ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number:	MF-LSMF400/12X-2
Manufacturer:	Bourns Inc.
Package:	2920 (7351 Metric), Concave
Availability:	Please confirm with sales

Product Page:

https://antrexco.com/product/details/bourns-inc/mf-lsmf400-12x-2.html

Request a Quote:

Submit RFQ for this part

Scan for product page

Contact Information

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Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

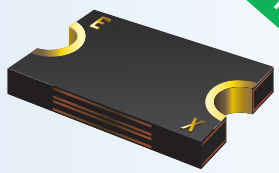
The original manufacturer datasheet follows from the next page.

BOURNS®

AUTOMOTIVE GRADE (Select Models)

MF-LSMF SERIES

Multifuse® PPTC Resettable Fuses



*RoHS COMPLIANT & HALOGEN FREE**

Features

- Standard 2920 footprint
- Swift Time-to-Trip (TTT) for safeguarding against overcurrent events
- Excellent solderability with ENIG terminal
- Symmetric designs and low profile
- High power rating and high voltage
- Agency recognition: c UL us
- TÜV certifications cover IEC 62319-1, IEC 60738-1, and IEC 60730-1:2013, encompassing clause 15, clause 17, and Annex J.
- RoHS compliant* and halogen free**

Applications

- E-mobility
- Battery Management Systems (BMS)
- Autonomous Mobile Robots (AMRs)
- Data centers
- Industrial drone and UAV platforms
- Smart homes
- USB and PoE

Sustainability

- Small size reduces material use
- Eco-logistics-friendly packing
- Energy-saving low power design
- ISO 14001, low impact energy
- Responsibly sourced and produced

Product Overview

The Bourns® MF-LSMF Series PTC Resettable Fuses provide compact 2920-size overcurrent protection with fast trip performance, high voltage capability, and long-term reliability. Their low-profile, symmetric design saves board space, while ENIG terminals ensure excellent solderability and robust assembly.

AEC-Q200 compliance (select models) and wide operating temperature support make the MF-LSMF Series ideal for e-mobility, battery management systems, robotics, industrial equipment, and smart-device applications.

Electrical Characteristics

	Model	V_{max}	I_{max}	I_{hold}	I_{trip}	Resistance		Max. Time to Trip		Tripped Power Dissipation	Agency Recognition		AEC-Q200 Compliant
				at 23 °C		at 23 °C Ohms		at 23 °C		at 23 °C Watts	cUL	TÜV	
		Volts	Amps	Amps		R_{min}	R_{1max}[1]	Amps	Seconds	Typ.	E174545	R50256634	
	MF-LSMF030X	60	40	0.30	0.6	0.9	4.8	1.5	3	1.5	✓	✓	✓
NEW!	MF-LSMF035/72X	72	20	0.35	0.7	0.3	2.6	2.5	5	1.5	✓	✓	✓
	MF-LSMF050X	60	40	0.50	1.0	0.2	1.5	2.5	4	1.5	✓	✓	✓
NEW!	MF-LSMF050/72X	72	20	0.50	1.0	0.2	1.5	2.5	5	1.5	✓	✓	✓
	MF-LSMF075X	30	40	0.75	1.5	0.15	1.0	8.0	0.3	1.5	✓	✓	✓
	MF-LSMF075/60X	60	40	0.75	1.5	0.15	1.0	8.0	0.3	1.5	✓	✓	✓
NEW!	MF-LSMF075/72X	72	20	0.75	1.5	0.15	1.0	8.0	0.3	1.5	✓	✓	✓
	MF-LSMF110X	33	40	1.10	2.2	0.07	0.41	8.0	0.5	1.5	✓	✓	✓
	MF-LSMF110/60X	60	40	1.10	2.2	0.07	0.41	8.0	0.5	2.0	✓	✓	✓
	MF-LSMF125X	15	40	1.25	2.5	0.05	0.25	8.0	2	1.5	✓	✓	✓
	MF-LSMF125/33X	33	40	1.25	2.5	0.055	0.25	8.0	2	1.5	✓	✓	✓
	MF-LSMF150X	15	40	1.50	3.0	0.050	0.23	8.0	2	1.5	✓	✓	✓
	MF-LSMF150/33X	33	40	1.50	3.0	0.050	0.23	8.0	2	1.5	✓	✓	✓
	MF-LSMF185X	15	40	1.85	3.7	0.045	0.15	8.0	2.5	1.5	✓	✓	✓
	MF-LSMF185/24X	24	40	1.85	3.7	0.045	0.15	8.0	2.5	1.5	✓	✓	✓
	MF-LSMF185/33X	33	40	1.85	3.7	0.045	0.15	8.0	2.5	1.5	✓	✓	✓

[1] R_{1max}: measured one hour post reflow.

