

For technical assistance call the Multifuse®  
Products number on the back cover.



## Features

- Radial Leaded Devices
- Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- Bulk packaging, tape and reel and Ammo-Pak available on most models
- Agency recognition: UL, TÜV & CSA

## Applications

Almost anywhere there is a low voltage power supply and a load to be protected, including:

- Computers & peripherals
- General electronics
- Automotive applications

# MF-R Series - PTC Resettable Fuses

## Electrical Characteristics

Model	V max. Volts	I max. Amps	I <sub>hold</sub>	I <sub>trip</sub>	Initial Resistance		1 Hour (R <sub>1</sub> ) Post-Trip Resistance	Max. Time To Trip at 5*1h	Tripped Power Dissipation
			Amperes at 23°C		Ohms at 23°C		Ohms at 23°C	Seconds at 23°C	Watts at 23°C
			Hold	Trip	Min.	Max.	Max.		
MF-R010	60	40	0.10	0.20	2.50	4.50	7.50	4.0	0.38
MF-R017	60	40	0.17	0.34	2.0	3.2	8.00	3.0	0.48
MF-R020	60	40	0.20	0.40	1.50	2.84	4.40	2.2	0.40
MF-R025	60	40	0.25	0.50	1.00	1.95	3.00	2.5	0.45
MF-R030	60	40	0.30	0.60	0.76	1.36	2.10	3.0	0.50
MF-R040	60	40	0.40	0.80	0.52	0.86	1.29	3.8	0.55
MF-R050	60	40	0.50	1.00	0.41	0.77	1.17	4.0	0.75
MF-R065	60	40	0.65	1.30	0.27	0.48	0.72	5.3	0.90
MF-R075	60	40	0.75	1.50	0.18	0.40	0.60	6.3	0.90
MF-R090	60	40	0.90	1.80	0.14	0.31	0.47	7.2	1.00
MF-R090-0-009	30	40	0.90	1.80	0.07	0.12	0.22	5.9	0.60
MF-R110	30	40	1.10	2.20	0.10	0.18	0.27	6.6	0.70
MF-R135	30	40	1.35	2.70	0.065	0.115	0.17	7.3	0.80
MF-R160	30	40	1.60	3.20	0.055	0.105	0.15	8.0	0.90
MF-R185	30	40	1.85	3.70	0.04	0.07	0.11	8.7	1.00
MF-R250	30	40	2.50	5.00	0.025	0.048	0.07	10.3	1.20
MF-R250-0-010	30	40	2.50	5.00	0.025	0.048	0.07	10.3	1.20
MF-R300	30	40	3.00	6.00	0.02	0.05	0.08	10.8	2.00
MF-R400	30	40	4.00	8.00	0.01	0.03	0.05	12.7	2.50
MF-R500	30	40	5.00	10.00	0.01	0.03	0.05	14.5	3.00
MF-R600	30	40	6.00	12.00	0.005	0.02	0.04	16.0	3.50
MF-R700	30	40	7.00	14.00	0.005	0.02	0.03	17.5	3.80
MF-R800	30	40	8.00	16.00	0.005	0.02	0.03	18.8	4.00
MF-R900	30	40	9.00	18.00	0.005	0.01	0.02	*20.0	4.20

\*Tested at 40 amps

## Environmental Characteristics

Operating/Storage 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	.....MIL-STD-202F, Method 107G, .....±10% typical resistance change
	+125°C to -40°C, 10 times
Mechanical Shock	.....MIL-STD-202, Method 213, .....No resistance change
	Condition 1 (100g, 6 seconds)
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-R Series

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>max</sub>
Time to Trip	.....5 times I <sub>hold</sub> , 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
UL File Number	.....( E 174545S) - 30V	
CSA File Number	.....( CA 110338) - All MF-R models	
TÜV File Number	.....( E9772255.01) - 30V	

Specifications are subject to change without notice.

