



## Features

- Radial Leaded Devices
- Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- RoHS compliant\* and halogen free\*\*
- Agency recognition: 

## 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.<br>Volts | I max.<br>Amps | Ihold            | Itrip | Initial Resistance |       | 1 Hour (R <sub>1</sub> )<br>Post-Trip Resistance | Max. Time to Trip |                  | Tripped Power Dissipation |
|--------------|-----------------|----------------|------------------|-------|--------------------|-------|--------------------------------------------------|-------------------|------------------|---------------------------|
|              |                 |                | Amperes at 23 °C |       | Ohms at 23 °C      |       | Ohms at 23 °C                                    | Amperes at 23 °C  | Seconds at 23 °C | Watts at 23 °C            |
|              |                 |                | Hold             | Trip  | Min.               | Max.  | Max.                                             |                   |                  | Typ.                      |
| MF-R005**    | 60              | 40             | 0.05             | 0.10  | 7.3                | 11.1  | 22.0                                             | 0.5               | 5.0              | 0.22                      |
| MF-R010      | 60              | 40             | 0.10             | 0.20  | 2.50               | 4.50  | 7.50                                             | 0.5               | 4.0              | 0.38                      |
| MF-R017      | 60              | 40             | 0.17             | 0.34  | 2.00               | 3.20  | 8.00                                             | 0.85              | 3.0              | 0.48                      |
| MF-R020      | 60              | 40             | 0.20             | 0.40  | 1.50               | 2.84  | 4.40                                             | 1.0               | 2.2              | 0.40                      |
| MF-R025      | 60              | 40             | 0.25             | 0.50  | 1.00               | 1.95  | 3.00                                             | 1.25              | 2.5              | 0.45                      |
| MF-R030      | 60              | 40             | 0.30             | 0.60  | 0.76               | 1.36  | 2.10                                             | 1.5               | 3.0              | 0.50                      |
| MF-R040      | 60              | 40             | 0.40             | 0.80  | 0.52               | 0.86  | 1.29                                             | 2.0               | 3.8              | 0.55                      |
| MF-R050      | 60              | 40             | 0.50             | 1.00  | 0.41               | 0.77  | 1.17                                             | 2.5               | 4.0              | 0.75                      |
| MF-R065      | 60              | 40             | 0.65             | 1.30  | 0.27               | 0.48  | 0.72                                             | 3.25              | 5.3              | 0.90                      |
| MF-R075      | 60              | 40             | 0.75             | 1.50  | 0.18               | 0.40  | 0.60                                             | 3.75              | 6.3              | 0.90                      |
| MF-R090      | 60              | 40             | 0.90             | 1.80  | 0.14               | 0.31  | 0.47                                             | 4.5               | 7.2              | 1.00                      |
| MF-R090-0-9  | 30              | 40             | 0.90             | 1.80  | 0.07               | 0.12  | 0.22                                             | 4.5               | 5.9              | 0.60                      |
| MF-R110      | 30              | 40             | 1.10             | 2.20  | 0.10               | 0.18  | 0.27                                             | 5.5               | 6.6              | 0.70                      |
| MF-R135      | 30              | 40             | 1.35             | 2.70  | 0.065              | 0.115 | 0.17                                             | 6.75              | 7.3              | 0.80                      |
| MF-R160      | 30              | 40             | 1.60             | 3.20  | 0.055              | 0.105 | 0.15                                             | 8.0               | 8.0              | 0.90                      |
| MF-R185      | 30              | 40             | 1.85             | 3.70  | 0.040              | 0.07  | 0.11                                             | 9.25              | 8.7              | 1.00                      |
| MF-R250      | 30              | 40             | 2.50             | 5.00  | 0.025              | 0.048 | 0.07                                             | 12.5              | 10.3             | 1.20                      |
| MF-R250-0-10 | 30              | 40             | 2.50             | 5.00  | 0.025              | 0.048 | 0.07                                             | 12.5              | 10.3             | 1.20                      |
| MF-R300      | 30              | 40             | 3.00             | 6.00  | 0.020              | 0.05  | 0.08                                             | 15.0              | 10.8             | 2.00                      |
| MF-R400      | 30              | 40             | 4.00             | 8.00  | 0.010              | 0.03  | 0.05                                             | 20.0              | 12.7             | 2.50                      |
| MF-R500      | 30              | 40             | 5.00             | 10.00 | 0.010              | 0.03  | 0.05                                             | 25.0              | 14.5             | 3.00                      |
| MF-R600      | 30              | 40             | 6.00             | 12.00 | 0.005              | 0.02  | 0.04                                             | 30.0              | 16.0             | 3.50                      |
| MF-R700      | 30              | 40             | 7.00             | 14.00 | 0.005              | 0.02  | 0.03                                             | 35.0              | 17.5             | 3.80                      |
| MF-R800      | 30              | 40             | 8.00             | 16.00 | 0.005              | 0.02  | 0.03                                             | 40.0              | 18.8             | 4.00                      |
| MF-R900      | 30              | 40             | 9.00             | 18.00 | 0.005              | 0.01  | 0.02                                             | 45.0              | ***20.0          | 4.20                      |
| MF-R1100     | 16              | 100            | 11.00            | 22.00 | 0.003              | 0.01  | 0.014                                            | 40.0              | 20.0             | 4.50                      |