Continued on page 2

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
** 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.

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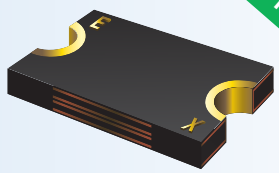
MF-LSMF SERIES

Multifuse® PPTC Resettable Fuses



*RoHS COMPLIANT & HALOGEN FREE**

Electrical Characteristics (Continued)

Model	V_{max}	I_{max}	I_{hold}	I_{trip}	Resistance		Max. Time to Trip		Tripped Power Dissipation	Agency Recognition		AEC-Q200 Compliant
			at 23 °C		at 23 °C Ohms		at 23 °C		at 23 °C Watts	cUL	TÜV	
	Volts	Amps	Amps		R_{min}	R_{1max}[1]	Amps	Seconds	Typ.	E174545	R50256634	
MF-LSMF200X	15	40	2.0	4.0	0.035	0.125	8.0	5	1.5	✓	✓	✓
MF-LSMF200/24X	24	40	2.0	4.0	0.035	0.125	8.0	5	1.5	✓	✓	✓
NEW! MF-LSMF200/33X	33	40	2.0	4.0	0.025	0.120	8.0	5	1.5	✓	✓	✓
MF-LSMF260X	24	40	2.6	5.2	0.020	0.075	8.0	5	1.5	✓	✓	✓
MF-LSMF260/6X	6	40	2.6	5.0	0.020	0.075	8.0	10	1.5	✓	✓	
MF-LSMF260/16X	16	40	2.6	5.2	0.020	0.075	8.0	5	1.5	✓	✓	✓
NEW! MF-LSMF260/33X	33	40	2.6	5.2	0.017	0.075	8.0	15	1.5	✓	✓	✓
MF-LSMF300X	6	40	3.0	5.0	0.015	0.048	8.0	15	1.5	✓	✓	
MF-LSMF300/16X	16	40	3.0	5.0	0.015	0.048	8.0	15	1.5	✓	✓	✓
MF-LSMF300/24X	24	40	3.0	5.2	0.015	0.075	8.0	15	1.5	✓	✓	✓
MF-LSMF330X	6	40	3.3	5.5	0.010	0.055	8.0	15	2.0	✓	✓	
MF-LSMF330/12X	12	40	3.3	5.5	0.010	0.055	8.0	15	2.0	✓	✓	
MF-LSMF330/16X	16	40	3.3	5.5	0.010	0.055	8.0	15	2.0	✓	✓	✓
MF-LSMF330/24X	24	40	3.3	5.5	0.010	0.055	8.0	15	2.0	✓	✓	✓
MF-LSMF400/16X	16	40	4.0	8.0	0.005	0.040	20	4	1.5	✓	✓	✓
NEW! MF-LSMF450/16X	16	40	4.5	9.0	0.005	0.035	20	5	1.5	✓	✓	✓
MF-LSMF500/16X	16	40	5.0	10.0	0.005	0.025	20	5	1.5	✓	✓	✓
NEW! MF-LSMF550/16X	16	40	5.5	11.0	0.005	0.023	25	5	2.0	✓	✓	✓
MF-LSMF600/12X	12	50	6.0	12.0	0.004	0.020	30	2	2.0	✓	✓	
NEW! MF-LSMF600/16X	16	40	6.0	12.0	0.004	0.020	30	2	2.2	✓	✓	✓
NEW! MF-LSMF700/12X	12	50	7.0	14.0	0.002	0.018	35	2	2.0	✓	✓	

[1] R_{1max}: measured one hour post reflow.

