




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:   

Applications

- Almost anywhere there is a low voltage power supply, up to 60V and a load to be protected, including:
- Security and fire alarm systems
 - Loud speakers
 - Power transformers

MF-RX Series - PTC Resettable Fuses

Electrical Characteristics

| Model | V max. Volts | I max. Amps | I _{hold} | I _{trip} | Initial Resistance | | 1 Hour (R ₁) Post-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 | |
| | | | Hold | Trip | Min. | Max. | Max. | | | |
| MF-RX110 | 60 | 40 | 1.10 | 2.20 | 0.15 | 0.25 | 0.38 | 5.5 | 8.2 | 1.50 |
| MF-RX135 | 60 | 40 | 1.35 | 2.70 | 0.12 | 0.19 | 0.30 | 6.75 | 9.6 | 1.70 |
| MF-RX160 | 60 | 40 | 1.60 | 3.20 | 0.09 | 0.14 | 0.22 | 8.0 | 11.4 | 1.90 |
| MF-RX185 | 60 | 40 | 1.85 | 3.70 | 0.08 | 0.12 | 0.19 | 9.25 | 12.6 | 2.10 |
| MF-RX250 | 60 | 40 | 2.50 | 5.00 | 0.05 | 0.08 | 0.13 | 12.5 | 15.6 | 2.50 |
| MF-RX300 | 60 | 40 | 3.00 | 6.00 | 0.04 | 0.06 | 0.10 | 15.0 | 19.8 | 2.80 |
| MF-RX375 | 60 | 40 | 3.75 | 7.50 | 0.03 | 0.05 | 0.08 | 18.75 | 24.0 | 3.20 |

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 |+125°C to -55°C, 10 times±10% typical resistance change |
| Solvent Resistance |MIL-STD-202, Method 215No change |
| Vibration |MIL-STD-883C, Method 2007.1,No change Condition A |

Test Procedures And Requirements For Model MF-RX 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 _{max} |
| Time to Trip |5 times I _{hold} , 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 |
| UL File Number |E 174545S | |
| CSA File Number |CA 110338 | |
| TÜV File Number |R2057213 | |

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-RX110 | 1.71 / 3.42 | 1.50 / 3.00 | 1.31 / 2.62 | 1.10 / 2.20 | 0.89 / 1.78 | 0.79 / 1.58 | 0.69 / 1.38 | 0.59 / 1.18 | 0.44 / 0.88 |
| MF-RX135 | 2.09 / 4.18 | 1.84 / 3.68 | 1.61 / 3.22 | 1.35 / 2.70 | 1.09 / 2.18 | 0.97 / 1.94 | 0.85 / 1.70 | 0.73 / 1.46 | 0.54 / 1.08 |
| MF-RX160 | 2.48 / 4.96 | 2.18 / 4.36 | 1.90 / 3.80 | 1.60 / 3.20 | 1.30 / 2.60 | 1.15 / 2.30 | 1.01 / 2.02 | 0.86 / 1.72 | 0.64 / 1.28 |
| MF-RX185 | 2.87 / 5.74 | 2.52 / 5.04 | 2.20 / 4.40 | 1.85 / 3.70 | 1.50 / 3.00 | 1.33 / 2.66 | 1.17 / 2.34 | 1.00 / 2.00 | 0.74 / 1.48 |
| MF-RX250 | 3.88 / 7.76 | 3.40 / 6.80 | 2.98 / 5.96 | 2.50 / 5.00 | 2.03 / 4.06 | 1.80 / 3.60 | 1.58 / 3.16 | 1.35 / 2.70 | 1.00 / 2.00 |
| MF-RX300 | 4.65 / 9.30 | 4.08 / 8.16 | 3.57 / 7.14 | 3.00 / 6.00 | 2.43 / 4.86 | 2.16 / 4.32 | 1.89 / 3.78 | 1.62 / 3.24 | 1.20 / 2.40 |
| MF-RX375 | 5.81 / 11.6 | 5.10 / 10.2 | 4.46 / 8.92 | 3.75 / 7.50 | 3.04 / 6.08 | 2.70 / 5.40 | 2.36 / 4.72 | 2.03 / 4.06 | 1.50 / 3.00 |

