



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



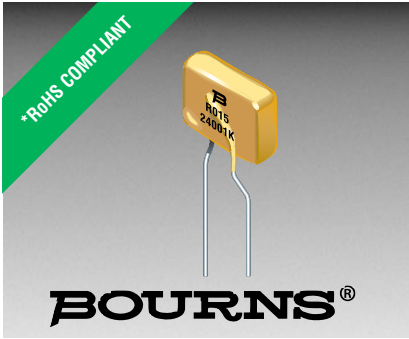
## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





## Features

- Radial Leaded Devices
- Maximum 600 VAC interrupt fault rating
- Available in matched resistance "bins"
- Ability to withstand lightning surges
- RoHS compliant\*
- Agency recognition:

## Applications

Customer Premise Equipment (CPE):

- Modems
- Cable modems
- Fax machines
- POS equipment
- Security equipment
- Set top boxes

# MF-R/600 Series - Telecom PTC Resettable Fuses

### Electrical Characteristics

| Model         | Max. Operating Voltage (VDC) | Max. Interrupt Ratings |      | Hold Current<br>Amps at 23 °C | Trip Current<br>Amps at 23 °C | Initial Resistance |               | One Hour Post-Trip Resistance<br>Ohms at 23 °C | Max. Time To Trip @ 1 A<br>Seconds at 23 °C | Tripped Power Dissipation<br>Watts at 23 °C |
|---------------|------------------------------|------------------------|------|-------------------------------|-------------------------------|--------------------|---------------|------------------------------------------------|---------------------------------------------|---------------------------------------------|
|               |                              | Volts                  | Amps |                               |                               | Ohms at 23 °C      | Ohms at 23 °C |                                                |                                             |                                             |
|               |                              | Max.                   | Max. | Min.                          | Max.                          | Max.               |               |                                                |                                             |                                             |
| MF-R015/600   | 250                          | 600                    | 3    | 0.15                          | 0.30                          | 6.0                | 12.0          | 22.0                                           | 5.0                                         | 1.0                                         |
| MF-R015/600-A | 250                          | 600                    | 3    | 0.15                          | 0.30                          | 7.0                | 10.0          | 20.0                                           | 5.0                                         | 1.0                                         |
| MF-R015/600-B | 250                          | 600                    | 3    | 0.15                          | 0.30                          | 9.0                | 12.0          | 22.0                                           | 5.0                                         | 1.0                                         |
| MF-R015/600-F | 250                          | 600                    | 3    | 0.15                          | 0.30                          | 7.0                | 12.0          | 22.0                                           | 5.0                                         | 1.0                                         |
| MF-R016/600   | 250                          | 600                    | 3    | 0.16                          | 0.32                          | 4.0                | 10.0          | 18.0                                           | 7.0                                         | 1.0                                         |
| MF-R016/600-A | 250                          | 600                    | 3    | 0.16                          | 0.32                          | 4.0                | 7.0           | 16.0                                           | 7.0                                         | 1.0                                         |
| MF-R016/600-1 | 250                          | 600                    | 3    | 0.16                          | 0.32                          | 4.0                | 8.0           | 17.0                                           | 7.0                                         | 1.0                                         |

### Environmental Characteristics

|                                                           |                                                                    |
|-----------------------------------------------------------|--------------------------------------------------------------------|
| Operating/Storage Temperature .....                       | -40 °C to +85 °C                                                   |
| Maximum Device Surface Temperature in Tripped State ..... | 125 °C                                                             |
| Passive Aging .....                                       | +60 °C, 1000 hours..... ±15 % typical resistance change            |
| Humidity Aging.....                                       | +60 °C, 90 % R.H. 1000 hours ..... ±15 % typical resistance change |
| Solvent Resistance.....                                   | MIL-STD-202, Method 215B..... No change                            |
| Lead Solderability.....                                   | ANSI/J-STD-002                                                     |
| Flammability .....                                        | IEC 695-2-2 ..... No flame for 60 secs.                            |
| Vibration .....                                           | MIL-STD-883C, Method 2007.1, Condition A ..... No change           |

