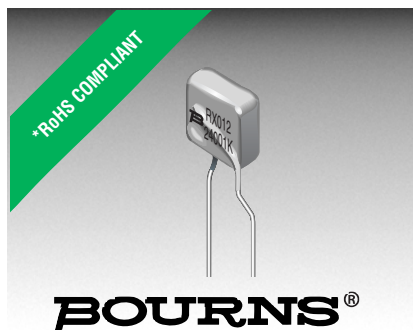




## Features

- Radial leaded devices
- Fast tripping resettable PTCs
- Binned and sorted narrow resistance ranges available
- RoHS compliant\*
- Agency recognition:   

## Applications

- Customer Premise Equipment (CPE)
- Central Office / Telecom Centers (CO)
- Access equipment

## MF-RX/250 Series - Telecom PTC Resettable Fuses

### Electrical Characteristics

| Model          | Max. Operating Voltage (Vdc) | Max. Interrupt Ratings |          | Hold Current<br>Amps at 23 °C | Initial Resistance |               | One Hour Post-Trip Resistance<br>Ohms at 23 °C |
|----------------|------------------------------|------------------------|----------|-------------------------------|--------------------|---------------|------------------------------------------------|
|                |                              | Volts (Vrms)           | Amps (A) |                               | Ohms at 23 °C      | Ohms at 23 °C |                                                |
|                |                              | Max.                   | Max.     |                               | Min.               | Max.          |                                                |
| MF-RX012/250   | 60                           | 250                    | 3.0      | 0.12                          | 4.0                | 8.0           | 16.0                                           |
| MF-RX012/250-A | 60                           | 250                    | 3.0      | 0.12                          | 7.0                | 9.0           | 16.0                                           |
| MF-RX012/250-C | 60                           | 250                    | 3.0      | 0.12                          | 5.5                | 7.5           | 14.0                                           |
| MF-RX012/250-F | 60                           | 250                    | 3.0      | 0.12                          | 6.0                | 10.5          | 16.0                                           |
| MF-RX012/250-1 | 60                           | 250                    | 3.0      | 0.12                          | 6.0                | 9.0           | 16.0                                           |
| MF-RX012/250-2 | 60                           | 250                    | 3.0      | 0.12                          | 8.0                | 10.5          | 16.0                                           |
| MF-RX012/250-T | 60                           | 250                    | 3.0      | 0.12                          | 7.0                | 12.0          | 16.0                                           |
| MF-RX012/250U  | 60                           | 250                    | 3.0      | 0.12                          | 6.0                | 10.0          | 16.0                                           |
| MF-RX014/250   | 60                           | 250                    | 3.0      | 0.145                         | 3.0                | 6.0           | 14.0                                           |
| MF-RX014/250-A | 60                           | 250                    | 3.0      | 0.145                         | 3.0                | 5.5           | 12.0                                           |
| MF-RX014/250-B | 60                           | 250                    | 3.0      | 0.145                         | 4.5                | 6.0           | 14.0                                           |
| MF-RX014/250-T | 60                           | 250                    | 3.0      | 0.145                         | 5.4                | 7.5           | 14.0                                           |
| MF-RX014/250U  | 60                           | 250                    | 3.0      | 0.145                         | 3.5                | 6.5           | 12.0                                           |
| MF-RX018/250   | 60                           | 250                    | 10.0     | 0.18                          | 0.8                | 2.0           | 4.0                                            |
| MF-RX018/250U  | 60                           | 250                    | 10.0     | 0.18                          | 0.8                | 2.0           | 4.0                                            |

\*"U" suffix indicates product without insulation coating.

### Environmental Characteristics

|                                                              |                                                                               |
|--------------------------------------------------------------|-------------------------------------------------------------------------------|
| Operating/Storage Temperature.....                           | -40 °C to +85 °C                                                              |
| Maximum Device Surface Temperature<br>in Tripped State ..... | 125 °C                                                                        |
| Passive Aging .....                                          | +85 °C, 1000 hours..... ±15 % typical resistance change                       |
| .....                                                        | +60 °C, 1000 hours..... ±15 % typical resistance change                       |
| Humidity Aging .....                                         | +85 °C, 85 % R.H. 500 hours..... ±15 % typical resistance change              |
| Thermal Shock .....                                          | MIL-STD-202F, Method 107G, ..... ±10 % typical resistance change              |
| .....                                                        | +125 °C to -55 °C, 10 times ..... ±15 % typical resistance change             |
| Solvent Resistance.....                                      | MIL-STD-202, Method 215B ..... No change                                      |
| Lead Solderability .....                                     | ANSI/J-STD-002..... >95 % coverage                                            |
| Flammability .....                                           | IEC 695-2-2 ..... No Flame for 60 secs.                                       |
| Vibration .....                                              | MIL-STD-883C, Method 2007.1, Condition A ..... ±5 % typical resistance change |