# MF-R Series - PTC Resettable Fuses



## Product Dimensions

Model	A Max.	B Max.	C		D Min.	E Max.	Physical Characteristics		
			Nom.	Tol. ±			Style	Lead	Material
MF-R010	7.4	12.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/NiCu
MF-R017	7.4	12.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/CuFe
MF-R020	7.4	12.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/CuFe
MF-R025	7.4	12.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/CuFe
MF-R030	7.4	13.4	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/CuFe
MF-R040	7.4	13.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/CuFe
MF-R050	7.9	13.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/Cu
MF-R065	9.7	15.2	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/Cu
MF-R075	10.4	16.0	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/Cu
MF-R090	11.7	16.7	5.1	0.7	7.6	3.1	1	0.51 dia.	Sn/Cu
MF-R090-0-009	7.4	12.2	5.1	0.7	7.6	3.0	2	0.51 dia.	Sn/CuFe
MF-R110	8.9	14.0	5.1	0.7	7.6	3.0	1	0.51 dia.	Sn/Cu
MF-R135	8.9	18.9	5.1	0.7	7.6	3.0	1	0.51 dia.	Sn/Cu
MF-R160	10.2	16.8	5.1	0.7	7.6	3.0	1	0.51 dia.	Sn/Cu
MF-R185	12.0	18.4	5.1	0.7	7.6	3.0	1	0.51 dia.	Sn/Cu
MF-R250	12.0	18.3	5.1	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R-250-0-010	12.0	18.3	5.1	0.7	7.6	3.0	2	0.51 dia.	Sn/CuFe
MF-R300	12.0	18.3	5.1	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R400	14.4	24.8	5.1	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R500	17.4	24.9	10.2	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R600	19.3	31.9	10.2	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R700	22.1	29.8	10.2	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R800	24.2	32.9	10.2	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu
MF-R900	24.2	32.9	10.2	0.7	7.6	3.0	2	0.81 dia.	Sn/Cu

Packaging options:

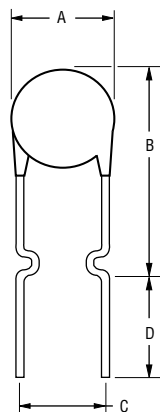
BULK: MF-R010-MF-R185 = 500 pcs. per bag; MF-R250-MF-R900 = 100 pcs. per bag;  
MF-R090-0-009 & MF-R250-0-010 = 500 pcs. per bag.

TAPE & REEL: MF-R010-MF-R160 - 12.7mm device pitch = 3000 pcs. per reel; MF-R185-MF-R400 - 25.4mm device pitch = 1500 pcs. per reel;  
MF-R090-0-009 & MF-R250-0-010 = 3000 pcs. per reel.

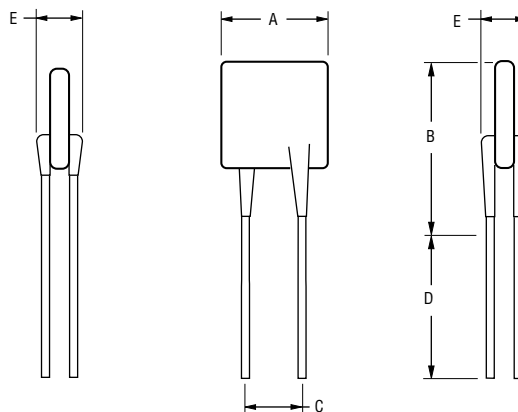
AMMO-PACK: MF-R010-MF-R160 - 12.7mm device pitch = 2000 pcs. per reel; MF-R185-MF-R400 - 25.4mm device pitch = 1000 pcs. per reel;  
MF-R090-0-009 & MF-R250-0-010 = 2000 pcs. per reel.

DIMENSIONS = MM.  
0.51 (24AWG)  
0.81 (20AWG)

Package 1



Package 2



NOTE: Kinked lead option is available for board standoff. Contact factory for details.

