



## Features

- Compliant with AEC-Q200 Rev-C- Stress Test Qualification for Passive Components in Automotive Applications
- Radial leaded devices
- Smaller size for similar Ihold rating
- Faster tripping
- RoHS compliant\* and halogen free\*\*
- Agency recognition: us

## Applications

- Automotive applications
- Where space is limited and fast tripping is required

# MF-RG Series - PTC Resettable Fuses

### Electrical Characteristics

Model	V max. Volts	I max. Amps	Ihold	Itrip	Initial Resistance		1 Hour (R1) 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-RG300	16	100	3.00	5.10	0.038	0.065	0.0975	15	1.0	2.30
MF-RG400	16	100	4.00	6.80	0.021	0.0385	0.0600	20	1.7	2.40
MF-RG500	16	100	5.00	8.50	0.015	0.023	0.0340	25	2.0	2.60
MF-RG600	16	100	6.00	10.20	0.010	0.0185	0.0280	30	3.3	2.8
MF-RG650	16	100	6.50	11.10	0.0088	0.0158	0.0240	33	3.5	3.0
MF-RG700	16	100	7.00	11.90	0.0077	0.0130	0.0200	35	3.5	3.0
MF-RG800	16	100	8.00	13.60	0.0056	0.0110	0.0175	40	5.0	3.0
MF-RG900	16	100	9.00	15.30	0.0047	0.0092	0.0135	45	5.5	3.3
MF-RG1000	16	100	10.00	17.00	0.0040	0.0071	0.0102	50	6.0	3.6
MF-RG1100	16	100	11.00	18.70	0.0037	0.0062	0.0089	55	7.0	3.7

### Environmental Characteristics

Operating Temperature.....	-40 °C to +85 °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, Condition A..... No change
Moisture Sensitivity Level (MSL).....	Level 1
ESD Classification - HBM.....	Class 6

### Test Procedures And Requirements For Model MF-RG Series

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech.....	Verify dimensions and materials.....	Per MF physical description
Resistance.....	In still air @ 23 °C.....	Rmin ≤ R ≤ Rmax
Time to Trip.....	5 times Ihold, Vmax, 23 °C.....	T ≤ max. time to trip (seconds)
Hold Current.....	30 min. at Ihold.....	No trip
Trip Cycle Life.....	Vmax, Imax, 100 cycles.....	No arcing or burning
Trip Endurance.....	Vmax, 48 hours.....	No arcing or burning

### Thermal Derating Chart - Ihold (Amps)

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-RG300	4.4	4.0	3.6	3.0	2.6	2.4	2.1	1.9	1.4
MF-RG400	5.9	5.3	4.8	4.0	3.5	3.2	2.8	2.5	1.9
MF-RG500	7.3	6.6	6.0	5.0	4.4	4.0	3.6	3.1	2.4
MF-RG600	8.8	8.0	7.2	6.0	5.2	4.8	4.2	3.8	2.8
MF-RG650	10.3	9.3	8.4	7.0	6.2	5.6	5.0	4.4	3.3
MF-RG700	10.3	9.3	8.4	7.0	6.2	5.6	5.0	4.4	3.3
MF-RG800	11.7	10.7	9.6	8.0	6.9	6.4	5.6	5.1	3.7
MF-RG900	13.2	11.9	10.7	9.0	7.9	7.2	6.4	5.6	4.2
MF-RG1000	14.7	13.3	12.0	10.0	8.7	8.0	7.0	6.3	4.7
MF-RG1100	16.1	14.6	13.1	11.0	9.7	8.8	7.8	6.9	5.2

Itrip is approximately two times Ihold.



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

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

\*\* 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.