Environmental Characteristics

Item	Condition	Criteria
Operating Temperature	-40 °C to +85 °C	
Recommended Storage	+40 °C max. / 70 % R.H. max.	
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	-40 °C to +85 °C, 20 times	±10 % typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change (marking still legible)
Vibration	MIL-STD-883C, Method 2007.1 Condition A	No change ($R_{min} < R < R_{1max}$)
Moisture Sensitivity Level (MSL)	See Note	
ESD Classification	Class 6 (per AEC-Q200-2, HBM)	

How to Order

MF - LSMF 185 / 33 X - 2

Multifuse® Product Designator

Series
LSMF = 2920 Surface Mount Component

Hold Current (I_{hold}) Indicator
030-700 (0.3 Amps - 7.0 Amps)

Voltage Options
6 = 6 Voltage Rated
12 = 12 Voltage Rated
15 = 15 Voltage Rated
16 = 16 Voltage Rated
24 = 24 Voltage Rated
30 = 30 Voltage Rated
33 = 33 Voltage Rated
60 = 60 Voltage Rated
72 = 72 Voltage Rated

Multifuse® Design Specific Code
X = Multifuse® freeXpansion™ Design

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

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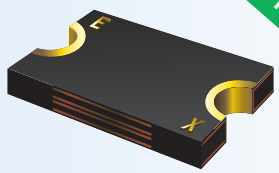

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Test Procedures and Requirements

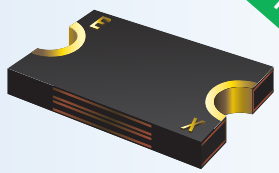
Item	Test Conditions	Accept/Reject Criteria
Visual/Mechanical	Verify dimensions and materials	Per MF physical description
Resistance	In still air @ 23 °C	$R_{min} \le R \le R_{max}$
Time to Trip	At specified current, V_{max}, 23 °C, still air	T ≤ max. time to trip (seconds)
Hold Current	30 min. at I_{hold}, still air	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	245 °C ± 5 °C, 5 seconds	95 % min. coverage

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-LSMF030X	0.44	0.40	0.35	0.30	0.25	0.23	0.20	0.17	0.10
MF-LSMF035/72X	0.51	0.47	0.41	0.35	0.29	0.27	0.23	0.20	0.12
MF-LSMF050X	0.73	0.67	0.59	0.50	0.42	0.38	0.33	0.29	0.23
MF-LSMF050/72X	0.73	0.67	0.59	0.50	0.42	0.38	0.33	0.29	0.23
MF-LSMF075X	1.10	1.01	0.89	0.75	0.63	0.56	0.50	0.44	0.34
MF-LSMF075/60X	1.10	1.01	0.89	0.75	0.63	0.56	0.50	0.44	0.30
MF-LSMF075/72X	1.10	1.01	0.89	0.75	0.63	0.56	0.50	0.44	0.30
MF-LSMF110X	1.61	1.47	1.30	1.10	0.92	0.83	0.73	0.64	0.50
MF-LSMF110/60X	1.61	1.47	1.30	1.10	0.92	0.83	0.73	0.64	0.50
MF-LSMF125X	1.83	1.68	1.48	1.25	1.05	0.94	0.83	0.73	0.56
MF-LSMF125/33X	1.83	1.68	1.48	1.25	1.05	0.94	0.83	0.73	0.56
MF-LSMF150X	2.19	2.01	1.77	1.50	1.26	1.13	0.99	0.87	0.68
MF-LSMF150/33X	2.19	2.01	1.77	1.50	1.26	1.13	0.99	0.87	0.68
MF-LSMF185X	2.70	2.48	2.18	1.85	1.55	1.39	1.22	1.07	0.83
MF-LSMF185/24X	2.80	2.47	2.17	1.85	1.54	1.39	1.22	1.07	0.85
MF-LSMF185/33X	2.80	2.47	2.17	1.85	1.54	1.39	1.22	1.07	0.85
MF-LSMF200X	2.92	2.68	2.36	2.00	1.68	1.50	1.32	1.16	0.90
MF-LSMF200/24X	2.92	2.68	2.36	2.00	1.68	1.50	1.32	1.16	0.90
MF-LSMF200/33X	2.92	2.68	2.36	2.00	1.68	1.50	1.32	1.16	0.90
MF-LSMF260X	3.75	3.35	3.00	2.60	2.35	2.15	2.05	1.80	1.30
MF-LSMF260/6X	3.80	3.48	3.07	2.60	2.18	1.95	1.72	1.51	1.17
MF-LSMF260/16X	3.75	3.35	3.00	2.60	2.35	2.15	2.05	1.80	1.30
MF-LSMF260/33X	3.80	3.48	3.07	2.60	2.18	1.95	1.72	1.51	1.17
MF-LSMF300X	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
MF-LSMF300/16X	4.38	4.02	3.54	3.00	2.52	2.25	1.98	1.74	1.35
MF-LSMF300/24X	4.00	3.55	3.20	3.00	2.50	2.25	2.15	1.85	1.50
MF-LSMF330X	4.82	4.42	3.89	3.30	2.77	2.48	2.18	1.91	1.49
MF-LSMF330/12X	4.82	4.42	3.89	3.30	2.77	2.48	2.18	1.91	1.49
MF-LSMF330/16X	4.82	4.42	3.89	3.30	2.77	2.48	2.18	1.91	1.49
MF-LSMF330/24X	4.82	4.42	3.89	3.30	2.77	2.48	2.18	1.91	1.49
MF-LSMF400/16X	5.84	5.36	4.72	4.00	3.36	3.00	2.64	2.32	1.80
MF-LSMF450/16X	6.57	6.03	5.31	4.50	3.78	3.38	2.97	2.61	2.03
MF-LSMF500/16X	7.30	6.70	5.90	5.00	4.20	3.75	3.30	2.90	2.25
MF-LSMF550/16X	8.03	7.37	6.49	5.50	4.62	4.13	3.63	3.19	2.48
MF-LSMF600/12X	8.76	8.04	7.08	6.00	5.04	4.50	3.96	3.48	2.70
MF-LSMF600/16X	8.76	8.04	7.08	6.00	5.04	4.50	3.96	3.48	2.70
MF-LSMF700/12X	10.22	9.38	8.26	7.00	5.88	5.25	4.62	4.06	3.15

