


## Features

- Axial leaded
- Weldable nickel terminals
- Very low internal resistance
- Operating currents to 9.0 amps
- RoHS compliant\*
- Agency recognition: 

## Applications

- Any application that requires protection at low resistances:
- Rechargeable battery pack protection
  - Cellular phones
  - Laptop computers

## MF-LR Series - PTC Resettable Fuses

### Electrical Characteristics

Model	V <sub>max</sub>	I <sub>max</sub>	I <sub>hold</sub>	I <sub>trip</sub>	Initial Resistance		1 Hour Post-Trip Resistance	Max. Time to Trip		Tripped Power Dissipation	Agency Recognition	
			at 23 °C		at 23 °C (Ohms)		at 23 °C (Ohms)	at 23 °C		at 23 °C (Watts)	cUL	TÜV
			Amps	Amps	R <sub>min</sub>	R <sub>max</sub>	R <sub>1max</sub>	Amps	Seconds	Typ.	E174545	R50410733
MF-LR190	15	100	1.9	3.9	0.039	0.072	0.102	9.5	5.0	1.2	✓	✓
MF-LR260	15	100	2.6	5.8	0.020	0.042	0.083	13.0	5.0	1.3	✓	✓
MF-LR380	15	100	3.8	8.3	0.013	0.026	0.037	19.0	5.0	2.5	✓	✓
MF-LR450	16	100	4.5	8.9	0.011	0.020	0.028	22.5	5.0	1.4	✓	✓
MF-LR550	10	100	5.5	10.5	0.009	0.016	0.022	27.5	5.0	1.4	✓	✓
MF-LR550/20	20	100	5.5	10.5	0.009	0.016	0.022	27.5	5.0	1.4	✓	Pending
MF-LR600	10	100	6.0	11.7	0.007	0.014	0.019	30.0	5.0	2.8	✓	✓
MF-LR730	10	100	7.3	14.1	0.006	0.012	0.015	30.0	5.0	3.0	✓	✓
MF-LR730/20	20	100	7.3	14.1	0.006	0.012	0.015	30.0	5.0	3.0	✓	Pending
MF-LR900/20	20	100	9.0	16.7	0.006	0.010	0.014	45.0	5.0	3.0	✓	Pending

### Environmental Characteristics

Operating Temperature.....	-40 °C to +85 °C
Recommended Storage.....	+40 °C max. / 70 % RH max.
Passive Aging.....	+70 °C, 1000 hours.....±10 % typical resistance change
Humidity Aging.....	+85 °C, 85% R.H. 7 days.....±10 % typical resistance change
Vibration.....	MIL-STD-883C,.....R <sub>min</sub> ≤ R ≤ R <sub>1max</sub> Method 2007.1, Condition A
Moisture Sensitivity Level (MSL).....	<a href="#">See Note</a>
ESD Classification.....	Class 6 (per AEC-Q200-2, HBM)

### Test Procedures and Requirements

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech.....	Verify dimensions and materials.....	Per MF physical description
Resistance.....	In still air @ 23 °C.....	R <sub>min</sub> ≤ R ≤ R <sub>1max</sub>
Time to Trip.....	At specified current, V <sub>max</sub> , 23 °C.....	T ≤ max. time to trip (seconds)
Hold Current.....	30 min. at I <sub>hold</sub> .....	No trip
Trip Cycle Life.....	V <sub>max</sub> , I <sub>max</sub> , 100 cycles.....	No arcing or burning
Trip Endurance.....	V <sub>max</sub> , 48 hours.....	No arcing or burning



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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# MF-LR Series - PTC Resettable Fuses

**BOURNS®**

Thermal Derating Table - I<sub>hold</sub> (Amps)

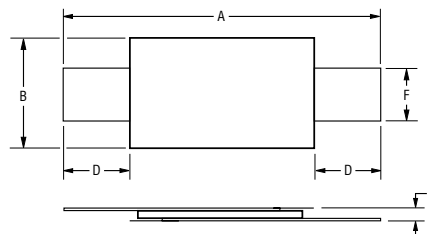
Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-LR190	2.8	2.5	2.3	1.9	1.6	1.5	1.4	1.2	1.0
MF-LR260	3.8	3.4	3.1	2.6	2.2	2.0	1.9	1.7	1.4
MF-LR380	5.5	4.9	4.4	3.8	3.3	3.0	2.8	2.5	2.1
MF-LR450	6.5	5.8	5.3	4.5	3.9	3.6	3.3	2.9	2.5
MF-LR550	8.0	7.1	6.2	5.5	4.7	4.3	4.0	3.6	3.0
MF-LR550/20	8.0	7.1	6.2	5.5	4.7	4.3	4.0	3.6	3.0
MF-LR600	8.7	7.8	7.1	6.0	5.2	4.7	4.4	3.9	3.3
MF-LR730	10.5	9.5	8.6	7.3	7.4	6.8	6.2	5.5	4.5
MF-LR730/20	10.5	9.5	8.6	7.3	7.4	6.8	6.2	5.5	4.5
MF-LR900/20	12.7	11.4	10.0	9.0	7.5	6.8	6.2	5.5	4.5

I<sub>trip</sub> is approximately two times I<sub>hold</sub>.