### Test Procedures And Requirements For Model MF-RX/250 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 $I_{hold}$ , $V_{max}$ , 23 °C ..... | $T \leq \text{max. time to trip (seconds)}$ |
| 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 .....  | E 174545S                                    |                                             |
| CSA File Number ..... | CA 110338                                    |                                             |
| TÜV File Number ..... | R2057213                                     |                                             |

\*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

## Additional Features

- Ability to withstand AC power cross conditions
- Assists equipment with meeting ITU-T K.20/K.21/K.45
- Assists equipment with meeting Telcordia GR-1089-C Intrabuilding

## MF-RX/250 Series - Telecom PTC Resettable Fuses

**BOURNS®**

**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-RX012/250 | 0.186                         | 0.165  | 0.143 | 0.120 | 0.099 | 0.088 | 0.077 | 0.066 | 0.050 |
| MF-RX014/250 | 0.225                         | 0.199  | 0.172 | 0.145 | 0.119 | 0.106 | 0.093 | 0.080 | 0.060 |
| MF-RX018/250 | 0.269                         | 0.240  | 0.211 | 0.180 | 0.153 | 0.138 | 0.123 | 0.109 | 0.087 |

$I_{trip}$  is approximately two times  $I_{hold}$ .

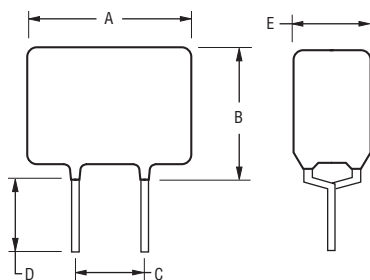
**Product Dimensions**

| Model         | A<br>Max.       | B<br>Max.       | C<br>Nom.                    | D<br>Min.      | E<br>Max.      | Physical Characteristics |       |          |
|---------------|-----------------|-----------------|------------------------------|----------------|----------------|--------------------------|-------|----------|
|               |                 |                 |                              |                |                | Lead Dia.                | Style | Material |
| MF-RX012/250  | 6.5<br>(0.256)  | 11.0<br>(0.433) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 4.6<br>(0.181) | 0.65<br>(0.026)          | 1     | Sn/Cu    |
| MF-RX012/250U | 6.0<br>(0.236)  | 10.0<br>(0.394) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 3.8<br>(0.150) | 0.65<br>(0.026)          | 2     | Sn/Cu    |
| MF-RX014/250  | 6.5<br>(0.256)  | 11.0<br>(0.433) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 4.6<br>(0.181) | 0.65<br>(0.026)          | 1     | Sn/Cu    |
| MF-RX014/250U | 6.0<br>(0.236)  | 10.0<br>(0.394) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 3.8<br>(0.150) | 0.65<br>(0.026)          | 2     | Sn/Cu    |
| MF-RX018/250  | 11.0<br>(0.433) | 13.6<br>(0.535) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 4.6<br>(0.181) | 0.65<br>(0.026)          | 1     | Sn/Cu    |
| MF-RX018/250U | 10.4<br>(0.409) | 12.6<br>(0.496) | 5.1 ± 0.7<br>(0.201 ± 0.028) | 4.7<br>(0.185) | 3.8<br>(0.150) | 0.65<br>(0.026)          | 2     | Sn/Cu    |

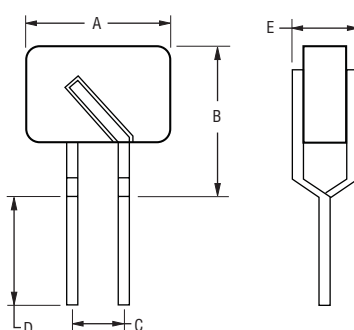
Packaging options: BULK: 500 pcs. per bag. TAPE & REEL: 1500 pcs. per reel (available binned).

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

**Style 1**

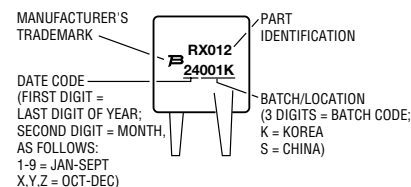


**Style 2**



**Typical Part Marking**

Represents total content. Layout may vary.



NOTE: UNCOATED PARTS HAVE NO PART MARKING. MARKING IS ON LABEL ONLY.