MF-LSMF SERIES

Multifuse® PPTC Resettable Fuses



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Product Dimensions

Model	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
MF-LSMF030X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.25 (0.049)				
MF-LSMF035/72X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.25 (0.049)				
MF-LSMF050X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.25 (0.049)				
MF-LSMF050X/72X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.25 (0.049)				
MF-LSMF075X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF075/60X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.70 (0.067)				
MF-LSMF075/72X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.70 (0.067)				
MF-LSMF110X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF110/60X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.70 (0.067)				
MF-LSMF125X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF125/33X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF150X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF150/33X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)	0.30 (0.012)	2.50 (0.098)	0.25 (.010)	2.00 (.079)
MF-LSMF185X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF185/24X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF185/33X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF200X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF200/24X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF200/33X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF260X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF260/6X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF260/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF260/33X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF300X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF300/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.25 (0.049)				

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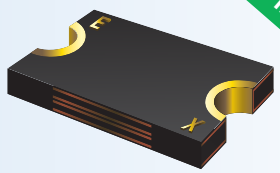
BOURNS®

AUTOMOTIVE GRADE

MF-LSMF SERIES

Multifuse® PPTC Resettable Fuses

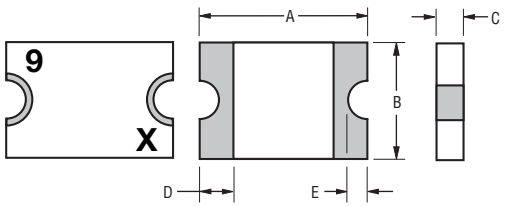


*RoHS COMPLIANT & HALOGEN FREE**

Product Dimensions (Continued)

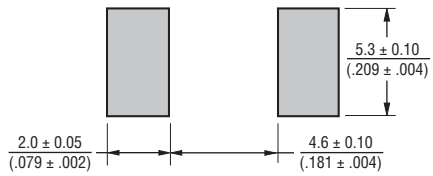
Model	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
MF-LSMF300/24X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)	0.30 (0.012)	2.50 (0.098)	0.25 (.010)	2.00 (.079)
MF-LSMF330X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.35 (0.014)	0.85 (0.033)				
MF-LSMF330/12X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF330/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF330/24X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF400/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF450/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF500/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF550/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF600/12X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF600/16X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	1.60 (0.063)				
MF-LSMF700/12X	6.73 (0.265)	7.98 (0.314)	4.80 (0.189)	5.44 (0.214)	0.75 (0.030)	2.00 (0.079)				

