



Features

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

 The MF-RX Series is currently available, although not recommended for new designs. The higher voltage rated MF-RX/72 Series is preferred.

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 | | 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-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 | -40 °C to +85 °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 NumberE 174545S
 CSA File NumberCA 110338
 TÜV File NumberR2057213

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 |

*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.
 Specifications are subject to change without notice.
 Customers should verify actual device performance in their specific applications.

Additional Features

- Bulk packaging, tape and reel and Ammo-Pak available on most models
- Resettable circuit protection
- Patents pending

Applications

Almost anywhere there is a low voltage power supply, up to 60 V and a load to be protected, including:

- Security and fire alarm systems
- Loud speakers
- Power transformers

MF-RX Series - PTC Resettable Fuses

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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:

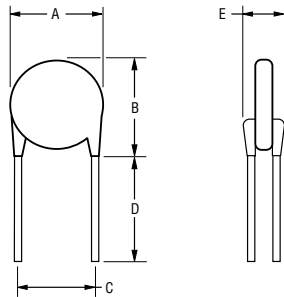
BULK: All models = 500 pcs. per bag.

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)

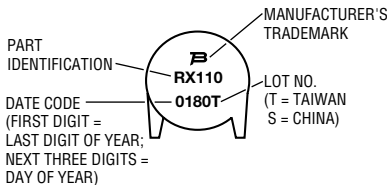
DIMENSIONS = $\frac{\text{MM}}{\text{(INCHES)}}$



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

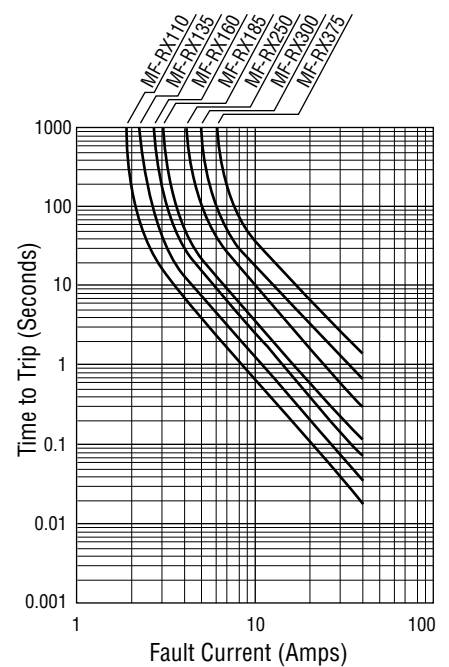
MF - RX 110 - 0 - 99

- Multifuse® Product Designator
- Series: RX = Radial Leaded Component
- Hold Current, I_{hold}: 110-375 (1.10 Amps - 3.75 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-RX models are RoHS compliant. The suffix "-99" can be used if a new part number is required to reference the RoHS compliance.

Examples:
 MF-RX110Bulk packaging
 MF-RX110-0-99Bulk packaging with part number suffix option
 MF-RX110-2Tape and reel packaging
 MF-RX110-2-99Tape and reel packaging with part number suffix option