## Product Dimensions

Model	A		B		C		D		F	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
MF-LR190	19.9 (0.783)	22.1 (0.870)	4.9 (0.193)	5.2 (0.205)	0.6 (0.024)	1.0 (0.039)	5.5 (0.217)	7.5 (0.295)	3.9 (0.154)	4.1 (0.161)
MF-LR260	20.9 (0.823)	23.1 (0.909)	4.9 (0.193)	5.2 (0.205)	0.6 (0.024)	1.0 (0.039)	4.1 (0.161)	5.5 (0.217)	3.9 (0.154)	4.1 (0.161)
MF-LR380	24.0 (0.945)	26.0 (1.024)	6.9 (0.272)	7.5 (0.295)	0.6 (0.024)	1.0 (0.039)	4.1 (0.161)	5.5 (0.217)	4.9 (0.193)	5.1 (0.201)
MF-LR450	24.0 (0.945)	26.0 (1.024)	9.9 (0.390)	10.5 (0.414)	0.6 (0.024)	1.0 (0.039)	5.3 (0.209)	6.7 (0.264)	5.9 (0.232)	6.1 (0.240)
MF-LR550	35.0 (1.378)	37.0 (1.457)	6.9 (0.272)	7.5 (0.295)	0.6 (0.024)	1.0 (0.039)	5.3 (0.209)	6.7 (0.264)	4.9 (0.193)	5.1 (0.201)
MF-LR550/20	35.0 (1.378)	37.0 (1.457)	6.9 (0.272)	7.5 (0.295)	0.6 (0.024)	1.0 (0.039)	5.3 (0.209)	6.7 (0.264)	4.9 (0.193)	5.1 (0.201)
MF-LR600	24.0 (0.945)	26.0 (1.024)	14.8 (0.583)	15.9 (0.626)	0.6 (0.024)	1.0 (0.039)	4.1 (0.161)	5.5 (0.217)	5.9 (0.232)	6.1 (0.240)
MF-LR730	28.0 (1.102)	30.0 (1.181)	14.0 (0.551)	15.0 (0.590)	0.6 (0.024)	1.0 (0.039)	4.8 (0.189)	5.7 (0.224)	5.9 (0.232)	6.1 (0.240)
MF-LR730/20	27.1 (1.067)	29.1 (1.146)	13.9 (0.547)	14.5 (0.571)	0.6 (0.024)	1.0 (0.039)	4.1 (0.161)	5.5 (0.217)	5.9 (0.232)	6.1 (0.240)
MF-LR900/20	45.4 (1.787)	47.6 (1.874)	7.9 (0.311)	8.5 (0.335)	0.6 (0.024)	1.3 (0.051)	4.6 (0.181)	9.2 (0.362)	5.9 (0.232)	6.1 (0.240)

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



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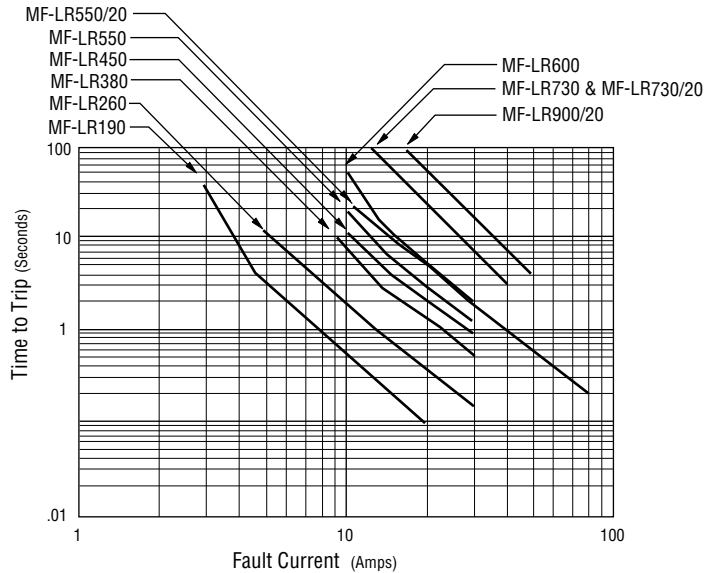
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# MF-LR Series - PTC Resettable Fuses



## Typical Time to Trip at 23 °C

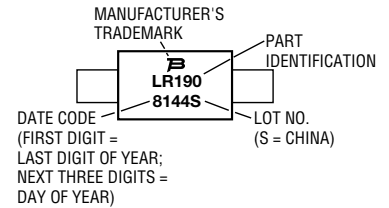


## Packaging Quantity

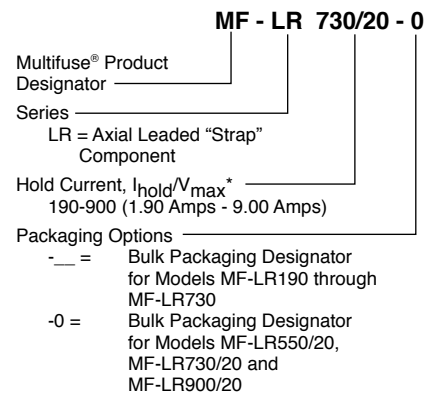
Packaging: Bulk - 500 pcs. per bag

## Typical Part Marking

Represents total content. Layout may vary.



## How to Order



\* $V_{max}$  entry applies only to Models MF-LR550/20, MF-LR730/20 & MF-LR900/20.

**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](https://www.bourns.com/docs/RoHS-MSL/msl_mf.pdf)

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