\*\*CSA approval pending.

\*\*\*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.....                                       | -40 °C to +85 °C, 10 times.....±10 % typical resistance change  |
| Solvent Resistance.....                                  | MIL-STD-202, Method 215.....No change                           |
| Vibration.....                                           | MIL-STD-883C, Method 2007.1.....No change<br>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 174545  
 CSA File Number..... CA 110338  
 TÜV File Number..... R2057213

\* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

\*\* Bourns follows the prevailing definition of "halogen free" in the industry. 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.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

## Additional Features

- Bulk packaging, tape and reel and Ammo-Pak available on most models

## MF-R Series - PTC Resettable Fuses

**BOURNS®**

Product Dimensions (see next page for outline drawing)

| Model        | A<br>Max.              | B<br>Max.              | C                      |                       | D<br>Min.             | E<br>Max.             | Physical Characteristics |                         |          |
|--------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|--------------------------|-------------------------|----------|
|              |                        |                        | Nom.                   | Tol. ±                |                       |                       | Style                    | Lead Dia.               | Material |
| MF-R005      | $\frac{8.0}{(0.315)}$  | $\frac{8.3}{(0.327)}$  | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 4                        | $\frac{0.405}{(0.016)}$ | Sn/NiCu  |
| MF-R010      | $\frac{7.4}{(0.291)}$  | $\frac{12.7}{(0.5)}$   | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/NiCu  |
| MF-R017      | $\frac{7.4}{(0.291)}$  | $\frac{12.7}{(0.5)}$   | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R020      | $\frac{7.4}{(0.291)}$  | $\frac{12.7}{(0.5)}$   | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R025      | $\frac{7.4}{(0.291)}$  | $\frac{12.7}{(0.5)}$   | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R030      | $\frac{7.4}{(0.291)}$  | $\frac{13.4}{(0.528)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R040      | $\frac{7.4}{(0.291)}$  | $\frac{13.7}{(0.539)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R050      | $\frac{7.9}{(0.311)}$  | $\frac{13.7}{(0.539)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R065      | $\frac{9.7}{(0.382)}$  | $\frac{15.2}{(0.598)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R075      | $\frac{10.4}{(0.409)}$ | $\frac{16.0}{(0.630)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R090      | $\frac{11.7}{(0.461)}$ | $\frac{16.7}{(0.657)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.1}{(0.122)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R090-0-9  | $\frac{7.4}{(0.291)}$  | $\frac{12.2}{(0.480)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 3                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R110      | $\frac{8.9}{(0.350)}$  | $\frac{14.0}{(0.551)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R135      | $\frac{8.9}{(0.350)}$  | $\frac{18.9}{(0.744)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R160      | $\frac{10.2}{(0.402)}$ | $\frac{16.8}{(0.661)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R185      | $\frac{12.0}{(0.472)}$ | $\frac{18.4}{(0.724)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 1                        | $\frac{0.51}{(0.020)}$  | Sn/Cu    |
| MF-R250      | $\frac{12.0}{(0.472)}$ | $\frac{18.3}{(0.720)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R250-0-10 | $\frac{12.0}{(0.472)}$ | $\frac{18.3}{(0.720)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 3                        | $\frac{0.51}{(0.020)}$  | Sn/CuFe  |
| MF-R300      | $\frac{12.0}{(0.472)}$ | $\frac{18.3}{(0.720)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R400      | $\frac{14.4}{(0.567)}$ | $\frac{24.8}{(0.976)}$ | $\frac{5.1}{(0.201)}$  | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R500      | $\frac{17.4}{(0.685)}$ | $\frac{24.9}{(0.980)}$ | $\frac{10.2}{(0.402)}$ | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R600      | $\frac{19.3}{(0.760)}$ | $\frac{31.9}{(1.256)}$ | $\frac{10.2}{(0.402)}$ | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R700      | $\frac{22.1}{(0.870)}$ | $\frac{29.8}{(1.173)}$ | $\frac{10.2}{(0.402)}$ | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R800      | $\frac{24.2}{(0.953)}$ | $\frac{32.9}{(1.295)}$ | $\frac{10.2}{(0.402)}$ | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R900      | $\frac{24.2}{(0.953)}$ | $\frac{32.9}{(1.295)}$ | $\frac{10.2}{(0.402)}$ | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |
| MF-R1100     | $\frac{24.2}{(0.953)}$ | $\frac{32.9}{(1.295)}$ | $\frac{10.2}{(0.402)}$ | $\frac{0.7}{(0.028)}$ | $\frac{7.6}{(0.299)}$ | $\frac{3.0}{(0.118)}$ | 2                        | $\frac{0.81}{(0.032)}$  | Sn/Cu    |