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# MF-RG Series - PTC Resettable Fuses

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## Product Dimensions

Model	A Max.	B Max.	C		D Min.	E Max.	F Nom.	Physical Characteristics	
			Nom.	Tol. ±				Style	Material
MF-RG300	$\frac{7.1}{(0.280)}$	$\frac{11.0}{(0.433)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG400	$\frac{9.9}{(0.350)}$	$\frac{12.8}{(0.504)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG500	$\frac{10.4}{(0.409)}$	$\frac{14.3}{(0.563)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG600	$\frac{10.7}{(0.421)}$	$\frac{17.1}{(0.673)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG650	$\frac{11.2}{(0.441)}$	$\frac{19.7}{(0.776)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG700	$\frac{11.2}{(0.441)}$	$\frac{19.7}{(0.776)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG800	$\frac{12.7}{(0.500)}$	$\frac{20.9}{(0.823)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG900	$\frac{14.0}{(0.551)}$	$\frac{21.7}{(0.854)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG1000	$\frac{16.5}{(0.650)}$	$\frac{21.7}{(0.854)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu
MF-RG1100	$\frac{17.5}{(0.689)}$	$\frac{26.0}{(1.024)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.299)}$	$\frac{3.0}{(0.118)}$	$\frac{0.81}{(0.032)}$	1	Sn/Cu

Packaging options:

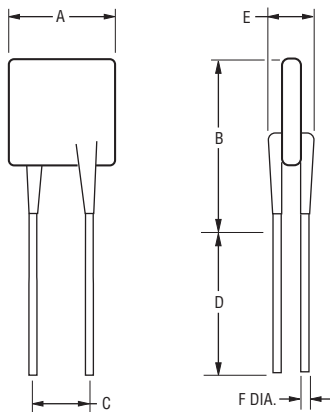
BULK: MF-RG300~MF-RG1100 = 500 pcs. per bag.

TAPE & REEL: MF-RG300~MF-RG500 = 3000 pcs. per reel; MF-RG600~MF-RG1100 = 1000 pcs. per reel.

AMMO-PACK: MF-RG300~MF-RG500 = 2000 pcs. per reel; MF-RG600~MF-RG1100 = 1000 pcs. per reel.

0.81 (20AWG)

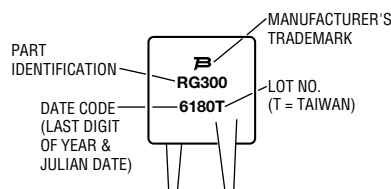
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$



Also available with kinked leads (see How to Order).

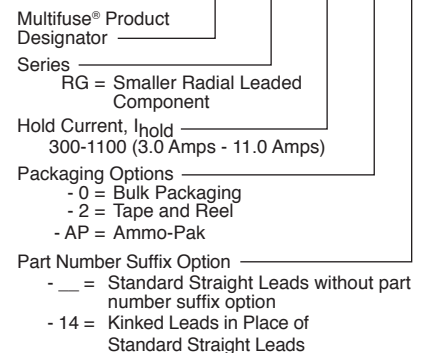
### Typical Part Marking

Represents total content. Layout may vary.



