



## Features

- Radial leaded devices
- Smaller size for similar Ihold rating
- Faster tripping
- RoHS compliant\* and halogen free\*\*

## Applications

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

## MF-RG Series - PTC Resettable Fuses

### Electrical Characteristics

| Model    | V max.<br>Volts | I max.<br>Amps | I <sub>hold</sub> | I <sub>trip</sub> | Initial Resistance |       | 1 Hour (R <sub>1</sub> )<br>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-RG500 | 16              | 100            | 5.00              | 8.50              | 0.015              | 0.023 | 0.0340                                           | 25                | 2.0              | 2.60                      |

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

### 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.....                                  | $R_{min} \leq R \leq R_{max}$               |
| Time to Trip.....    | 5 times I <sub>hold</sub> , V <sub>max</sub> , 23 °C ..... | $T \leq \text{max. time to trip (seconds)}$ |
| Hold Current .....   | 30 min. at I <sub>hold</sub> .....                         | No trip                                     |
| Trip Cycle Life..... | V <sub>max</sub> , I <sub>max</sub> , 100 cycles.....      | No arcing or burning                        |
| Trip Endurance ..... | V <sub>max</sub> , 48 hours.....                           | No arcing or burning                        |

### Thermal Derating Chart - I<sub>hold</sub> (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-RG500 | 7.3                           | 6.6    | 6.0  | 5.0   | 4.4   | 4.0   | 3.6   | 3.1   | 2.4   |

I<sub>trip</sub> is approximately two times I<sub>hold</sub>.

\* 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.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

# MF-RG Series - PTC Resettable Fuses

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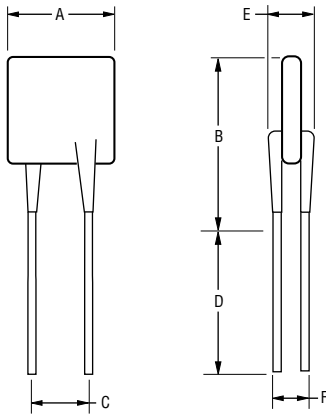
## Product Dimensions

| Model    | A<br>Max.              | B<br>Max.              | C                     |                       | D<br>Min.             | E<br>Max.             | F<br>Nom.              | Physical Characteristics |                        |          |
|----------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|--------------------------|------------------------|----------|
|          |                        |                        | Nom.                  | Tol. ±                |                       |                       |                        | Style                    | Lead Dia.              | 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                        | $\frac{0.81}{(0.032)}$ | 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                        | $\frac{0.81}{(0.032)}$ | Sn/Cu    |

Packaging options:

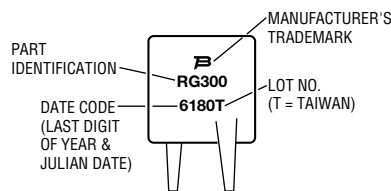
BULK: 500 pcs. per bag. TAPE & REEL: 3000 pcs. per reel. AMMO-PACK: 2000 pcs. per reel.

0.81 (20AWG) DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$



## Typical Part Marking

Represents total content. Layout may vary.



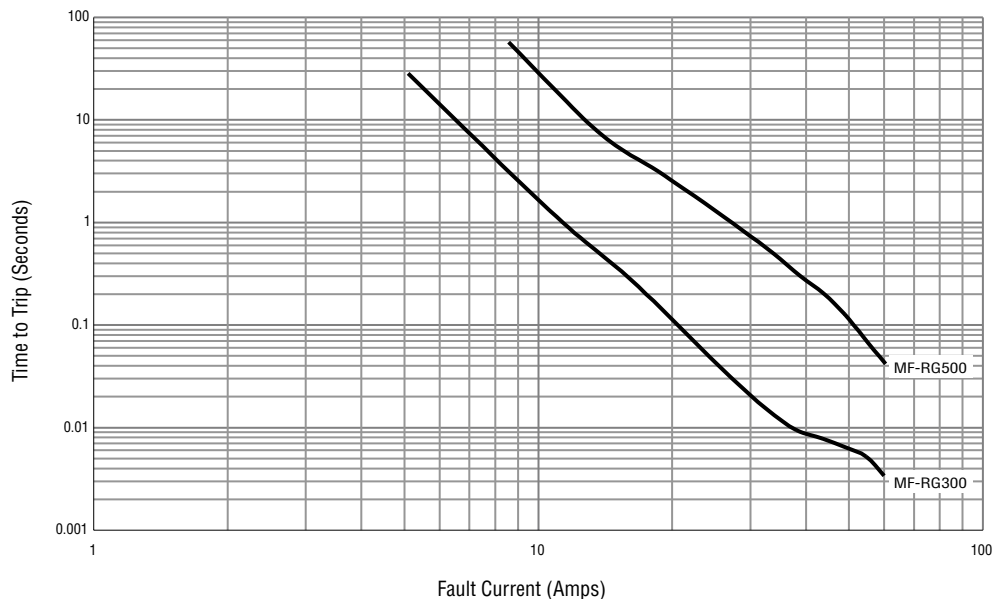
## How to Order

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

Multifuse® Product Designator \_\_\_\_\_  
 Series \_\_\_\_\_  
 RG = Smaller Radial Leaded Component  
 Hold Current, I<sub>hold</sub> \_\_\_\_\_  
 300-500 (3.0 Amps - 5.0 Amps)  
 Packaging Options \_\_\_\_\_  
 - 0 = Bulk Packaging  
 - 2 = Tape and Reel  
 - AP = Ammo-Pak  
 Part Number Suffix Option \_\_\_\_\_  
 - 14 = Kinked Leads in Place of Standard Straight Leads