*Packaged per EIA486-B

Typical Time to Trip at 23 ̢C



**MF-R, MF-RX, MF-R/90, MF-RX/72 & MF-RX/250 Series
Tape and Reel Specifications**

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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: all others | 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 | l_1 | L_1 | $\frac{1.0}{(.039)}$ | max. |
| Protrusion of cutout | L | L | $\frac{11}{(.433)}$ | max. |
| Protrusion beyond hold tape | l_2 | l_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 | ± 1 |
| Device pitch: MF-R005–MF-R160, MF-R/90 & MF-RX/72 | | | $\frac{12.7}{(0.5)}$ | |
| Device pitch: MF-R185–MF-R400, MF-RX110–MF-RX375 | | | $\frac{25.4}{(1.0)}$ | |
| Tape thickness | t | t | $\frac{0.9}{(.035)}$ | max. |
| Tape thickness with splice: MF-R010–MF-R160 | | t_1 | $\frac{1.5}{(.059)}$ | max. |
| Tape thickness with splice: MF-R250–MF-R1100 MF-RX110–MF-RX375 & MF-R/90 | | t_1 | $\frac{2.3}{(.091)}$ | 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 | $\frac{\pm 0.3}{(\pm .021)}$ |
| Lead spacing | F | F | $\frac{5.08}{(0.2)}$ | $\frac{\pm 0.2}{(\pm .008)}$ |
| Reel width | w | W_2 | $\frac{56}{(2.205)}$ | max. |
| Reel diameter | d | a | $\frac{370}{(14.57)}$ | max. |
| Space between flanges less device | W_1 | h | $\frac{4.75}{(.187)}$ | $\frac{\pm 3.25}{(\pm .128)}$ |

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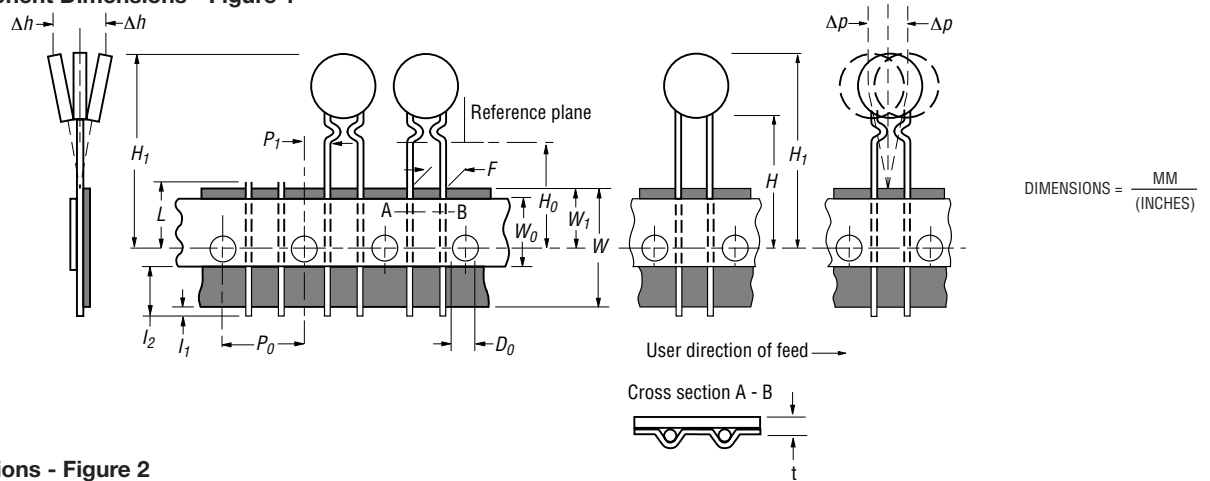
DIMENSIONS = $\frac{\text{MM}}{\text{(INCHES)}}$

**MF-R, MF-RX, MF-R/90, MF-RX/72 & MF-RX/250 Series
Tape and Reel Specifications**

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| Dimension Description | IEC Mark | EIA Mark | Dimensions | |
|---|----------|----------|--|-------------------------------|
| | | | Dimensions | Tolerance |
| Arbor hole diameter | <i>f</i> | <i>c</i> | $\frac{26}{(1.024)}$ | $\frac{\pm 12.0}{(\pm .472)}$ |
| Core diameter: MF-R, MF-RX, MF-R/90 | <i>h</i> | <i>n</i> | $\frac{80}{(3.15)}$ | max. |
| Box: MF-R, MF-RX, MF-R/90 | | | $\frac{56}{(2.2)}$ $\frac{372}{(14.6)}$ $\frac{372}{(14.6)}$ | max. |
| Consecutive missing places: MF-R, MF-RX, MF-R/90 | | | 3 | max. |
| Empty places per reel: MF-R, MF-RX, MF-R/90 | | | Not specified | |

Taped Component Dimensions - Figure 1



Reel Dimensions - Figure 2

