




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, No change Condition A |

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..... | R _{min} ≤ R ≤ R _{1max} |
| Time to Trip..... | At specified current, V _{max} , 23 °C..... | T ≤ 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 |
| 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

*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.

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

Applications

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

MF-LSMF Series - PTC Resettable Fuses

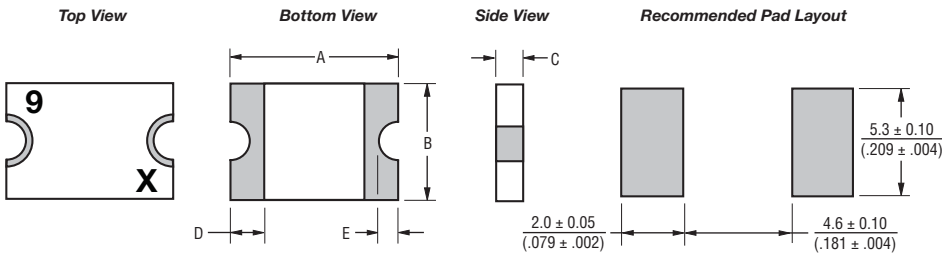
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Product Dimensions

| Model | A | | B | | C | | D | E | |
|----------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Min. | Max. |
| MF-LSMF185/33X | $\frac{6.73}{(0.265)}$ | $\frac{7.98}{(0.312)}$ | $\frac{4.80}{(0.189)}$ | $\frac{5.44}{(0.214)}$ | $\frac{0.75}{(0.030)}$ | $\frac{1.60}{(0.063)}$ | $\frac{0.30}{(0.012)}$ | $\frac{0.25}{(0.010)}$ | $\frac{2.00}{(0.079)}$ |
| MF-LSMF260X | $\frac{6.73}{(0.265)}$ | $\frac{7.98}{(0.312)}$ | $\frac{4.80}{(0.189)}$ | $\frac{5.44}{(0.214)}$ | $\frac{0.75}{(0.030)}$ | $\frac{1.60}{(0.063)}$ | $\frac{0.30}{(0.012)}$ | $\frac{0.25}{(0.010)}$ | $\frac{2.00}{(0.079)}$ |
| MF-LSMF300X | $\frac{6.73}{(0.265)}$ | $\frac{7.98}{(0.312)}$ | $\frac{4.80}{(0.189)}$ | $\frac{5.44}{(0.214)}$ | $\frac{0.35}{(0.014)}$ | $\frac{0.85}{(0.033)}$ | $\frac{0.30}{(0.012)}$ | $\frac{0.25}{(0.010)}$ | $\frac{2.00}{(0.079)}$ |
| MF-LSMF300/24X | $\frac{6.73}{(0.265)}$ | $\frac{7.98}{(0.312)}$ | $\frac{4.80}{(0.189)}$ | $\frac{5.44}{(0.214)}$ | $\frac{0.75}{(0.030)}$ | $\frac{1.60}{(0.063)}$ | $\frac{0.30}{(0.012)}$ | $\frac{0.25}{(0.010)}$ | $\frac{2.00}{(0.079)}$ |

Packaging: 3000 pcs. per reel.

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



Terminal material:

Electroless Ni under immersion Au

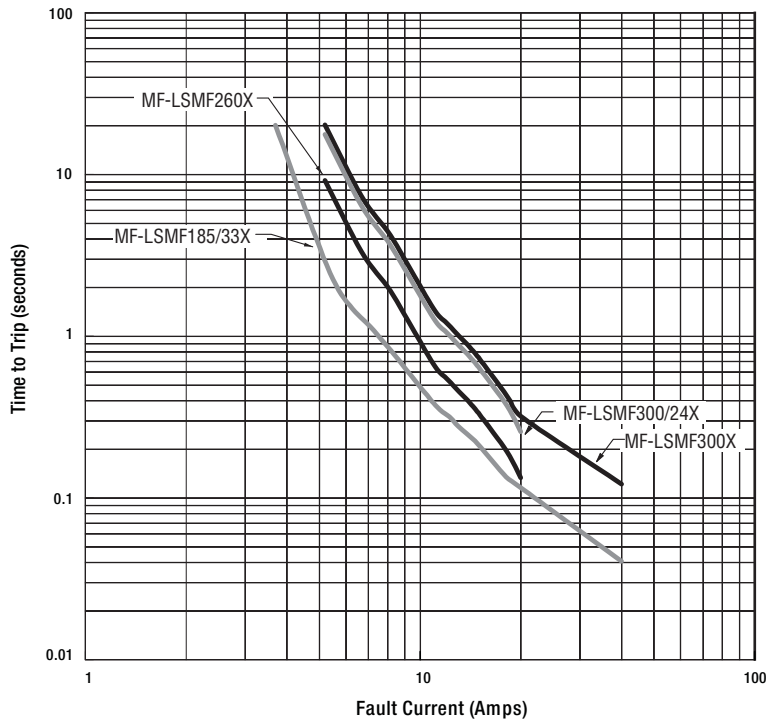
Termination pad solderability:

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.

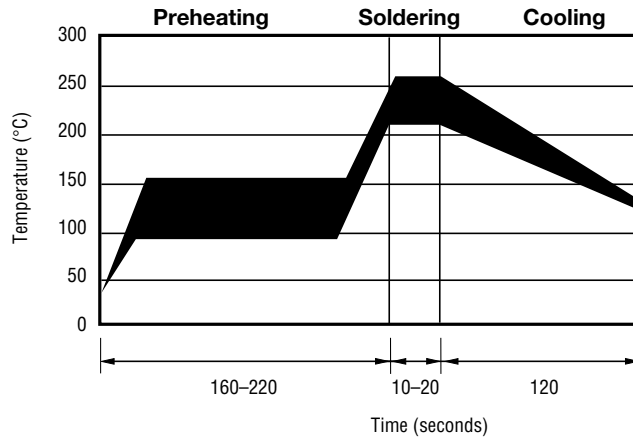
MF-LSMF Series - PTC Resettable Fuses

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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, I_{hold} _____
 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.

PART IDENTIFICATION EXAMPLES:
 MF-LSMF185/33X = 9
 MF-LSMF260X = E
 MF-LSMF300X = F
 MF-LSMF300/24X = J

The diagram shows a rectangular component with a semi-circular notch on the left side and a semi-circular bump on the right side. The letter 'E' is marked on the left side, and the letter 'X' is marked on the right side.

- BI-WEEKLY DATE CODE:
 WEEKS 47-48 = X

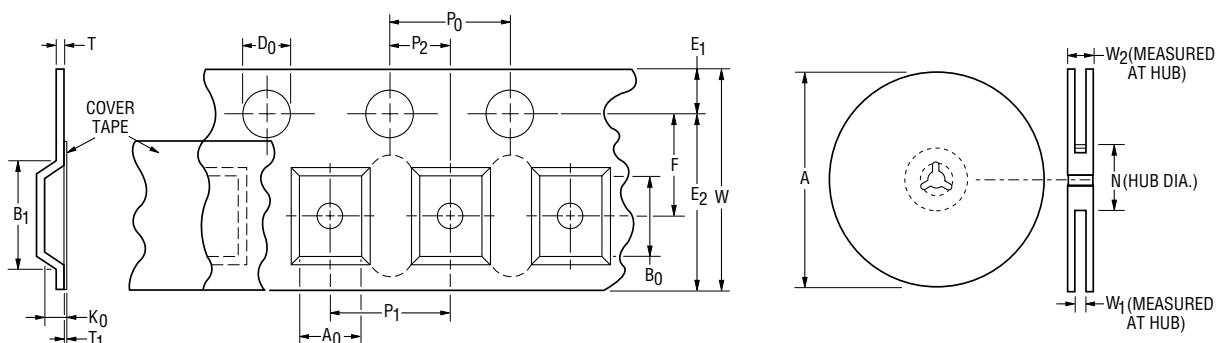
MF-LSMF Series Tape and Reel Specifications

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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 | MF-LSMF185/33X, MF-LSMF260X, |
|------------------------|---|---|
| | per EIA 481-2 | 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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Customers should verify actual device performance in their specific applications.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

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