

## Features

- Radial Leaded Devices
- Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- Lead free option available
- Agency recognition:   

## Applications

- Almost anywhere there is a load to be protected with a voltage supply of up to 90 V, including:
- Broadband cable power passing taps
  - Set-top boxes

# MF-R/90 Series - PTC Resettable Fuses

### Electrical Characteristics

Model	V max. Volts	I max. Amps	Ihold	Itrip	Initial Resistance Values		One Hour Post-Trip Resistance Standard Trip	Maximum Time To Trip		Nominal Tripped Power Dissipation
			Amps at 23 °C	Amps at 23 °C	Ohms at 23 °C		Ohms at 23 °C	Amps at 23 °C	Seconds at 23 °C	Watts at 23 °C
			Hold	Trip	Min.	Max.	Max.		Typ.	
MF-R055/90	90	10	0.55	1.1	0.45	0.9	2.0	1.6	60	2.0
MF-R055/90U	90	10	0.55	1.1	0.45	0.9	2.0	1.6	28	2.0
MF-R075/90	90	10	0.75	1.5	0.37	0.75	1.65	2.0	60	2.5

“U” suffix indicates product without insulation coating.

### 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 215 .....	No change
Vibration .....	MIL-STD-883C, Method 2007.1, .....	No change Condition A

### Test Procedures And Requirements For Model MF-R/90 Series

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech. ....	Verify dimensions and materials.....	Per MF physical description
Resistance .....	In still air @ 23 °C .....	$R_{min} \leq R \leq R_{max}$
Time to Trip .....	At specified current, Vmax, 23 °C .....	$T \leq \text{max. time to trip (seconds)}$
Hold Current .....	30 min. at Ihold.....	No trip
Trip Cycle Life .....	Vmax, I max, 100 cycles .....	No arcing or burning
Trip Endurance.....	Vmax, 48 hours .....	No arcing or burning

UL File Number .....	E 174545S
CSA File Number .....	CA 110338
TÜV File Number .....	R2057213

### Thermal Derating Chart - Ihold / Itrip (Amps)

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-R055/90	0.85 / 1.7	0.75 / 1.5	0.65 / 1.3	0.55 / 1.1	0.45 / 0.9	0.4 / 0.8	0.35 / 0.7	0.3 / 0.6	0.22 / 0.44
MF-R055/90U	0.85 / 1.7	0.75 / 1.5	0.65 / 1.3	0.55 / 1.1	0.45 / 0.9	0.4 / 0.8	0.35 / 0.7	0.3 / 0.6	0.22 / 0.44
MF-R075/90	1.15 / 2.3	1.0 / 2.0	0.9 / 1.8	0.75 / 1.5	0.61 / 1.22	0.55 / 1.1	0.48 / 0.96	0.41 / 0.82	0.30 / 0.6

## Additional Features

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

# MF-R/90 Series - PTC Resettable Fuses

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### Product Dimensions

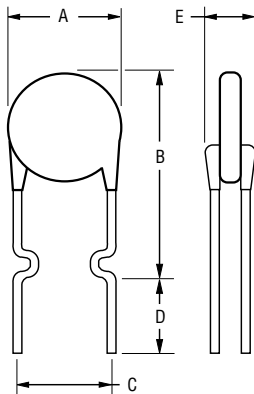
Model	A Max.	B Max.	C (Pitch) Nom.	D Min.	E Max.	Physical Characteristics		
						Style	Lead Dia.	Material
MF-R055/90	$\frac{10.9}{(0.43)}$	$\frac{14.0}{(0.55)}$	$\frac{5.1 \pm 0.7}{(0.201 \pm 0.028)}$	$\frac{6.3}{(0.248)}$	$\frac{3.6}{(0.142)}$	1	$\frac{0.81}{(0.032)}$	Sn/Cu
MF-R055/90U	$\frac{10.3}{(0.4)}$	$\frac{10.3}{(0.4)}$	$\frac{5.1 \pm 0.7}{(0.201 \pm 0.028)}$	$\frac{6.3}{(0.248)}$	$\frac{3.0}{(0.118)}$	1	$\frac{0.81}{(0.032)}$	Sn/Cu
MF-R075/90	$\frac{11.9}{(0.47)}$	$\frac{15.5}{(0.61)}$	$\frac{5.1 \pm 0.7}{(0.201 \pm 0.028)}$	$\frac{6.3}{(0.248)}$	$\frac{3.6}{(0.142)}$	1	$\frac{0.81}{(0.032)}$	Sn/Cu

Packaging options:

BULK: 500 pcs. per bag. TAPE & REEL: 1500 pcs. per reel. AMMO-PACK: 1000 pcs. per pack

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

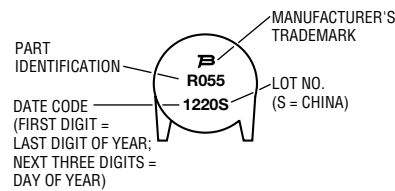
### Style 1



Also available with straight leads.