Top View *Bottom View* *Side View*



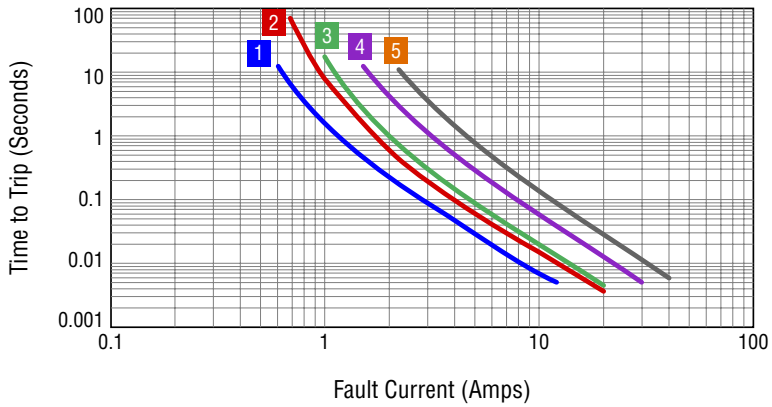
Terminal material:
Electroless nickel under immersion gold (ENIG)

Recommended Pad Layout

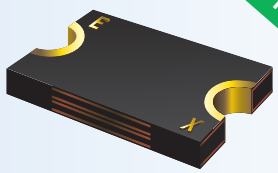


DIMENSIONS: MM / (INCHES)

Typical Time to Trip at 23 °C



1 MF-LSMF030X
2 MF-LSMF035/72X
3 MF-LSMF050X, MF-LSMF050/72X
4 MF-LSMF075/60X, MF-LSMF075/72X
5 MF-LSMF110/60X



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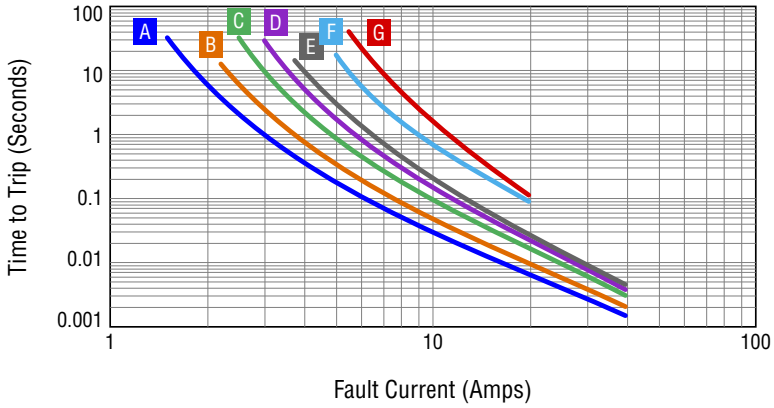
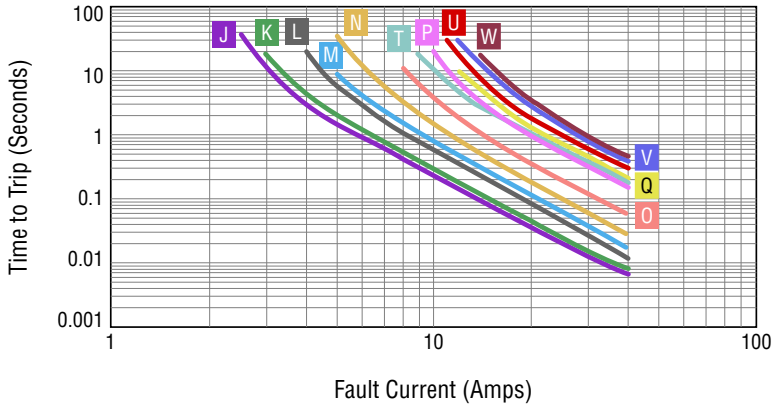
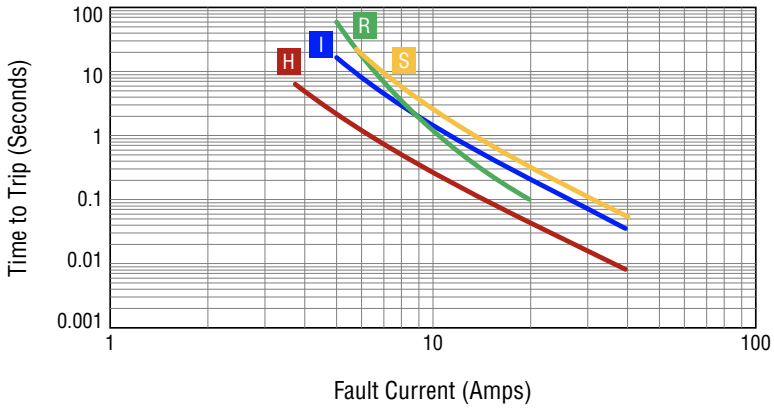
Typical Time to Trip at 23 °C (Continued)