Additional Features

- Resettable circuit protection
- Patents pending

MF-RX Series - PTC Resettable Fuses

BOURNS®

Product Dimensions

| Model | A | B | C | | D | E | Physical Characteristics | | |
|----------|-----------------|-----------------|-----------------|----------------|----------------|----------------|--------------------------|-----------------|----------|
| | Max. | Max. | Nom. | Tol. ± | Min. | Max. | Style | Lead Dia. | Material |
| MF-RX110 | 13.0 (0.512) | 18.0 (0.709) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |
| MF-RX135 | 14.5 (0.571) | 19.6 (0.772) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |
| MF-RX160 | 16.3 (0.642) | 21.3 (0.839) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |
| MF-RX185 | 17.8 (0.701) | 22.9 (0.902) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |
| MF-RX250 | 21.3 (0.839) | 26.4 (1.039) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |
| MF-RX300 | 24.9 (0.980) | 30.0 (1.181) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |
| MF-RX375 | 28.4 (1.118) | 33.5 (1.319) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.299) | 3.1 (0.122) | 1 | 0.81 (0.032) | Sn/Cu |

Packaging options:

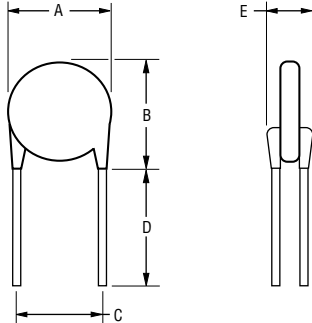
BULK: All models = 500 pcs. per bag.

TAPE & REEL: MF-RX110 – MF-RX160 = 1500 pcs. per reel; MF-RX185 – MF-RX375 = 1000 pcs. per reel

AMMO-PACK: MF-RX110 – MF-RX160 = 1000 pcs. per reel; MF-RX185 – MF-RX375 = 500 pcs. per reel

0.81 (20AWG)

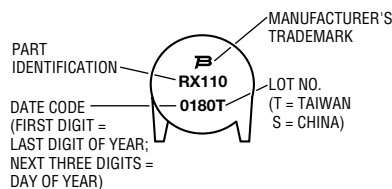
DIMENSIONS = $\frac{\text{MM}}{\text{(INCHES)}}$



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

Typical Part Marking

Represents total content. Layout may vary.



How to Order

MF - RX 110 -

Multifuse® Product Designator

Series **RX** = Radial Leded Component

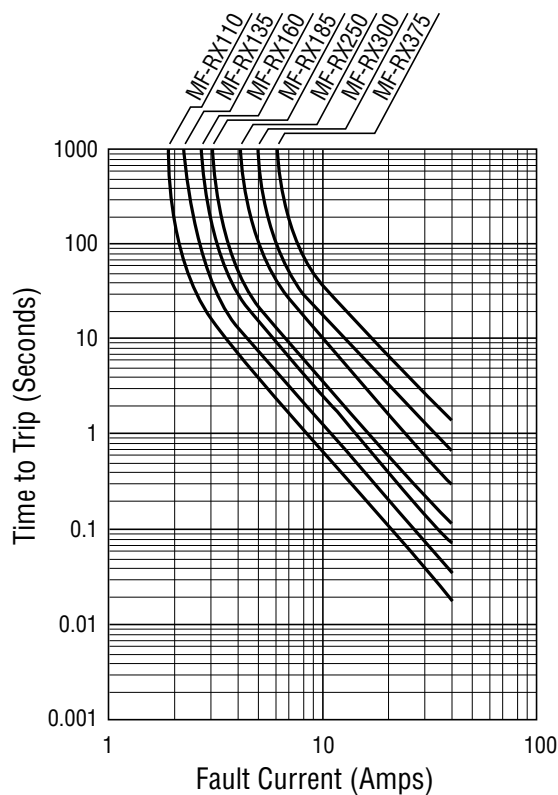
Hold Current, I_{hold} 110-375 (1.10 Amps - 3.75 Amps)

Packaging Options

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

*Packaged per EIA 486-B

Typical Time to Trip at 23°C



MF-RX SERIES, REV. G, 08/01

Specifications are subject to change without notice.