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

# MF-RX/250 Series - Telecom PTC Resettable Fuses

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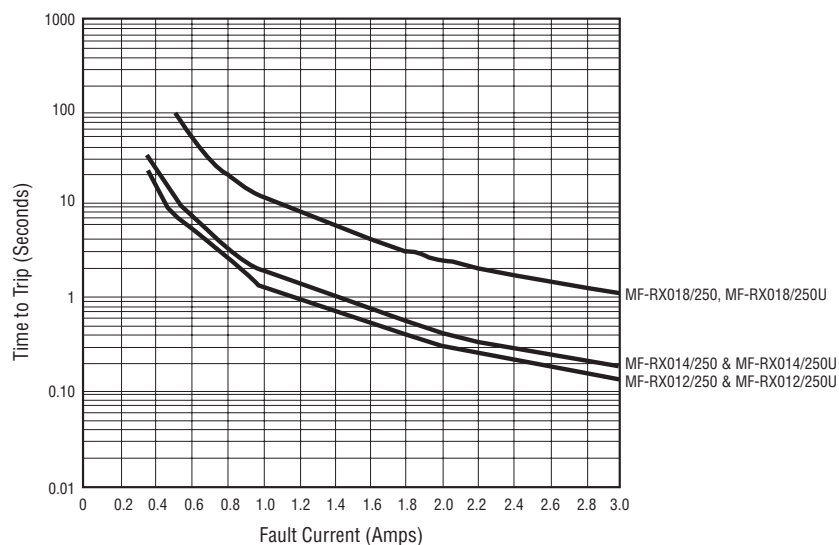
## How to Order

**MF - RX 012/250 U - A 5 - 2**

Multifuse®  
Product Designator  
Series  
RX = Radial Leaded Component  
Hold Current,  $I_{hold}$   
008-018 (0.08-0.18 Amps)  
Max. Interrupt Voltage, V  
250 (250 Volts)  
Telecom Options  
U = Uncoated (radial parts only)  
Resistance Sorted  
Narrow resistance ranges - see Resistance Options chart  
Resistance Bins of 0.5 ohms  
05 = 0.5 ohm binned parts (epoxy coated)  
5 = 0.5 ohm binned parts (uncoated)  
Packaging Options  
- 0 = Bulk Packaging  
- 2 = Tape and Reel\* (available with binned option)

\*Packaged per EIA486-B

## Typical Time to Trip at 23 °C



## Resistance Options

| Model            | Initial Resistance Values |      | R1max         | Bin |
|------------------|---------------------------|------|---------------|-----|
|                  | Ohms @ 23 ° C             |      | Ohms @ 23 ° C |     |
|                  | Min.                      | Max. | Max.          |     |
| MF-RX012/250     | 4.0                       | 8.0  | 16.0          | 0.5 |
| MF-RX012/250-A05 | 7.0                       | 9.0  | 16.0          | 0.5 |
| MF-RX012/250-C05 | 5.5                       | 7.5  | 14.0          | 0.5 |
| MF-RX012/250-F05 | 6.0                       | 10.5 | 16.0          | 0.5 |
| MF-RX012/250-105 | 6.0                       | 9.0  | 16.0          | 0.5 |
| MF-RX012/250-205 | 8.0                       | 10.5 | 16.0          | 0.5 |
| MF-RX012/250-T05 | 7.0                       | 12.0 | 16.0          | 0.5 |
| MF-RX012/250U    | 6.0                       | 10.0 | 16.0          | 0.5 |
| MF-RX014/250     | 3.0                       | 6.0  | 14.0          | 0.5 |
| MF-RX014/250-A05 | 3.0                       | 5.5  | 12.0          | 0.5 |
| MF-RX014/250-B05 | 4.5                       | 6.0  | 14.0          | 0.5 |
| MF-RX014/250U    | 3.5                       | 6.5  | 12.0          | 0.5 |

MF-RX/250, REV. J, 05/11

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

# MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 & MF-RX/250 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                                                                                   | $W$        | $W$        | $\frac{18}{(.709)}$    | $\frac{-0.5/+1.0}{(-0.02/+0.039)}$ |
| 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                                                                                      | $I_1$      | $L_1$      | $\frac{1.0}{(.039)}$   | 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: MF-R005–MF-R160, MF-R/90,<br>MF-RX110/72–MF-RX185/72                                   |            |            | $\frac{12.7}{(0.5)}$   | $\frac{\pm 0.3}{(\pm .012)}$       |
| Device pitch: MF-R185–MF-R400, MF-RX110–MF-RX375<br>MF-R/600, 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-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                      | $\frac{\pm 1.3}{(\pm .051)}$       |