- A MF-LSMF075X
- B MF-LSMF110X
- C MF-LSMF125X
- D MF-LSMF150X
- E MF-LSMF185X
- F MF-LSMF260/6X
- G MF-LSMF330X



- J MF-LSMF125/33X
- K MF-LSMF150/33X
- L MF-LSMF200X, MF-LSMF200/24X, MF-LSMF200/33X
- M MF-LSMF260X, MF-LSMF260/16X, MF-LSMF260/33X
- N MF-LSMF300/16X
- O MF-LSMF400/16X
- T MF-LSMF450/16X
- P MF-LSMF500/16X
- U MF-LSMF550/16X
- Q MF-LSMF600/12X
- V MF-LSMF600/16X
- W MF-LSMF700/12X



- H MF-LSMF185/24X, MF-LSMF185/33X
- I MF-LSMF300/24X
- R MF-LSMF300X
- S MF-LSMF330/12X, MF-LSMF330/16X, MF-LSMF330/24X

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.

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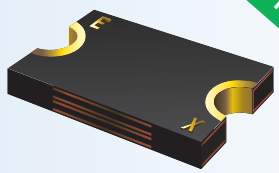

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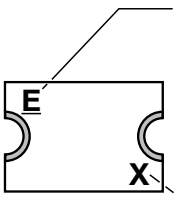
Typical Part Marking

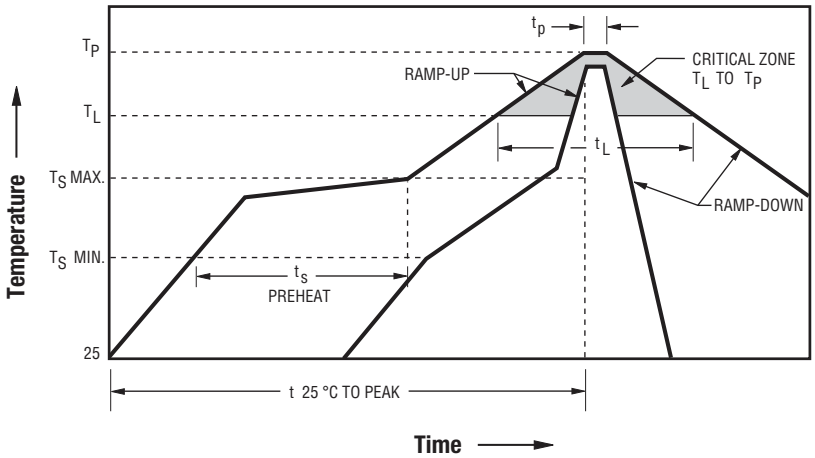
Represents total content. Layout may vary.



PART IDENTIFICATION EXAMPLES:

MF-LSMF030X	= 3	MF-LSMF110X	= 6	MF-LSMF200/33X	= A	MF-LSMF330/16X	= 0
MF-LSMF035/72X	= 2	MF-LSMF110/60X	= 6	MF-LSMF260X	= E	MF-LSMF330/24X	= 0
MF-LSMF050X	= 4	MF-LSMF125X	= 7	MF-LSMF260/6X	= P	MF-LSMF400/16X	= K
MF-LSMF050/72X	= 4	MF-LSMF125/33X	= L	MF-LSMF260/16X	= E	MF-LSMF450/16X	= C
MF-LSMF075X	= 5	MF-LSMF150X	= M	MF-LSMF260/33X	= E	MF-LSMF500/16X	= S
MF-LSMF075X /60X	= 5	MF-LSMF150/33X	= 8	MF-LSMF300X	= F	MF-LSMF550/16X	= D
MF-LSMF075X /72X	= 5	MF-LSMF185X	= N	MF-LSMF300/16X	= H	MF-LSMF600/12X	= T
		MF-LSMF185/24X	= 9	MF-LSMF300/24X	= J	MF-LSMF600/16X	= Y
BI-WEEKLY DATE CODE:		MF-LSMF185/33X	= 9	MF-LSMF330X	= X	MF-LSMF700/12X	= U
WEEKS 47-48 = X		MF-LSMF200X	= A	MF-LSMF330/12X	= 0		
		MF-LSMF200/24X	= A				