Packaging options:

BULK: All models = 500 pcs. per bag

TAPE & REEL: MF-R005-MF-R160 12.7 mm device pitch = 3000 pcs. per reel  
MF-R185-MF-R400 25.4 mm device pitch = 1500 pcs. per reel  
MF-R500-MF-R1100 25.4 mm device pitch = 1000 pcs. per reel

AMMO-PACK: MF-R005-MF-R160 12.7 mm device pitch = 2000 pcs. per pack  
MF-R185-MF-R400 25.4 mm device pitch = 1000 pcs. per pack  
MF-R500-MF-R1100 25.4 mm device pitch = 500 pcs. per pack

0.405 (26AWG)  
0.51 (24AWG)  
0.81 (20AWG)

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

Specifications are subject to change without notice.

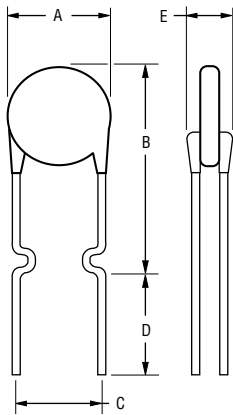
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
Users should verify actual device performance in their specific applications.

# MF-R Series - PTC Resettable Fuses

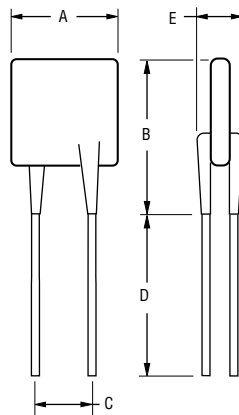
**BOURNS®**

## Product Dimensions (see previous page for dimensions)

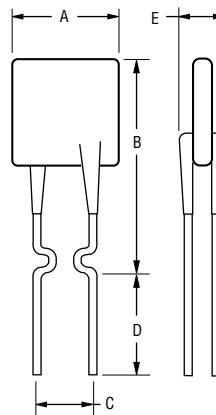
Style 1



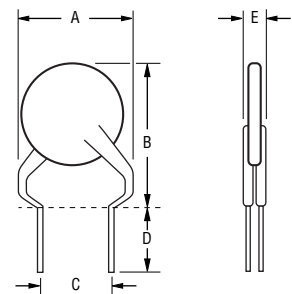
Style 2



Style 3



Style 4



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

NOTE: Also available with straight leads. Contact factory for details.