Specifications are subject to change without notice.  
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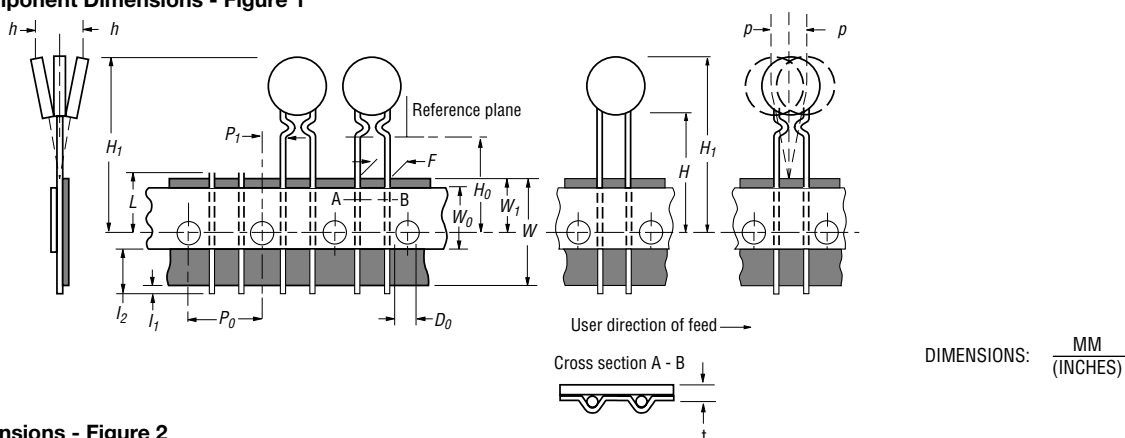
DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

# MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 & MF-RX/250 Series Tape and Reel Specifications

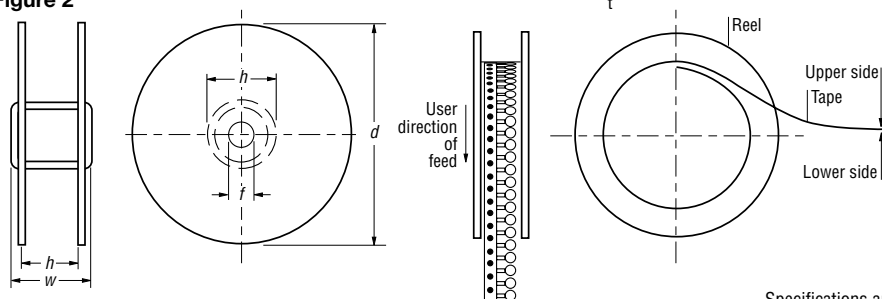
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| Dimension Description                                  | IEC Mark              | EIA Mark              | Dimensions                                                     |                                    |
|--------------------------------------------------------|-----------------------|-----------------------|----------------------------------------------------------------|------------------------------------|
|                                                        |                       |                       | Dimensions                                                     | Tolerance                          |
| Lead spacing: MF-R, MF-R/90, MF-R/600, MF-RX, MF-RX/72 | <i>F</i>              | <i>F</i>              | $\frac{5.08}{(0.2)}$                                           | $\frac{\pm 0.2}{(\pm 0.008)}$      |
| Lead spacing: MF-RX/250                                | <i>F</i>              | <i>F</i>              | $\frac{5.08}{(0.2)}$                                           | $\frac{-0.5/+0.6}{(-.020/+0.024)}$ |
| Reel width                                             | <i>w</i>              | <i>W</i> <sub>2</sub> | $\frac{56.0}{(2.205)}$                                         | max.                               |
| Reel diameter                                          | <i>d</i>              | <i>a</i>              | $\frac{370.0}{(14.57)}$                                        | max.                               |
| Space between flanges less device                      | <i>W</i> <sub>1</sub> | <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-RX/250, MF-R/600                     | <i>h</i>              | <i>n</i>              | $\frac{91}{(3.58)}$                                            | max.                               |
| Box: MF-R, MF-RX, MF-R/90                              |                       |                       | $\frac{56}{(2.2)}$ $\frac{372}{(14.6)}$ $\frac{372}{(14.6)}$   | max.                               |
| Box: MF-RX/250                                         |                       |                       | $\frac{67}{(2.64)}$ $\frac{372}{(14.6)}$ $\frac{362}{(14.25)}$ | max.                               |
| 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-RX/250, MF-R/600        |                       |                       | none                                                           |                                    |
| Empty places per reel: MF-R, MF-RX, MF-R/90            |                       |                       | Not specified                                                  |                                    |
| Empty places per reel: MF-RX/250, MF-R/600             |                       |                       | 0.1 %                                                          |                                    |

**Taped Component Dimensions - Figure 1**



**Reel Dimensions - Figure 2**



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



**Стандарт  
Электрон  
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

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**Наши контакты:**

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