Solder Reflow Recommendations



Notes:

- MF-LSMF models are intended for reflow soldering (including but not limited to heating plate, hot air, IR, nitrogen, and vapor phase).
- Wave soldering is permissible only if the device is on the top of the PCB, opposite the heat source.
- Hand soldering is not recommended for these devices.
- All temperatures refer to the topside of the device, measured on the device 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.
- Please refer to the Multifuse® Polymer PTC Resettable Fuse Soldering Recommendations document for more details.

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}) (ts)	 150 °C 200 °C 60~180 seconds
TIME MAINTAINED ABOVE: Temperature (T_L) Time (t_L)	 217 °C 60~150 seconds
Peak 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 25 °C to Peak Temperature	8 minutes max.

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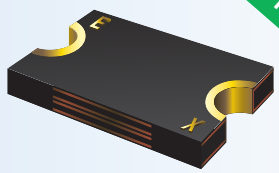
MF-LSMF SERIES

Multifuse® PPTC Resettable Fuses



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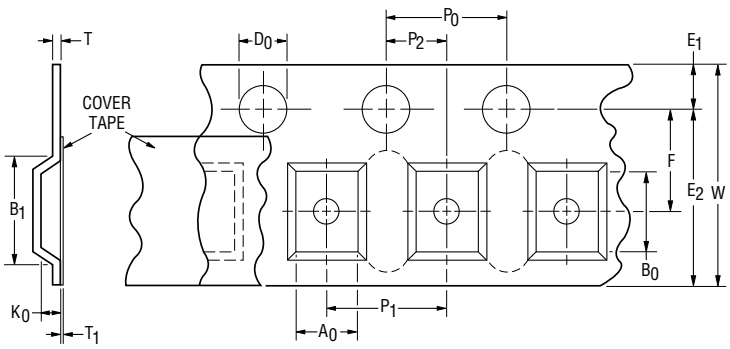
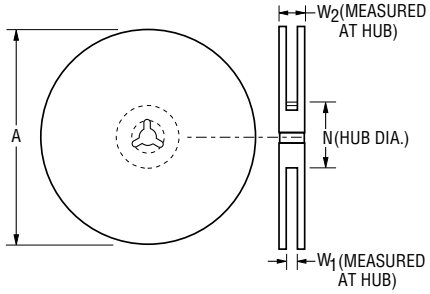
Tape and Reel Specifications

Tape Dimensions per EIA 481	MF-LSMF075X, MF-LSMF110/X, MF-LSMF125X, MF-LSMF150X, MF-LSMF185X, MF-LSMF260/6X, MF-LSMF300X & MF-LSMF330X	MF-LSMF030X, MF-LSMF035/72X, MF-LSMF050X, MF-LSMF050/72X, MF-LSMF075/60X, MF-LSMF075/72X, MF-LSMF110/60X, MF-LSMF125/33X, MF-LSMF150/33X, MF-LSMF185/24X, MF-LSMF185/33X, MF-LSMF200X, MF-LSMF200/24X, MF-LSMF200/33X, MF-LSMF260X, MF-LSMF260/16X, MF-LSMF260/33X, MF-LSMF300/16X, MF-LSMF300/24X, MF-LSMF330/12X, MF-LSMF330/16X, MF-LSMF330/24X, MF-LSMF400/16X, MF-LSMF450/16X, MF-LSMF500/16X, MF-LSMF550/16X, MF-LSMF600/12X, MF-LSMF600/16X & MF-LSMF700/12X
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)
10 P_0	40 ± 0.20 (1.575 ± 0.008)	40 ± 0.20 (1.575 ± 0.008)
P_1	8.0 ± 0.10 (0.315 ± 0.004)	8.0 ± 0.10 (0.315 ± 0.004)
P_2	2.0 ± 0.10 (0.079 ± 0.004)	2.0 ± 0.10 (0.079 ± 0.004)
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 (0.059 +0.004/-0)	1.5 +0.10/-0 (0.059 +0.004/-0)
F	7.5 ± 0.10 (0.295 ± 0.004)	7.5 ± 0.10 (0.295 ± 0.004)
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 (0.646 + 0.079/-0)	16.4 +2.0/-0 (0.646 + 0.079/-0)
W_2 max.	22.4 (0.882)	22.4 (0.882)