### Typical Part Marking

Represents total content. Layout may vary.



### How to Order

**MF - R 055/90 U - 0 - 99**

Multifuse®  
Product  
Designator

Series  
R = Radial Ledged  
Component

Hold Current, I<sub>hold</sub>  
055, 075 (0.55 Amps - 0.75 Amps)

Max. Voltage, V

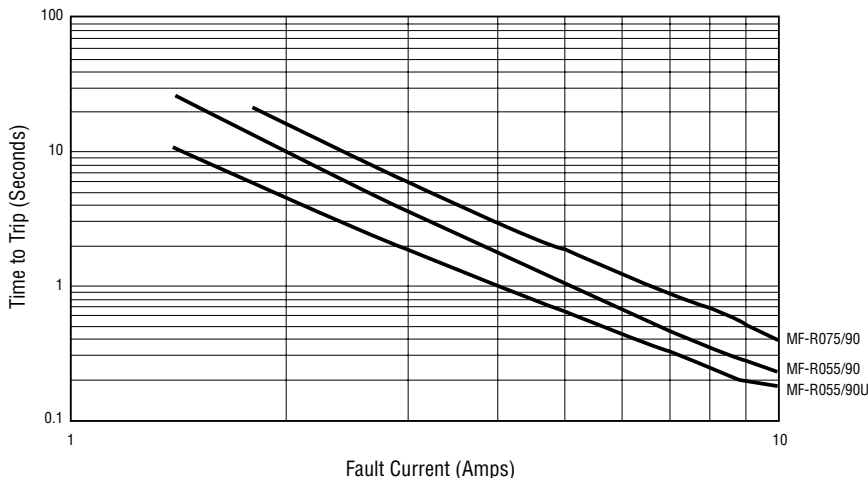
Coating  
\_ = Coated  
U = Uncoated

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

Lead Free Option  
\_ = Standard Product  
- 99 = Lead Free

\*Packaged per EIA486-B

### Typical Time to Trip at 23 °C



MF-R/90, REV. C, 02/04

Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

**MF-R, MF-RX, MF-R/90, MF-R/250, MF-RX/250 & MF-R/600 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	<i>W</i>	<i>W</i>	$\frac{18}{(.709)}$	$\frac{-0.5/+1.0}{(-0.02/+0.039)}$
Hold down tape width: MF-R/600		<i>W4</i>	$\frac{5}{(.197)}$	min.
Hold down tape width: all others		<i>W4</i>	$\frac{11}{(.433)}$	ref.
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>	$\frac{4}{(.157)}$	$\frac{+0.2}{(\pm.0078)}$
Abscissa to plane (straight lead)	<i>H</i>	<i>H</i>	$\frac{18.5}{(.728)}$	$\frac{+3.0}{(\pm.118)}$
Abscissa to plane (kinked lead)	<i>H0</i>	<i>H0</i>	$\frac{16}{(.63)}$	$\frac{+0.5}{(\pm.02)}$
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>	$\frac{12.7}{(0.5)}$	$\frac{+0.3}{(\pm.012)}$
Pitch tolerance			20 consecutive	±1
Device pitch: MF-R005 – MF-R160 & MF-R/90			$\frac{12.7}{(0.5)}$	
Device pitch: MF-R185 – MF-R400 & MF-R/600			$\frac{25.4}{(1.0)}$	
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-R/250 & MF-RX/250			$\frac{12.7}{(0.5)}$	
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	$\frac{+0.3}{(\pm.012)}$
Body lateral deviation	$\Delta h$	$\Delta h$	0	$\frac{+1.0}{(\pm.039)}$
Body tape plane deviation	$\Delta p$	$\Delta p$	0	$\frac{+1.3}{(\pm.051)}$
Lead seating plane deviation: MF-R/600*	$\Delta P1$	<i>P1</i>	$\frac{3.81}{(.015)}$	$\frac{+0.7}{(\pm.028)}$
Lead seating plane deviation	$\Delta P1$	<i>P1</i>	0	$\frac{+0.7}{(\pm.028)}$
Lead spacing	<i>F</i>	<i>F</i>	$\frac{5.08}{(0.2)}$	$\frac{+0.8}{(\pm.035)}$
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			$\frac{4.75}{(.187)}$	$\frac{+3.25}{(\pm.128)}$

\*Differs from EIA specification.