### Test Procedures And Requirements For Model MF-R/600 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.....    | 1 A, $V_{max}$ , 23 °C.....          | $T \leq \text{max. time to trip (seconds)}$ |
| Hold Current.....    | 30 min. at Ihold.....                | No trip                                     |
| Trip Cycle Life..... | $V_{max}$ , Itrip, 100 cycles.....   | No arcing or burning                        |
| Trip Endurance.....  | $V_{max}$ , 24 hours.....            | No arcing or burning                        |

|                      |            |
|----------------------|------------|
| UL File Number ..... | E307915    |
| TÜV File Number..... | R 50256529 |

### 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-R015/600 | 0.233                         | 0.206  | 0.178 | 0.150 | 0.124 | 0.110 | 0.096 | 0.083 | 0.062 |
| MF-R016/600 | 0.249                         | 0.219  | 0.190 | 0.160 | 0.132 | 0.117 | 0.103 | 0.088 | 0.066 |

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. 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.

## Additional Features

- Ability to withstand AC power cross conditions

# MF-R/600 Series - Telecom PTC Resettable Fuses

# BOURNS®

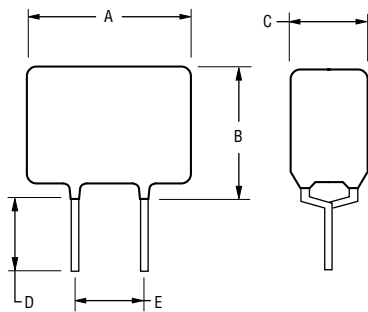
### Product Dimensions

| Model       | A<br>Max.              | B<br>Max.              | C<br>Max.             | D<br>Min.             | E<br>Nom.             | Physical Characteristics |                        |          |
|-------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|--------------------------|------------------------|----------|
|             |                        |                        |                       |                       |                       | Style                    | Lead Dia.              | Material |
| MF-R015/600 | $\frac{13.5}{(0.531)}$ | $\frac{12.6}{(0.496)}$ | $\frac{6.0}{(0.236)}$ | $\frac{4.7}{(0.185)}$ | $\frac{5.0}{(0.197)}$ | 1                        | $\frac{0.65}{(0.026)}$ | Sn/Cu    |
| MF-R016/600 | $\frac{16.0}{(0.629)}$ | $\frac{12.6}{(0.496)}$ | $\frac{6.0}{(0.236)}$ | $\frac{4.7}{(0.185)}$ | $\frac{5.0}{(0.197)}$ | 1                        | $\frac{0.65}{(0.026)}$ | Sn/Cu    |

Packaging options: BULK: 500 pcs. per bag.  
Longer lead lengths available upon request.

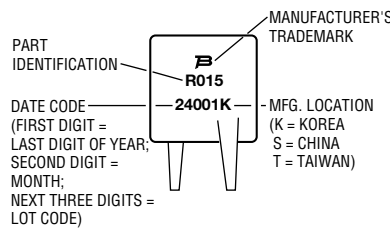
TAPE & REEL: 600 pcs. per reel.

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



### Typical Part Marking

Represents total content. Layout may vary.



### How to Order

**MF - R 015/600 - A 05 - 2**

Multifuse®  
Product  
Designator

Series  
R = Radial Leaded  
Component

Hold Current, I<sub>hold</sub>  
015-016 (0.15 - 0.16 Amps)

Max. Interrupt Voltage, V

Resistance Range

- Narrow resistance ranges are available on all models as defined in Electrical Characteristics.
- Blank = N/A