## Thermal Derating Chart - $I_{hold}$ / $I_{trip}$ (Amps)

| Model        | Ambient Operating Temperature |             |             |             |             |             |             |             |             |
|--------------|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|              | -40 °C                        | -20 °C      | 0 °C        | 23 °C       | 40 °C       | 50 °C       | 60 °C       | 70 °C       | 85 °C       |
| MF-R005      | 0.08 / 0.16                   | 0.07 / 0.14 | 0.06 / 0.12 | 0.05 / 0.10 | 0.04 / 0.08 | 0.04 / 0.08 | 0.03 / 0.07 | 0.03 / 0.07 | 0.02 / 0.05 |
| MF-R010      | 0.16 / 0.32                   | 0.14 / 0.28 | 0.12 / 0.24 | 0.10 / 0.20 | 0.08 / 0.16 | 0.07 / 0.14 | 0.06 / 0.12 | 0.05 / 0.10 | 0.04 / 0.08 |
| MF-R017      | 0.26 / 0.52                   | 0.23 / 0.46 | 0.20 / 0.40 | 0.17 / 0.34 | 0.14 / 0.28 | 0.12 / 0.24 | 0.11 / 0.22 | 0.09 / 0.18 | 0.07 / 0.14 |
| MF-R020      | 0.31 / 0.62                   | 0.27 / 0.54 | 0.24 / 0.48 | 0.20 / 0.40 | 0.16 / 0.32 | 0.14 / 0.28 | 0.13 / 0.26 | 0.11 / 0.22 | 0.08 / 0.16 |
| MF-R025      | 0.39 / 0.78                   | 0.34 / 0.68 | 0.30 / 0.60 | 0.25 / 0.50 | 0.20 / 0.40 | 0.18 / 0.36 | 0.16 / 0.32 | 0.14 / 0.28 | 0.10 / 0.20 |
| MF-R030      | 0.47 / 0.94                   | 0.41 / 0.82 | 0.36 / 0.72 | 0.30 / 0.60 | 0.24 / 0.48 | 0.22 / 0.44 | 0.19 / 0.38 | 0.16 / 0.32 | 0.12 / 0.24 |
| MF-R040      | 0.62 / 1.24                   | 0.54 / 1.08 | 0.48 / 0.96 | 0.40 / 0.80 | 0.32 / 0.64 | 0.29 / 0.58 | 0.25 / 0.50 | 0.22 / 0.44 | 0.16 / 0.32 |
| MF-R050      | 0.78 / 1.56                   | 0.68 / 1.36 | 0.60 / 1.20 | 0.50 / 1.00 | 0.41 / 0.82 | 0.36 / 0.72 | 0.32 / 0.64 | 0.27 / 0.54 | 0.20 / 0.40 |
| MF-R065      | 1.01 / 2.02                   | 0.88 / 1.76 | 0.77 / 1.54 | 0.65 / 1.30 | 0.53 / 1.06 | 0.47 / 0.94 | 0.41 / 0.82 | 0.35 / 0.70 | 0.26 / 0.52 |
| MF-R075      | 1.16 / 2.32                   | 1.02 / 2.04 | 0.89 / 1.78 | 0.75 / 1.50 | 0.61 / 1.22 | 0.54 / 1.08 | 0.47 / 0.94 | 0.41 / 0.82 | 0.30 / 0.60 |
| MF-R090      | 1.40 / 2.80                   | 1.22 / 2.44 | 1.07 / 2.14 | 0.90 / 1.80 | 0.73 / 1.46 | 0.65 / 1.30 | 0.57 / 1.14 | 0.49 / 0.98 | 0.36 / 0.72 |
| MF-R090-0-9  | 1.40 / 2.80                   | 1.22 / 2.44 | 1.07 / 2.14 | 0.90 / 1.80 | 0.73 / 1.46 | 0.65 / 1.30 | 0.57 / 1.14 | 0.49 / 0.98 | 0.36 / 0.72 |
