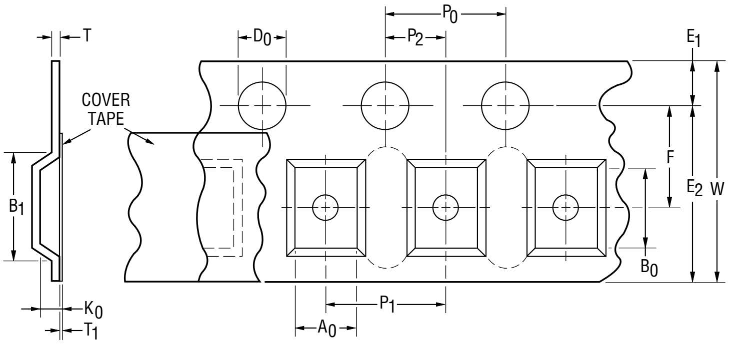


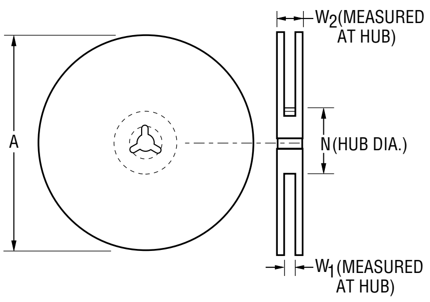
MF-LSMF Series Tape and Reel Specifications

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

Tape Dimensions	**MF-LSMF300X per EIA 481-2**	**MF-LSMF185/33X, MF-LSMF260X, MF-LSMF300/24X per EIA 481-2**
W	16.0 ± 0.30 (0.630 ± 0.012)	16.0 ± 0.30 (0.630 ± 0.012)
P_0	4.0 ± 0.10 (0.157 ± 0.004)	4.0 ± 0.10 (0.157 ± 0.004)
P_1	8.0 ± 0.10 (0.315 ± 0.004)	8.0 ± 0.10 (0.315 ± 0.004)
P_2	2.0 ± 0.05 (0.079 ± 0.002)	2.0 ± 0.05 (0.079 ± 0.002)
A_0	5.74 ± 0.10 (0.226 ± 0.004)	5.70 ± 0.10 (0.224 ± 0.004)
B_0	8.02 ± 0.10 (0.316 ± 0.004)	8.10 ± 0.10 (0.319 ± 0.004)
B_1 max.	12.1 (0.476)	12.1 (0.476)
D_0	1.5 + 0.10/-0.0 (0.059 + 0.004/-0)	1.5 + 0.10/-0.0 (0.059 + 0.004/-0)
F	7.5 ± 0.05 (0.295 ± 0.002)	7.5 ± 0.05 (0.295 ± 0.002)
E_1	1.75 ± 0.10 (0.069 ± 0.004)	1.75 ± 0.10 (0.069 ± 0.004)
E_2 min.	14.25 (0.561)	14.25 (0.561)
T max.	0.6 (0.024)	0.6 (0.024)
T_1 max.	0.1 (0.004)	0.1 (0.004)
K_0	0.91 ± 0.10 (0.036 ± 0.004)	1.70 ± 0.10 (0.067 ± 0.004)
Leader min.	390 (15.35)	390 (15.35)
Trailer min.	160 (6.30)	160 (6.30)
Reel Dimensions		
A max.	331 (13.03)	331 (13.03)
N min.	50 (1.97)	50 (1.97)
W_1	16.4 + 2.0/-0.0 (0.646 + 0.079/-0.0)	16.4 + 2.0/-0.0 (0.646 + 0.079/-0.0)
W_2 max.	22.4 (0.882)	22.4 (0.882)

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





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