DIMENSIONS: MM (INCHES)





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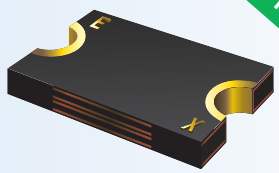
AUTOMOTIVE GRADE

MF-LSMF SERIES

Multifuse® PPTC Resettable Fuses



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Packaging Quantity

Model			Unit Quantity (pcs.)	Unit
MF-LSMF030X	MF-LSMF185/33X	MF-LSMF330/16X	4000	Reel
MF-LSMF035/72X	MF-LSMF200X	MF-LSMF330/24X		
MF-LSMF050X	MF-LSMF200/33X	MF-LSMF400/16X		
MF-LSMF050/72X	MF-LSMF200/24X	MF-LSMF450/16X		
MF-LSMF075/60X	MF-LSMF260X	MF-LSMF500/16X		
MF-LSMF075/72X	MF-LSMF260/16X	MF-LSMF550/16X		
MF-LSMF110/60X	MF-LSMF260/33X	MF-LSMF600/12X		
MF-LSMF125/33X	MF-LSMF300/16X	MF-LSMF600/16X		
MF-LSMF150/33X	MF-LSMF300/24X	MF-LSMF700/12X		
MF-LSMF185/24X	MF-LSMF330/12X			
MF-LSMF075X	MF-LSMF150X	MF-LSMF300X	6000	Reel
MF-LSMF110X	MF-LSMF185X	MF-LSMF330X		
MF-LSMF125X	MF-LSMF260/6X			

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The Americas	+1-951 781-5500	americus@bourns.com

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Application Notice

- Users are responsible for independent and adequate evaluation of Bourns® Multifuse® Polymer PTC devices in the user's application, including the PPTC device characteristics stated in the applicable data sheet.
- Polymer PTC devices must not be allowed to operate beyond their stated maximum ratings. Operation in excess of such maximum ratings could result in damage to the PTC device and possibly lead to electrical arcing and/or fire. Circuits with inductance may generate a voltage above the rated voltage of the polymer PTC device and should be thoroughly evaluated within the user's application during the PTC selection and qualification process.
- Polymer PTC devices are intended to protect against adverse effects of temporary overcurrent or overtemperature conditions up to rated limits and are not intended to serve as protective devices where overcurrent or overvoltage conditions are expected to be repetitive or prolonged.
- In normal operation, polymer PTC devices experience thermal expansion under fault conditions. Thus, a polymer PTC device must be protected against mechanical stress, and must be given adequate clearance within the user's application to accommodate such thermal expansion. Rigid potting materials or fixed housings or coverings that do not provide adequate clearance should be thoroughly examined and tested by the user, as they may result in the malfunction of polymer PTC devices if the thermal expansion is inhibited.
- Exposure to lubricants, silicon-based oils, solvents, gels, electrolytes, acids, and other related or similar materials may adversely affect the performance of polymer PTC devices.
- Aggressive solvents may adversely affect the performance of polymer PTC devices. Conformal coating, encapsulating, potting, molding, and sealing materials may contain aggressive solvents including but not limited to xylene and toluene, which are known to cause adverse effects on the performance of polymer PTCs. Such aggressive solvents must be thoroughly cured or baked to ensure their complete removal from polymer PTCs to minimize the possible adverse effect on the device.
- Recommended storage conditions should be followed at all times. Such conditions can be found on the applicable data sheet and on the Multifuse® Polymer PTC Moisture/Reflow Sensitivity Classification (MSL) note: https://www.bourns.com/docs/RoHS-MSL/msl_mf.pdf

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K2540 05/26R

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