| MF-R110      | 1.60 / 3.20                   | 1.43 / 2.86 | 1.27 / 2.54 | 1.10 / 2.20 | 0.91 / 1.82 | 0.85 / 1.70 | 0.75 / 1.50 | 0.67 / 1.34 | 0.57 / 1.14 |
| MF-R135      | 1.96 / 3.92                   | 1.76 / 3.52 | 1.55 / 3.10 | 1.35 / 2.70 | 1.12 / 2.24 | 1.04 / 2.08 | 0.92 / 1.84 | 0.82 / 1.64 | 0.70 / 1.40 |
| MF-R160      | 2.32 / 4.64                   | 2.08 / 4.16 | 1.84 / 3.68 | 1.60 / 3.20 | 1.33 / 2.66 | 1.23 / 2.46 | 1.09 / 2.18 | 0.98 / 1.96 | 0.83 / 1.66 |
| MF-R185      | 2.68 / 5.36                   | 2.41 / 4.82 | 2.13 / 4.26 | 1.85 / 3.70 | 1.54 / 3.08 | 1.42 / 2.84 | 1.26 / 2.52 | 1.13 / 2.26 | 0.96 / 1.92 |
| MF-R250      | 3.63 / 7.26                   | 3.25 / 6.50 | 2.88 / 5.76 | 2.50 / 5.00 | 2.08 / 4.16 | 1.93 / 3.86 | 1.70 / 3.40 | 1.53 / 3.06 | 1.30 / 2.60 |
| MF-R250-0-10 | 3.63 / 7.26                   | 3.25 / 6.50 | 2.88 / 5.76 | 2.50 / 5.00 | 2.08 / 4.16 | 1.93 / 3.86 | 1.70 / 3.40 | 1.53 / 3.06 | 1.30 / 2.60 |
| MF-R300      | 4.35 / 8.70                   | 3.90 / 7.80 | 3.45 / 6.90 | 3.00 / 6.00 | 2.49 / 4.98 | 2.31 / 4.62 | 2.04 / 4.08 | 1.83 / 3.66 | 1.56 / 3.12 |
| MF-R400      | 5.80 / 11.6                   | 5.20 / 10.4 | 4.60 / 9.20 | 4.00 / 8.00 | 3.32 / 6.64 | 3.08 / 6.16 | 2.72 / 5.44 | 2.44 / 4.88 | 2.08 / 4.16 |
| MF-R500      | 7.25 / 14.5                   | 6.50 / 13.0 | 5.75 / 11.5 | 5.00 / 10.0 | 4.15 / 8.30 | 3.85 / 7.70 | 3.40 / 6.80 | 3.05 / 6.10 | 2.60 / 5.20 |
| MF-R600      | 8.70 / 17.4                   | 7.80 / 15.6 | 6.90 / 13.8 | 6.00 / 12.0 | 4.98 / 9.96 | 4.62 / 9.24 | 4.08 / 8.16 | 3.66 / 7.32 | 3.12 / 6.24 |
| MF-R700      | 10.1 / 20.3                   | 9.10 / 18.2 | 8.05 / 16.1 | 7.00 / 14.0 | 5.81 / 11.6 | 5.39 / 10.7 | 4.76 / 9.52 | 4.27 / 9.44 | 3.64 / 7.28 |
| MF-R800      | 11.6 / 23.2                   | 10.4 / 20.8 | 9.20 / 18.4 | 8.00 / 16.0 | 6.64 / 13.2 | 6.16 / 12.3 | 5.44 / 10.8 | 4.88 / 9.76 | 4.16 / 8.32 |
| MF-R900      | 13.0 / 26.1                   | 11.7 / 23.4 | 10.3 / 20.7 | 9.00 / 18.0 | 7.47 / 14.9 | 6.93 / 12.7 | 6.12 / 12.2 | 5.49 / 10.9 | 4.68 / 9.36 |
| MF-R1100     | 16.1 / 32.0                   | 14.6 / 29.2 | 13.1 / 26.2 | 11.0 / 22.1 | 9.40 / 18.4 | 8.80 / 17.6 | 7.80 / 15.6 | 6.90 / 13.8 | 5.20 / 10.4 |