### How to Order

**MF - RG 300 - 0 - 14**



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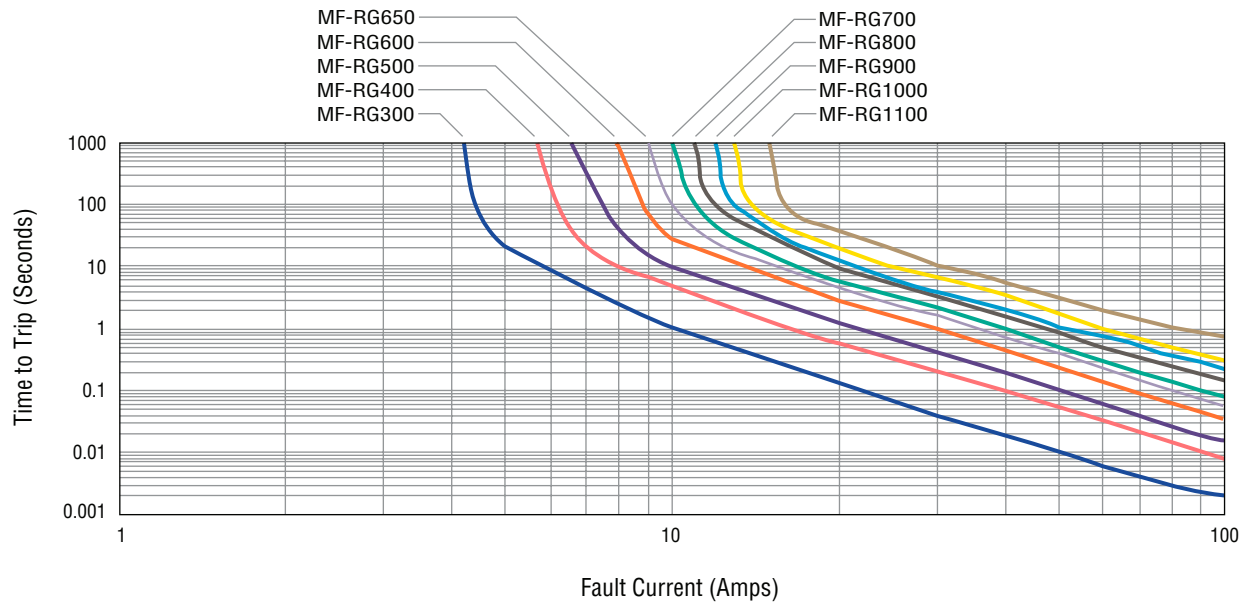
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# MF-RG Series - PTC Resettable Fuses

**BOURNS®**

Typical Time to Trip at 23 °C



**BOURNS®**

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**The Americas:** Tel: +1-951 781-5500 • Email: [americus@bourns.com](mailto:americus@bourns.com)

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# MF-RG Series Tape and Reel Specifications

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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		$W_4$	$\frac{11}{(.433)}$	min.
Hold down tape	$W_0$		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			$\frac{25.4}{(1.000)}$	$\frac{\pm 0.3}{(\pm .012)}$
Tape thickness	$t$	$t$	$\frac{0.9}{(.035)}$	max.
Tape thickness with splice		$t_1$	$\frac{2.0}{(.079)}$	max.
Splice sprocket hole alignment			$\frac{4.0}{(.157)}$	$\frac{\pm 0.2}{(\pm .008)}$
Body lateral deviation	$\Delta_h$	$\Delta_h$	0	$\frac{\pm 1}{(\pm .039)}$
Body tape plane deviation	$\Delta_p$	$\Delta_p$	0	$\frac{\pm 1.3}{(\pm .051)}$
Lead seating plane deviation	$\Delta P_1$	$P_1$	$\frac{3.81}{(.015)}$	$\frac{\pm 0.7}{(\pm .028)}$
Lead spacing	$F$	$F$	$\frac{5.08}{(.200)}$	$\frac{-0.2/+0.8}{(.008/+0.031)}$
Reel width	$w$	$w$	$\frac{56.0}{(2.20)}$	max.
Reel diameter	$d$	$a$	$\frac{370.0}{(14.57)}$	max.
Space between flanges less device			$\frac{4.75}{(.187)}$	$\frac{\pm 3.25}{(\pm .128)}$