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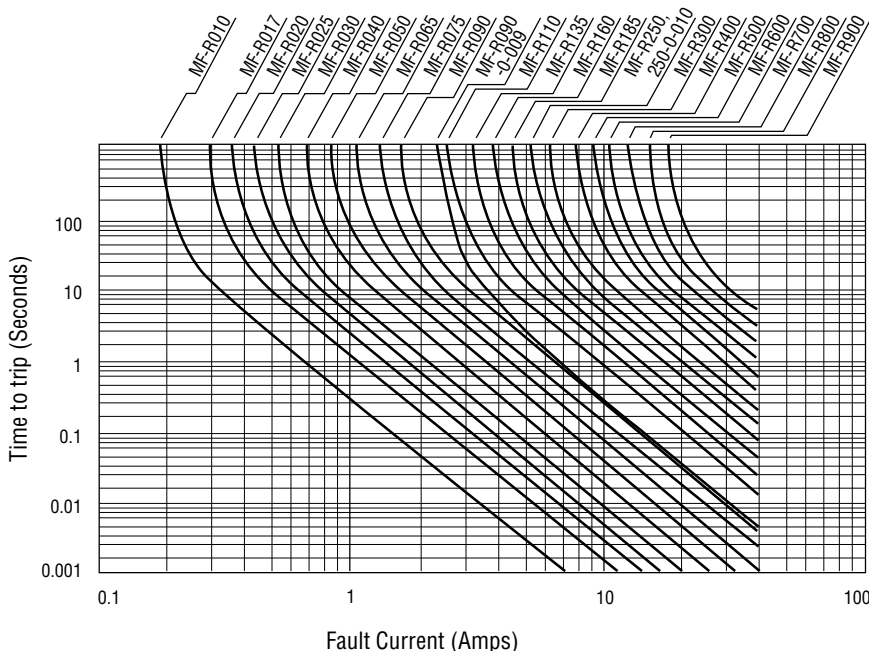
## MF-R Series - PTC Resettable Fuses

**BOURNS®**

Thermal Derating Chart - 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-R010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.04
MF-R017	0.26	0.23	0.20	0.17	0.14	0.12	0.11	0.09	0.07
MF-R020	0.31	0.27	0.24	0.20	0.16	0.14	0.13	0.11	0.08
MF-R025	0.39	0.34	0.30	0.25	0.20	0.18	0.16	0.14	0.10
MF-R030	0.47	0.41	0.36	0.30	0.24	0.22	0.19	0.16	0.12
MF-R040	0.62	0.54	0.48	0.40	0.32	0.29	0.25	0.22	0.16
MF-R050	0.78	0.68	0.60	0.50	0.41	0.36	0.32	0.27	0.20
MF-R065	1.01	0.88	0.77	0.65	0.53	0.47	0.41	0.35	0.26
MF-R075	1.16	1.02	0.89	0.75	0.61	0.54	0.47	0.41	0.30
MF-R090	1.40	1.22	1.07	0.90	0.73	0.65	0.57	0.49	0.36
MF-R090-0-009	1.40	1.22	1.07	0.90	0.73	0.65	0.57	0.49	0.36
MF-R110	1.60	1.43	1.27	1.10	0.91	0.85	0.75	0.67	0.57
MF-R135	1.96	1.76	1.55	1.35	1.12	1.04	0.92	0.82	0.70
MF-R160	2.32	2.08	1.84	1.60	1.33	1.23	1.09	0.98	0.83
MF-R185	2.68	2.41	2.13	1.85	1.54	1.42	1.26	1.13	0.96
MF-R250	3.63	3.25	2.88	2.50	2.08	1.93	1.70	1.53	1.30
MF-R250-0-010	3.63	3.25	2.88	2.50	2.08	1.93	1.70	1.53	1.30
MF-R300	4.35	3.90	3.45	3.00	2.49	2.31	2.04	1.83	1.56
MF-R400	5.80	5.20	4.60	4.00	3.32	3.08	2.72	2.44	2.08
MF-R500	7.25	6.50	5.75	5.00	4.15	3.85	3.40	3.05	2.60
MF-R600	8.70	7.80	6.90	6.00	4.98	4.62	4.08	3.66	3.12
MF-R700	10.15	9.10	8.05	7.00	5.81	5.39	4.76	4.27	3.64
MF-R800	11.60	10.40	9.20	8.00	6.64	6.16	5.44	4.88	4.16
MF-R900	13.05	11.70	10.35	9.00	7.47	6.93	6.12	5.49	4.68

Typical Time to Trip at 23°C



### How to Order

MF - R 250 -

Multifuse® Product Designator

Style

- R = Radial Leaded Component
- RX = Radial Leaded Component
- S = Axial Leaded "Strap" Component
- LS = Low Temperature Axial Leaded "Strap" Component
- SM = Surface Mount Component
- MSM = 4.5mm SMD
- D = Uncoated, Unleaded "Disk" Component

Hold Current, I<sub>hold</sub>

010-900 (100m Amps - 9.0 Amps)

Packaging Options

- = Bulk Packaging
- 2 = Tape and Reel\*
- AP = Ammo-Pak\*

\*Packaged per EIA486-B

### Typical Part Marking

Represents total content. Layout may vary.