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

## Typical Time to Trip at 23 °C



MF-RG SERIES, REV. K, 09/16

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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                                   | $I_1$        | $L_1$      | $\frac{1.0}{(.039)}$    | max.                               |
| Protrusion of cutout                              | $L$          | $L$        | $\frac{11}{(.433)}$     | max.                               |
| Protrusion beyond hold-down tape                  | $I_2$        | $I_2$      | 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                                      |              |            | $\frac{12.7}{(0.5)}$    |                                    |
| 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                 |              |            | $\frac{4.75}{(.187)}$   | $\frac{\pm 3.25}{(\pm .128)}$      |

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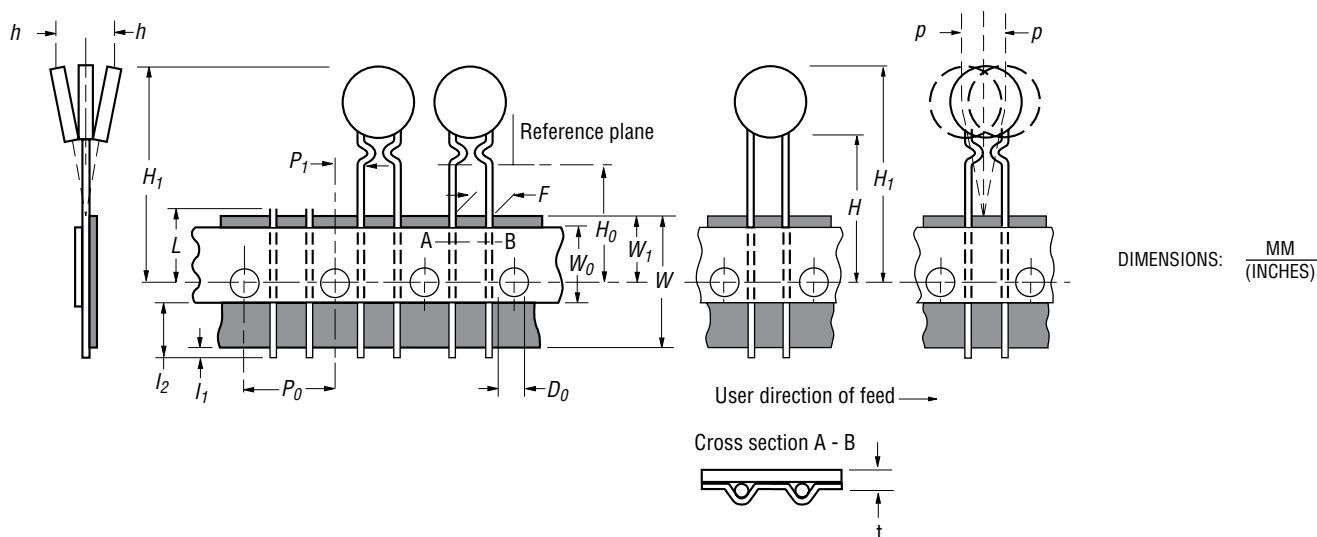
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

# MF-RG Series Tape and Reel Specifications

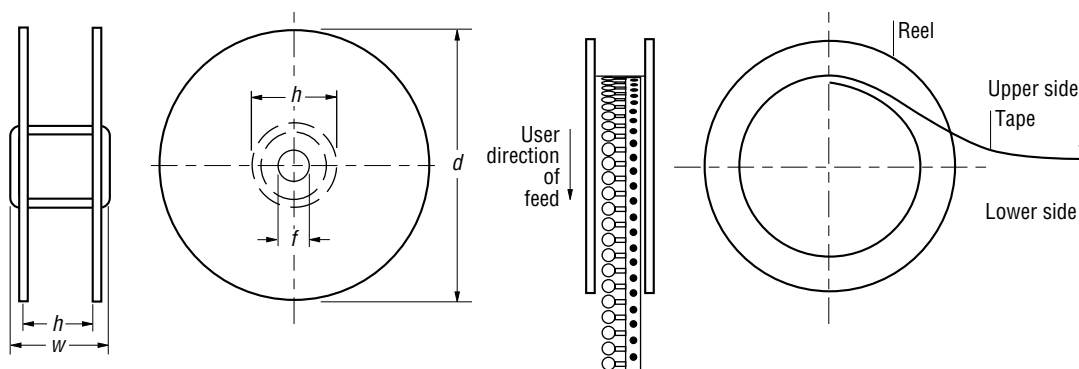
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| Dimension Description      | IEC Mark | EIA Mark | Dimensions                                                    |                               |
|----------------------------|----------|----------|---------------------------------------------------------------|-------------------------------|
|                            |          |          | Dimensions                                                    | Tolerance                     |
| Arbor hole diameter        | <i>f</i> | <i>c</i> | $\frac{26.0}{(1.02)}$                                         | $\frac{\pm 12.0}{(\pm .472)}$ |
| Core diameter              | <i>h</i> | <i>n</i> | $\frac{80.0}{(3.15)}$                                         | max.                          |
| Box                        |          |          | $\frac{62}{(2.44)}$ $\frac{355}{(14.0)}$ $\frac{345}{(13.6)}$ | 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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