Specifications are subject to change without notice.

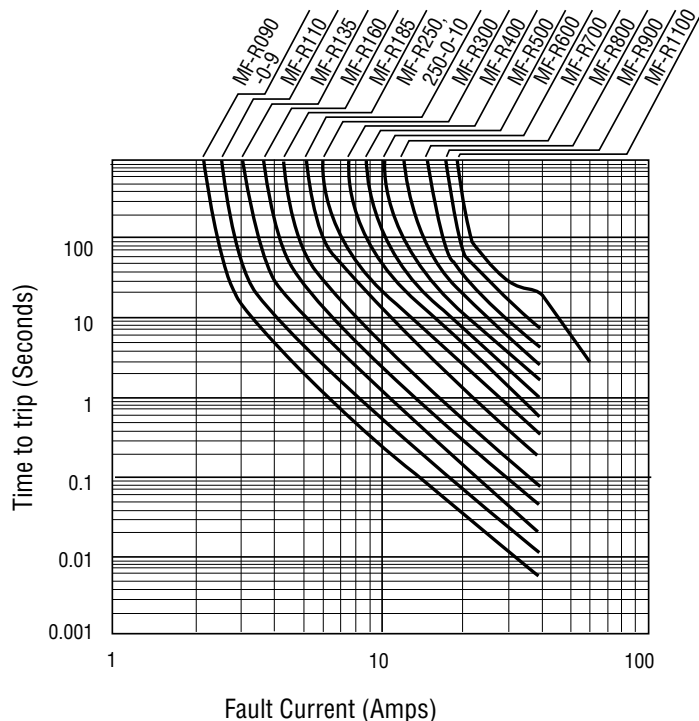
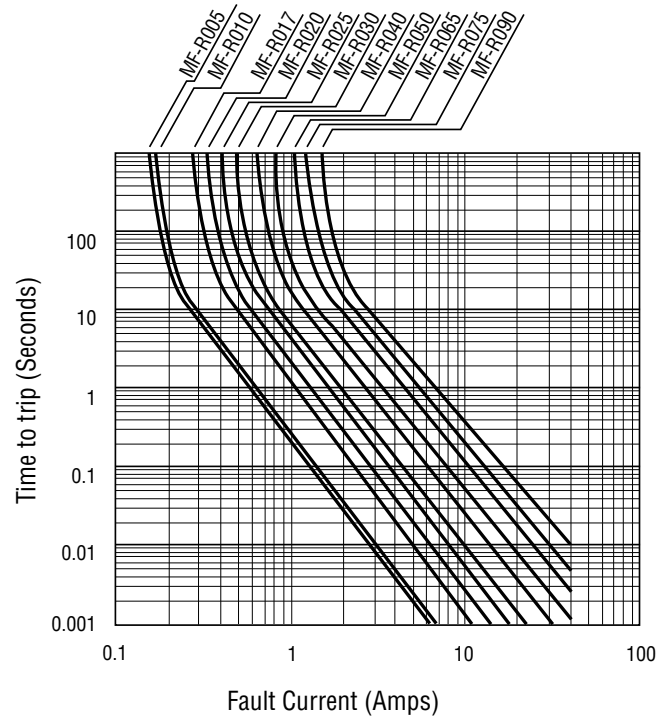
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

# MF-R Series - PTC Resettable Fuses

**BOURNS®**

## Typical Time to Trip at 23 °C



## How to Order

**MF - R 110 - 0 - 99**

- Multifuse®  
Product Designator \_\_\_\_\_  
Series \_\_\_\_\_  
R = Radial Leaded Component  
Hold Current, I<sub>hold</sub> \_\_\_\_\_  
005-1100 (0.05 Amps - 11.0 Amps)  
Packaging Options \_\_\_\_\_  
- \_\_\_\_ = Bulk Packaging without part number suffix option  
- 0-99 = Bulk Packaging with part number suffix option  
- 2 = Tape and Reel without part number suffix option\*  
- 2-99 = Tape and Reel with part number suffix option  
- AP = Ammo-Pak\*  
- 0-14 = Kinked leads where straight leads are standard  
- 0-17 = Straight leads where kinked leads are standard  
Part Number Suffix Option \_\_\_\_\_  
- 99 = As of date code April 1, 2005 all MF-R models are RoHS compliant. The suffix "-99" can be used if a new part number is required to reference the RoHS compliance.  
Examples:  
MF-R110.....Bulk packaging  
MF-R110-0-99.....Bulk packaging with part number suffix option  
MF-R110-2.....Tape and reel packaging  
MF-R110-2-99.....Tape and reel packaging with part number suffix option  
MF-R090-0-9-99.....Bulk packaging with part number suffix option  
MF-R250-0-10-99.....Bulk packaging with part number suffix option

\*Packaged per EIA486-B

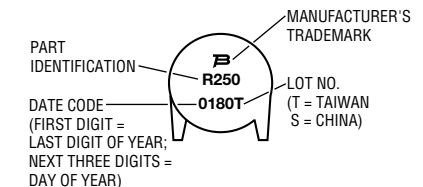
## Typical Part Marking: MF-R005 - R025

Represents total content. Layout may vary.