Tape and Reel Specifications

MF-R, MF-RX & MF-R/250 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 | <i>W</i> | <i>W</i> | $\frac{18}{(.709)}$ | $\frac{-0.5/+1.0}{(-0.02/+0.039)}$ |
| Hold down tape width | | <i>W4</i> | $\frac{5}{(.197)}$ | min. |
| Hold down tape | <i>W0</i> | | No protrusion | |
| Top distance between tape edges | <i>W2</i> | <i>W6</i> | $\frac{3}{(.118)}$ | max. |
| Sprocket hole position | <i>W1</i> | <i>W5</i> | $\frac{9}{(.354)}$ | $\frac{-0.5/+0.75}{(-0.02/+0.03)}$ |
| Sprocket hole diameter | <i>D0</i> | <i>D0</i> | $\frac{4}{(.157)}$ | $\frac{\pm 0.2}{(\pm .0078)}$ |
| Abscissa to plane (straight lead) | <i>H</i> | <i>H</i> | $\frac{18.5}{(.728)}$ | $\frac{\pm 3.0}{(\pm .118)}$ |
| Abscissa to plane (kinked lead) | <i>H0</i> | <i>H0</i> | $\frac{16}{(.63)}$ | $\frac{\pm 0.5}{(\pm .02)}$ |
| Abscissa to top | <i>H1</i> | <i>H1</i> | $\frac{32.2}{(1.268)}$ | max. |
| Overall width w/lead protrusion | | <i>C1</i> | $\frac{43.2}{(1.7)}$ | max. |
| Overall width w/o lead protrusion | | <i>C2</i> | $\frac{42.5}{(1.673)}$ | max. |
| Lead protrusion | <i>I1</i> | <i>L1</i> | $\frac{1.0}{(.039)}$ | max. |
| Protrusion of cutout | <i>L</i> | <i>L</i> | $\frac{11}{(.433)}$ | max. |
| Protrusion beyond hold tape | <i>I2</i> | <i>I2</i> | Not specified | |
| Sprocket hole pitch | <i>P0</i> | <i>P0</i> | $\frac{12.7}{(0.5)}$ | $\frac{\pm 0.3}{(\pm .012)}$ |
| Pitch tolerance | | | 20 seconds | ± 1 second |
| Device pitch: MF-R010 – MF-R160 | | | $\frac{12.7}{(0.5)}$ | |
| Device pitch: MF-R185 – MF-R400 | | | $\frac{25.4}{(1.0)}$ | |
| Device pitch: MF-RX110 – MF-RX160 | | | $\frac{12.7}{(0.5)}$ | |
| Device pitch: MF-RX185 – MF-RX375 | | | $\frac{12.7}{(0.5)}$ | |
| Device pitch: MF-R012/250 | | | $\frac{25.4}{(1.0)}$ | |
| Tape thickness | <i>t</i> | <i>t</i> | $\frac{0.9}{(.035)}$ | max. |
| Tape thickness with splice | | <i>t1</i> | $\frac{2.0}{(.079)}$ | max. |
| Splice sprocket hole alignment | | | 0 | $\frac{\pm 0.3}{(\pm .012)}$ |
| Body lateral deviation | Δh | Δh | 0 | $\frac{\pm 1.0}{(\pm .039)}$ |
| Body tape plane deviation | Δp | Δp | 0 | $\frac{\pm 1.3}{(\pm .051)}$ |
| Lead seating plane deviation | $\Delta P1$ | <i>P1</i> | 0 | $\frac{\pm 0.7}{(\pm .028)}$ |
| Lead spacing | <i>F</i> | <i>F</i> | $\frac{5.08}{(0.2)}$ | $\frac{\pm 0.8}{(\pm .035)}$ |
| Reel width | <i>w</i> | <i>w</i> | $\frac{56}{(2.205)}$ | max. |
| Reel diameter | <i>d</i> | <i>a</i> | $\frac{370}{(14.57)}$ | max. |
| Space between flanges less device | | | $\frac{4.75}{(.187)}$ | $\frac{\pm 3.25}{(\pm .128)}$ |