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

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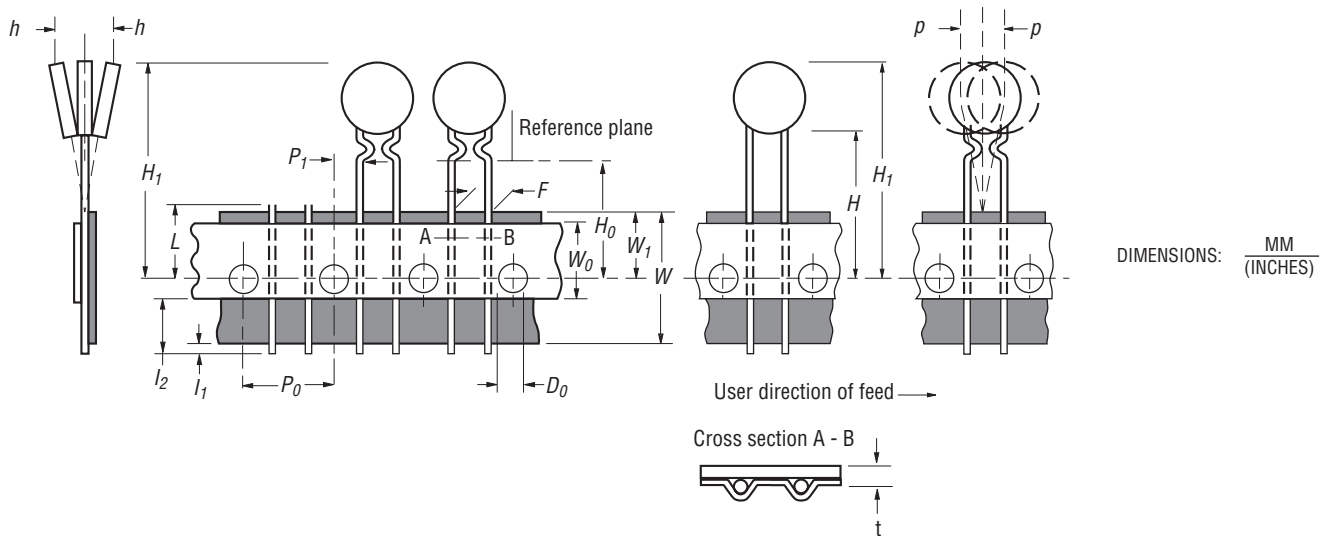
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# MF-RG Series Tape and Reel Specifications

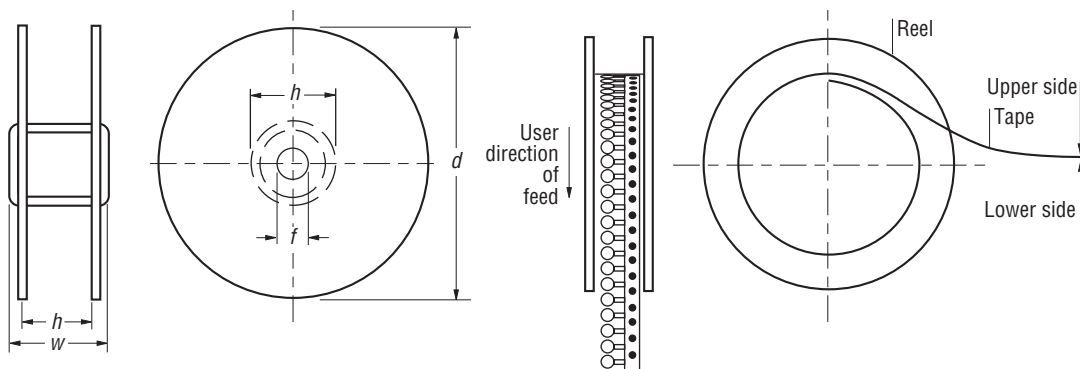
**BOURNS®**

Dimension Description	IEC Mark	EIA Mark	Dimensions	
			Dimensions	Tolerance
Arbor hole diameter	<i>f</i>	<i>c</i>	$\frac{26.0}{(1.02)}$	$\frac{\pm 12.0}{(\pm .472)}$
Core diameter	<i>h</i>	<i>n</i>	$\frac{80.0}{(3.15)}$	max.
Box			$\frac{64}{(2.50)}$ $\frac{372}{(14.6)}$ $\frac{372}{(14.6)}$	nom.
Consecutive missing places			3	max.
Empty places per reel			Not specified	

**Taped Component Dimensions - Figure 1**



**Reel Dimensions - Figure 2**



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