## Typical Part Marking: MF-R030 - R1100

Represents total content. Layout may vary.



MF-R SERIES, REV. AC, 11/14

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

# MF-R, MF-R/90, MF-R/600, MF-RX, & MF-RX/72 Series Tape and Reel Specifications

**BOURNS®**

Devices taped using EIA468–B/IEC286-2 standards. See table below and Figures 1 and 2 for details.

| Dimension Description                                                                             | IEC Mark   | EIA Mark   | Dimensions             |                                    |
|---------------------------------------------------------------------------------------------------|------------|------------|------------------------|------------------------------------|
|                                                                                                   |            |            | Dimensions             | Tolerance                          |
| Carrier tape width                                                                                | $W$        | $W$        | $\frac{18}{(.709)}$    | $\frac{-0.5/+1.0}{(-0.02/+0.039)}$ |
| Hold down tape width                                                                              | $W_0$      | $W_4$      | $\frac{11}{(.433)}$    | min.                               |
| Hold down tape                                                                                    |            |            | No protrusion          |                                    |
| Top distance between tape edges                                                                   | $W_2$      | $W_6$      | $\frac{3}{(.118)}$     | max.                               |
| Sprocket hole position                                                                            | $W_1$      | $W_5$      | $\frac{9}{(.354)}$     | $\frac{-0.5/+0.75}{(-0.02/+0.03)}$ |
| Sprocket hole diameter                                                                            | $D_0$      | $D_0$      | $\frac{4}{(.157)}$     | $\frac{\pm 0.2}{(\pm .0078)}$      |
| Abscissa to plane (straight lead)                                                                 | $H$        | $H$        | $\frac{18.5}{(.728)}$  | $\frac{\pm 3.0}{(\pm .118)}$       |
| Abscissa to plane (kinked lead)                                                                   | $H_0$      | $H_0$      | $\frac{16}{(.63)}$     | $\frac{\pm 0.5}{(\pm .02)}$        |
| Abscissa to top (straight lead)                                                                   | $H_1$      | $H_1$      | $\frac{38.0}{(1.496)}$ | max.                               |
| Abscissa to top (kinked lead)                                                                     | $H_1$      | $H_1$      | $\frac{32.2}{(1.268)}$ | max.                               |
| Overall width w/lead protrusion (straight lead)                                                   |            | $C_1$      | $\frac{55.0}{(2.165)}$ | max.                               |
| Overall width w/lead protrusion (kinked lead)                                                     |            | $C_1$      | $\frac{43.2}{(1.7)}$   | max.                               |
| Overall width w/o lead protrusion (straight lead)                                                 |            | $C_2$      | $\frac{54.0}{(2.126)}$ | max.                               |
| Overall width w/o lead protrusion (kinked lead)                                                   |            | $C_2$      | $\frac{42.5}{(1.673)}$ | max.                               |
| Lead protrusion                                                                                   | $I_1$      | $L_1$      | $\frac{1.0}{(.039)}$   | max.                               |
| Protrusion of cutout                                                                              | $L$        | $L$        | $\frac{11}{(.433)}$    | max.                               |
| Protrusion beyond hold-down tape                                                                  | $I_2$      | $I_2$      | Not specified          |                                    |
| Sprocket hole pitch                                                                               | $P_0$      | $P_0$      | $\frac{12.7}{(0.5)}$   | $\frac{\pm 0.3}{(\pm .012)}$       |
| Pitch tolerance                                                                                   |            |            | 20 consecutive         | $\frac{\pm 1}{(\pm .039)}$         |
| Device pitch: MF-R005–MF-R160, MF-R/90, MF-RX110/72–MF-RX185/72                                   |            |            | $\frac{12.7}{(0.5)}$   | $\frac{\pm 0.3}{(\pm .012)}$       |
| Device pitch: MF-R185–MF-R400, MF-RX110–MF-RX375 MF-R/600, MF-RX250/72–MF-RX375/72                |            |            | $\frac{25.4}{(1.0)}$   | $\frac{\pm 0.6}{(\pm .024)}$       |
| Tape thickness                                                                                    | $t$        | $t$        | $\frac{0.9}{(.035)}$   | max.                               |
| Tape thickness with splice: MF-R010–MF-R160, MF-RX110/72–MF-RX185/72                              |            | $t_1$      | $\frac{1.5}{(.059)}$   | max.                               |
| Tape thickness with splice: MF-R250–MF-R1100, MF-RX110–MF-RX375, MF-R/90, MF-RX250/72–MF-RX375/72 |            | $t_1$      | $\frac{2.3}{(.091)}$   | max.                               |
| Splice sprocket hole alignment                                                                    |            |            | 0                      | $\frac{\pm 0.3}{(\pm .012)}$       |
| Body lateral deviation                                                                            | $\Delta_h$ | $\Delta_h$ | 0                      | $\frac{\pm 1.0}{(\pm .039)}$       |
| Body tape plane deviation                                                                         | $\Delta_p$ | $\Delta_p$ | 0                      | $\frac{\pm 1.3}{(\pm .051)}$       |