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

| Dimension Description | IEC Mark | EIA Mark | Dimensions | |
|-----------------------------------|----------|----------|--|-------------------------------|
| | | | Dimensions | Tolerance |
| Space between flanges less device | | | $\frac{4.75}{(.187)}$ | $\frac{\pm 3.25}{(\pm .128)}$ |
| Arbor hole diameter | <i>f</i> | <i>c</i> | $\frac{26}{(1.024)}$ | $\frac{\pm 12.0}{(\pm .472)}$ |
| Core diameter | <i>h</i> | <i>n</i> | $\frac{80}{(3.15)}$ | max. |
| Box | | | $\frac{56}{(2.2)}$ $\frac{372}{(14.6)}$ $\frac{372}{(14.6)}$ | max. |
| Consecutive missing places | | | 3 maximum | |
| Empty places per reel | | | Not specified | |

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

Taped Component Dimensions

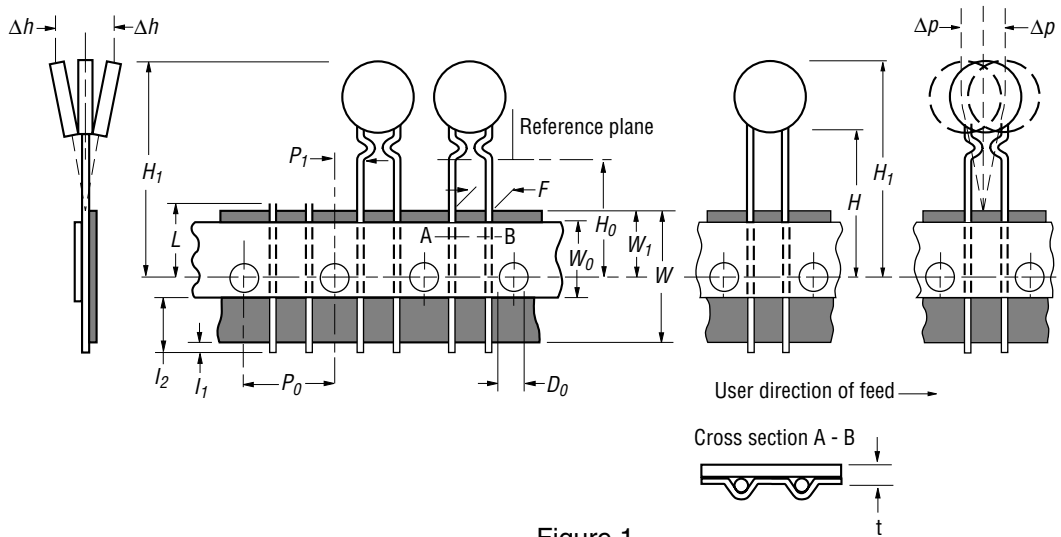


Figure 1

Reel Dimensions

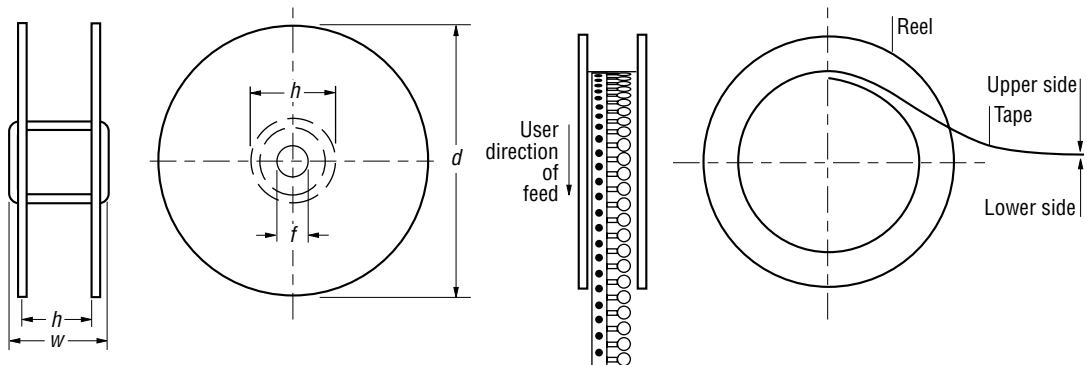


Figure 2