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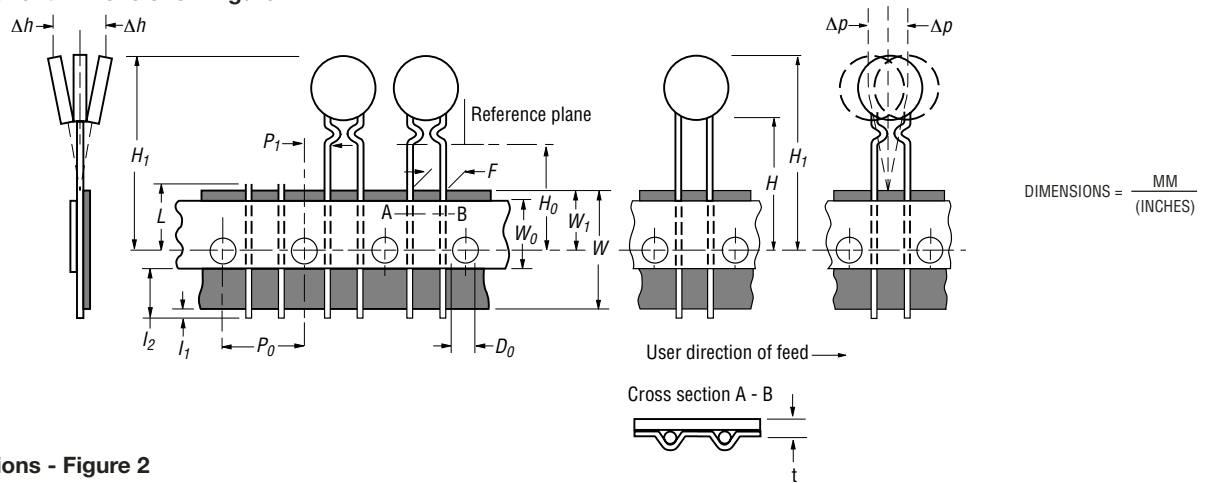
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**MF-R, MF-RX, MF-R/90, MF-R/250, MF-RX/250 & MF-R/600 Series  
Tape and Reel Specifications**

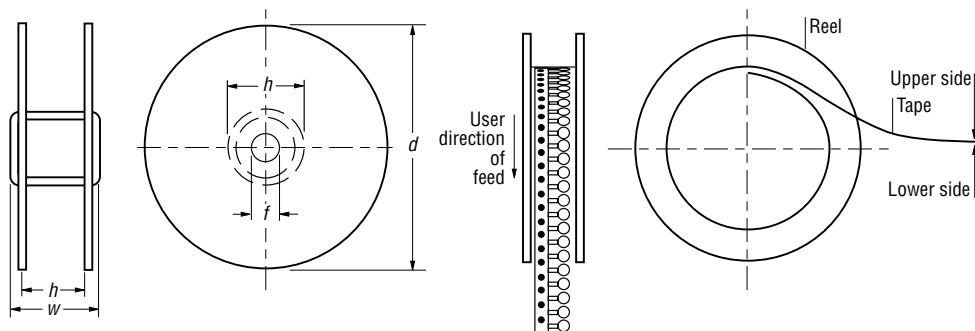


Dimension Description	IEC Mark	EIA Mark	Dimensions	
			Dimensions	Tolerance
Space between flanges less device			4.75 (.187)	$\pm 3.25$ ( $\pm .128$ )
Arbor hole diameter	<i>f</i>	<i>c</i>	26 (1.024)	$\pm 12.0$ ( $\pm .472$ )
Core diameter: MF-R, MF-RX, MF-R/90 & MF-R/250	<i>h</i>	<i>n</i>	80 (3.15)	max.
Core diameter: MF-RX/250 & MF-R/600	<i>h</i>	<i>n</i>	91 (3.58)	max.
Box: MF-R, MF-RX, MF-R/90 & MF-R/250			56    372    372 (2.2)   (14.6)   (14.6)	max.
Box: MF-RX/250			67    372    362 (2.64)   (14.6)   (14.25)	max.
Box: MF-R/600			64    372    362 (2.52)   (14.6)   (14.25)	max.
Consecutive missing places:				
MF-R, MF-RX, MF-R/90 & MF-R/250			3	max.
Consecutive missing places: MF-RX/250 & MF-R/600			None	
Empty places per reel:				
MF-R, MF-RX, MF-R/90 & MF-R/250				Not specified
Empty places per reel: MF-RX/250 & MF-R/600			0.1 %	

**Taped Component Dimensions - Figure 1**



**Reel Dimensions - Figure 2**



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