



Features

- 72 V rated
- Radial leaded devices
- Cured, flame retardant epoxy polymer insulating material meets UL 94 V-0 requirements
- RoHS compliant* and halogen free**
- Agency recognition:   

Applications

Almost anywhere there is a low voltage power supply, up to 72 V and a load to be protected, including:

- Security and fire alarm systems
- Loudspeakers
- Power transformers

MF-RX/72 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 | Amperes at 23 °C | Seconds at 23 °C | Watts at 23 °C |
| | | | Hold | Trip | Min. | Max. | Max. | | | Typ. |
| MF-RX020/72 | 72 | 40 | 0.20 | 0.40 | 1.50 | 2.84 | 4.40 | 1.0 | 2.2 | 0.40 |
| MF-RX025/72 | 72 | 40 | 0.25 | 0.50 | 1.00 | 1.95 | 3.00 | 1.25 | 2.5 | 0.45 |
| MF-RX030/72 | 72 | 40 | 0.30 | 0.60 | 0.76 | 1.36 | 2.10 | 1.5 | 3.0 | 0.50 |
| MF-RX040/72 | 72 | 40 | 0.40 | 0.80 | 0.52 | 0.86 | 1.29 | 2.0 | 3.9 | 0.55 |
| MF-RX050/72 | 72 | 40 | 0.50 | 1.00 | 0.41 | 0.77 | 1.17 | 2.5 | 4.0 | 0.75 |
| MF-RX065/72 | 72 | 40 | 0.65 | 1.30 | 0.27 | 0.48 | 0.72 | 3.25 | 5.3 | 0.90 |
| MF-RX075/72 | 72 | 40 | 0.75 | 1.50 | 0.18 | 0.40 | 0.60 | 3.75 | 6.3 | 0.90 |
| MF-RX090/72 | 72 | 40 | 0.90 | 1.80 | 0.14 | 0.31 | 0.47 | 4.5 | 7.2 | 1.00 |
| MF-RX110/72 | 72 | 40 | 1.10 | 2.20 | 0.15 | 0.25 | 0.38 | 5.5 | 8.2 | 1.50 |
| MF-RX135/72 | 72 | 40 | 1.35 | 2.70 | 0.12 | 0.19 | 0.30 | 6.75 | 9.6 | 1.70 |
| MF-RX160/72 | 72 | 40 | 1.60 | 3.20 | 0.09 | 0.14 | 0.22 | 8.0 | 11.4 | 1.90 |
| MF-RX185/72 | 72 | 40 | 1.85 | 3.70 | 0.08 | 0.12 | 0.19 | 9.25 | 12.6 | 2.10 |
| MF-RX250/72 | 72 | 40 | 2.50 | 5.00 | 0.05 | 0.08 | 0.13 | 12.5 | 15.6 | 2.50 |
| MF-RX300/72 | 72 | 40 | 3.00 | 6.00 | 0.04 | 0.06 | 0.10 | 15.0 | 19.8 | 2.80 |
| MF-RX375/72 | 72 | 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 | +85 °C to -55 °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 Condition A |

Test Procedures And Requirements For Model MF-RX/72 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 | E174545 http://www.ul.com/ Follow link to Certifications, then UL File No., enter E174545 | |
| CSA File Number..... | CA110338 http://directories.csa-international.org/ Under "Certification Record" and "File Number" enter 110338-0-000 | |
| TÜV Certificate Number | R 02057213 http://www.tuvdotcom.com/ Follow link to "other certificates", enter File No. 2057213 | |

* 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.