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

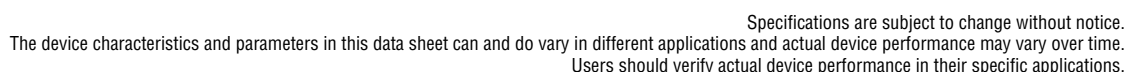
Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

**BOURNS®**

### Taped Component Dimensions - Figure 1



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Bourns:

[MF-R160](#) [MF-R065-2](#) [MF-R900](#) [MF-R090-AP](#) [MF-R900-2](#) [MF-R250U-AP](#) [MF-R400](#) [MF-R185-005](#) [MF-R030](#) [MF-R010-2](#) [MF-R075-005](#) [MF-R500](#) [MF-R075-2](#) [MF-R250-0-010](#) [MF-R700](#) [MF-R090-2](#) [MF-R090-005](#) [MF-R300-AP](#) [MF-R185](#) [MF-R600-0-003](#) [MF-R050-2-008](#) [MF-R090-2-009](#) [MF-R600-2](#) [MF-R020-005](#) [MF-R005-2](#) [MF-R065-AP](#) [MF-R600](#) [MF-R800](#) [MF-R185-2](#) [MF-R160-2](#) [MF-R025](#) [MF-R030-0-003](#) [MF-R010-0-003](#) [MF-R075-0-003](#) [MF-R050-0-008](#) [MF-R050-0-003](#) [MF-R090-0-003](#) [MF-R250-0-003](#) [MF-R800-0-003](#) [MF-R050-0-013](#) [MF-R400-AP](#) [MF-R090-1-009](#) [MF-R250U](#) [MF-R800-005](#) [MF-R250-AP](#) [MF-R160-005](#) [MF-R250-2](#) [MF-R020-2](#) [MF-R250](#) [MF-R110-005](#) [MF-R010-005](#) [MF-R075](#) [MF-R050](#) [MF-R017](#) [MF-R065](#) [MF-R050-AP-008](#) [MF-R250-2-010](#) [MF-R040-005](#) [MF-R135-AP](#) [MF-R005-AP](#) [MF-R020-AP](#) [MF-R017-2](#) [MF-R025-AP](#) [MF-R135-005](#) [MF-R400-005](#) [MF-R040-AP](#) [MF-R700-005](#) [MF-R500-005](#) [MF-R300-005](#) [MF-R600-005](#) [MF-R900-0-003](#) [MF-R160-0-012](#) [MF-R020-0-003](#) [MF-R065-0-003](#) [MF-R025-0-003](#) [MF-R040-0-003](#) [MF-R040-2](#) [MF-R010-2-99](#) [MF-R017-0-99](#) [MF-R020-2-99](#) [MF-R020-99](#) [MF-R025-2-99](#) [MF-R025-99](#) [MF-R030-2-99](#) [MF-R040-99](#) [MF-R050-2-99](#) [MF-R050-99](#) [MF-R065-2-99](#) [MF-R065-99](#) [MF-R075-2-99](#) [MF-R075-99](#) [MF-R090-99](#) [MF-R1100-0-99](#) [MF-R1100-99](#) [MF-R160-99](#) [MF-R185-99](#) [MF-R250-2-99](#) [MF-R250-99](#) [MF-R400-2-99](#) [MF-R250-005](#)