Resistance Bins

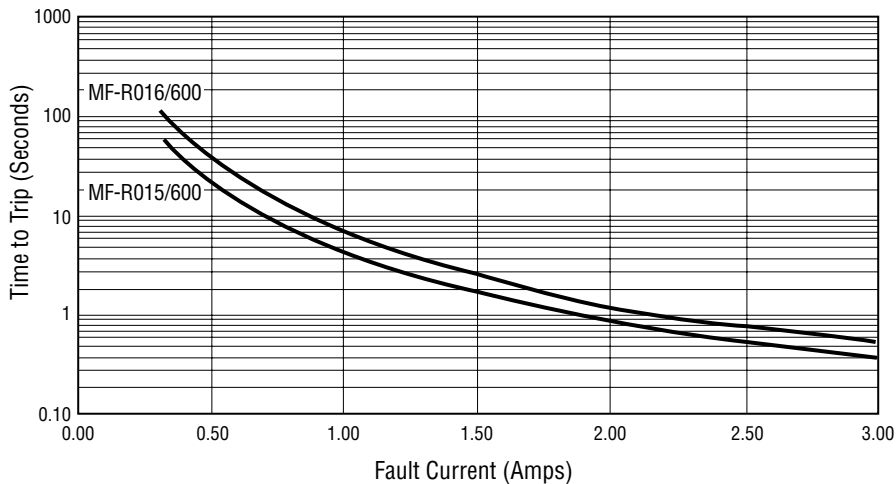
- Narrow resistance ranges can be separated into packages where each device is within 0.5 ohms of each other.
- Blank = N/A

Packaging Options

- 0 = Bulk Packaging
- 2 = Tape and Reel\*

\*Packaged per EIA486-B

### Typical Time to Trip at 23 °C



### Resistance Options

| Model         | R <sub>min.</sub> | R <sub>max.</sub> | R1 <sub>Max.</sub> | Bin |
|---------------|-------------------|-------------------|--------------------|-----|
| MF-R015/600   | 6.0               | 12.0              | 22.0               | N/A |
| MF-R015/600-A | 7.0               | 10.0              | 20.0               | 0.5 |
| MF-R015/600-B | 9.0               | 12.0              | 22.0               | 0.5 |
| MF-R015/600-F | 7.0               | 12.0              | 22.0               | 0.5 |
| MF-R016/600   | 4.0               | 10.0              | 18.0               | N/A |
| MF-R016/600-A | 4.0               | 7.0               | 16.0               | 0.5 |
| MF-R016/600-1 | 4.0               | 8.0               | 17.0               | 0.5 |

MF-R/600, REV. M, 04/17

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-R, MF-R/90, MF-R/600, & MF-RX, & MF-RX/72 Series Tape and Reel Specifications

**BOURNS®**

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                                                                                 | $W_0$      | $W_4$      | $\frac{11}{(.433)}$    | 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-R005–MF-R160, MF-R/90,<br>MF-RX020/72–MF-RX030/72                                   |            |            | $\frac{12.7}{(0.5)}$   | $\frac{\pm 0.3}{(\pm .012)}$       |
| Device pitch: MF-R185–MF-R400, MF-R/600, MF-RX110–MF-RX375<br>MF-RX040/72–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-R010–MF-R160,<br>MF-RX110/72–MF-RX185/72                              |            | $t_1$      | $\frac{1.5}{(.059)}$   | max.                               |
| Tape thickness with splice: MF-R250–MF-R1100,<br>MF-RX110–MF-RX375, MF-R/90, 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                                                                               | $\Delta_h$ | $\Delta_h$ | 0                      | $\frac{\pm 1.0}{(\pm .039)}$       |
| Body tape plane deviation                                                                            | $\Delta_p$ | $\Delta_p$ | 0                      | $\frac{\pm 1.3}{(\pm .051)}$       |

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

Specifications are subject to change without notice.

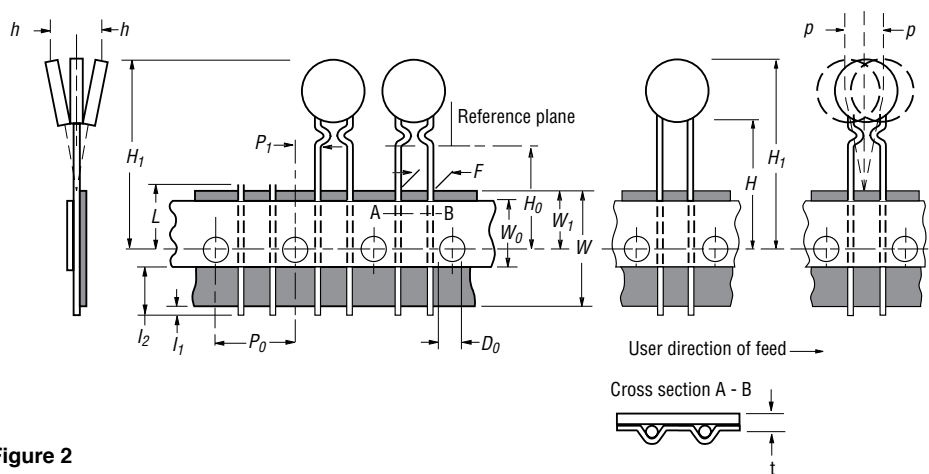
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