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Additional Features

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

MF-RX/72 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-RX020/72 | 7.4 (0.291) | 12.7 (0.5) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/CuFe | | | | |
| MF-RX025/72 | 7.4 (0.291) | 12.7 (0.5) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/CuFe | | | | |
| MF-RX030/72 | 7.4 (0.291) | 13.4 (0.528) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/CuFe | | | | |
| MF-RX040/72 | 7.4 (0.291) | 13.7 (0.539) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/CuFe | | | | |
| MF-RX050/72 | 7.9 (0.311) | 13.7 (0.539) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 1.051 (0.020) | Sn/Cu | | | | |
| MF-RX065/72 | 9.7 (0.382) | 15.2 (0.598) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/Cu | | | | |
| MF-RX075/72 | 10.4 (0.409) | 16.0 (0.630) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/Cu | | | | |
| MF-RX090/72 | 11.7 (0.461) | 16.70 (0.657) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 1 | 0.51 (0.020) | Sn/Cu | | | | |
| MF-RX110/72 | 10.84 (0.427) | 16.84 (0.662) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |
| MF-RX135/72 | 12.26 (0.483) | 18.26 (0.718) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |
| MF-RX160/72 | 13.94 (0.549) | 19.94 (0.785) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |
| MF-RX185/72 | 15.18 (0.598) | 21.18 (0.833) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |
| MF-RX250/72 | 17.84 (0.702) | 23.84 (0.938) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |
| MF-RX300/72 | 20.67 (0.814) | 26.67 (1.050) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |
| MF-RX375/72 | 23.51 (0.926) | 29.51 (1.161) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.30) | 3.1 (0.122) | 2 | 0.81 (0.032) | Sn/Cu | | | | |

Packaging options:

BULK: 500 pcs. per bag.

TAPE & REEL: MF-RX020/72-2 ~ MF-RX090/72-2 = 3000 pcs. per reel; MF-RX110/72-2 ~ MF-RX160/72-2 = 1500 pcs. per reel;

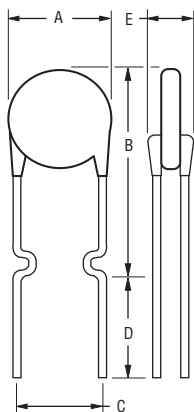
MF-RX185/72-2 - MF-RX375/72-2 = 1000 pcs. per reel.

AMMO-PACK: MF-RX020/72-AP ~ MF-RX090/72-AP = 2000 pcs. per pack; MF-RX110/72-AP ~ MF-RX160/72-AP = 1000 pcs. per pack;

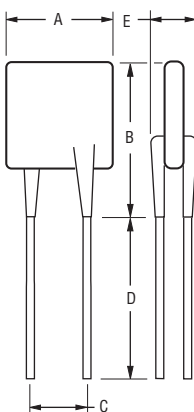
MF-RX185/72-AP - MF-RX375/72-AP = 500 pcs. per pack.

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

Style 1



Style 2



Typical Part Marking

Represents total content. Layout may vary.



How to Order

MF - RX 110/72 - 2

Multifuse®
 Product Designator
 Series
 RX = Radial Leaded Component
 Hold Current, Ihold
 020-375 (0.20 Amps - 3.75 Amps)
 Maximum Voltage, Vmax
 72 (72 Volts)
 Packaging Options
 - 0 = Bulk Packaging
 - 2 = Tape and Reel*
 - AP = Ammo-Pak*
 *Packaged per EIA 486-B

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MF-RX/72 Series - PTC Resettable Fuses

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Typical Time to Trip at 23 °C



The Time to Trip curves represent typical performance of a device in a simulated application environment. Actual performance in specific customer applications may differ from these values due to the influence of other variables.

Thermal Derating Chart - I_{hold} (Amps)

| Model | Ambient Operating Temperature | | | | | | | | |
|-------------|-------------------------------|--------|------|-------|-------|-------|-------|-------|-------|
| | -40 °C | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
| MF-RX020/72 | 0.31 | 0.27 | 0.24 | 0.20 | 0.16 | 0.14 | 0.13 | 0.11 | 0.08 |
| MF-RX025/72 | 0.39 | 0.34 | 0.30 | 0.25 | 0.20 | 0.18 | 0.16 | 0.14 | 0.10 |
| MF-RX030/72 | 0.47 | 0.41 | 0.36 | 0.30 | 0.24 | 0.22 | 0.19 | 0.16 | 0.12 |
| MF-RX040/72 | 0.62 | 0.54 | 0.48 | 0.40 | 0.32 | 0.29 | 0.25 | 0.22 | 0.16 |
| MF-RX050/72 | 0.78 | 0.68 | 0.60 | 0.50 | 0.41 | 0.36 | 0.32 | 0.27 | 0.20 |
| MF-RX065/72 | 1.01 | 0.88 | 0.77 | 0.65 | 0.53 | 0.47 | 0.41 | 0.35 | 0.26 |
| MF-RX075/72 | 1.16 | 1.02 | 0.89 | 0.75 | 0.61 | 0.54 | 0.47 | 0.41 | 0.30 |
| MF-RX090/72 | 1.40 | 1.22 | 1.07 | 0.90 | 0.73 | 0.65 | 0.57 | 0.49 | 0.36 |
| MF-RX110/72 | 1.71 | 1.50 | 1.31 | 1.10 | 0.89 | 0.79 | 0.69 | 0.59 | 0.44 |
| MF-RX135/72 | 2.09 | 1.84 | 1.61 | 1.35 | 1.09 | 0.97 | 0.85 | 0.73 | 0.54 |
| MF-RX160/72 | 2.48 | 2.18 | 1.90 | 1.60 | 1.30 | 1.15 | 1.01 | 0.86 | 0.64 |
| MF-RX185/72 | 2.87 | 2.52 | 2.20 | 1.85 | 1.50 | 1.33 | 1.17 | 1.00 | 0.74 |
| MF-RX250/72 | 3.88 | 3.40 | 2.98 | 2.50 | 2.03 | 1.80 | 1.58 | 1.35 | 1.00 |
| MF-RX300/72 | 4.65 | 4.08 | 3.57 | 3.00 | 2.43 | 2.16 | 1.89 | 1.62 | 1.20 |
| MF-RX375/72 | 5.81 | 5.10 | 4.46 | 3.75 | 3.04 | 2.70 | 2.36 | 2.03 | 1.50 |

MF-R/72 & MF-RX/72 Series Tape and Reel Specifications **BOURNS®**

Devices taped using EIA468-B/IEC60286-2 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 | l_1 | L_1 | $\frac{1.0}{(.039)}$ | max. |
| Protrusion of cutout | L | L | $\frac{11}{(.433)}$ | max. |
| Protrusion beyond hold-down 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 | $\frac{\pm 1}{(\pm .039)}$ |
| Device pitch: MF-R/72, MF-RX110/72-MF-RX185/72 | | | $\frac{12.7}{(0.5)}$ | $\frac{\pm 0.3}{(\pm .012)}$ |
| Device pitch: 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-R/72, MF-RX110/72-MF-RX185/72 | | t_1 | $\frac{1.5}{(.059)}$ | max. |
| Tape thickness with splice: 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 | Δh | Δh | 0 | $\frac{\pm 1}{(\pm .039)}$ |
| Body tape plane deviation | Δp | Δp | 0 | $\frac{\pm 1.3}{(\pm .051)}$ |
| Lead seating plane deviation | ΔP_1 | P_1 | $\frac{3.81}{(.015)}$ | $\frac{\pm 0.7}{(\pm .028)}$ |
| Lead spacing: MF-R/72, MF-RX110/72-MF-RX185/72 | F | F | $\frac{5.08}{(0.2)}$ | $\frac{-0.2/+0.8}{(-0.006/+0.031)}$ |
| Lead spacing: MF-RX250/72-MF-RX375/72 | F | F | $\frac{10.2}{(0.402)}$ | $\frac{-0.2/+0.8}{(-0.006/+0.031)}$ |

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

MF-R/72 & MF-RX/72 Series Tape and Reel Specifications **BOURNS®**

| Dimension Description | IEC Mark | EIA Mark | Dimensions | |
|-----------------------------------|----------|----------|---|------------------------------|
| | | | Dimensions | Tolerance |
| Reel width | w | W_2 | $\frac{56.0}{(2.205)}$ | max. |
| Reel diameter | d | a | $\frac{370.0}{(14.57)}$ | max. |
| Space between flanges less device | W_1 | h | $\frac{4.75}{(.187)}$ | ± 3.25 ($\pm .128$) |
| Arbor hole diameter | f | c | $\frac{26.0}{(1.024)}$ | ± 12.0 ($\pm .472$) |
| Core diameter | h | n | $\frac{80}{(3.15)}$ | max. |
| Box | | | $\frac{64}{(2.52)}$ $\frac{372}{(14.6)}$ $\frac{372}{(14.6)}$ | max. |
| Consecutive missing places | | | 3 | max. |
| Empty places per reel | | | Not specified | |

Taped Component Dimensions - Figure 1



Reel Dimensions - Figure 2



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