# MF-R, MF-R/90, MF-R/600, MF-RX, & MF-RX/72 Series Tape and Reel Specifications

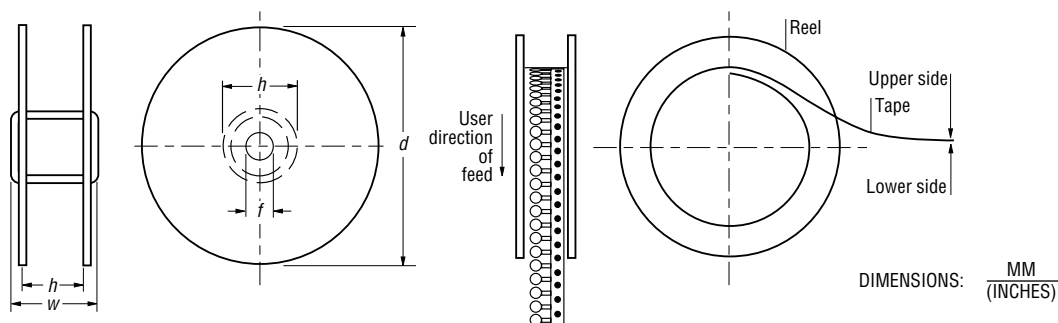
# BOURNS®

| Dimension Description                                  | IEC Mark             | EIA Mark             | Dimensions                                                     |                               |
|--------------------------------------------------------|----------------------|----------------------|----------------------------------------------------------------|-------------------------------|
|                                                        |                      |                      | Dimensions                                                     | Tolerance                     |
| Lead spacing: MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 | <i>F</i>             | <i>F</i>             | $\frac{5.08}{(0.2)}$                                           | $\frac{\pm 0.2}{(\pm 0.008)}$ |
| Reel width                                             | <i>w</i>             | <i>W<sub>2</sub></i> | $\frac{56.0}{(2.205)}$                                         | max.                          |
| Reel diameter                                          | <i>d</i>             | <i>a</i>             | $\frac{370.0}{(14.57)}$                                        | max.                          |
| Space between flanges less device                      | <i>W<sub>1</sub></i> | <i>h</i>             | $\frac{4.75}{(.187)}$                                          | $\frac{\pm 3.25}{(\pm .128)}$ |
| Arbor hole diameter                                    | <i>f</i>             | <i>c</i>             | $\frac{26.0}{(1.024)}$                                         | $\frac{\pm 12.0}{(\pm .472)}$ |
| Core diameter: MF-R, MF-RX, MF-R/90                    | <i>h</i>             | <i>n</i>             | $\frac{80}{(3.15)}$                                            | max.                          |
| Core diameter: MF-R/600                                | <i>h</i>             | <i>n</i>             | $\frac{91}{(3.58)}$                                            | max.                          |
| Box: MF-R, MF-RX, MF-R/90                              |                      |                      | $\frac{62}{(2.44)}$ $\frac{355}{(14.0)}$ $\frac{345}{(13.6)}$  | nom.                          |
| Box: MF-R/600                                          |                      |                      | $\frac{64}{(2.52)}$ $\frac{372}{(14.6)}$ $\frac{362}{(14.25)}$ | max.                          |
| Consecutive missing places: MF-R, MF-RX, MF-R/90       |                      |                      | 3                                                              | max.                          |
| Consecutive missing places: MF-R/600                   |                      |                      | none                                                           |                               |
| Empty places per reel: MF-R, MF-RX, MF-R/90            |                      |                      | Not specified                                                  |                               |
| Empty places per reel: MF-R/600                        |                      |                      | 0.1 %                                                          |                               |

**Taped Component Dimensions -  
Figure 1**



**Reel Dimensions - Figure 2**



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.