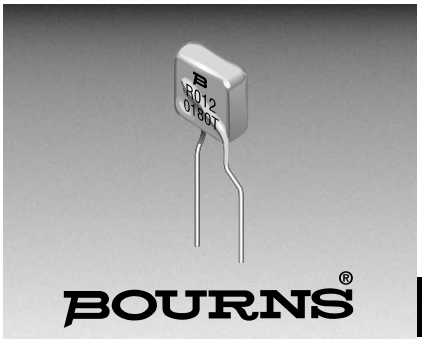


Features

- Radial Leaded Devices
- High voltage surge capabilities
- Binned and sorted resistance ranges
- Assists in meeting ITU K.20/K.21 specifications
- Withstands lightning power induction
- Agency recognition:

Applications

Used as a secondary overcurrent protection device in:

- Customer Premise Equipment (CPE)
- Central Office (CO)
- Subscriber Line Interface Cards (SLIC)

MF-R/250 Series - Telecom PTC Resettable Fuses

Electrical Characteristics

Model	Max. Operating Voltage	Max. Interrupt Ratings		Hold Current	Initial Resistance		One Hour Post-Trip Resistance
	Volts	Volts (V)	Amps (A)	Amps at 23°C	Ohms at 23°C	Ohms at 23°C	Ohms at 23°C
		Max.	Max.	I_H	Min.	Max.	
MF-R008/250U	60	250	3.0	0.08	14.0	20.0	33.0
MF-R008/250	60	250	3.0	0.08	15.0	22.0	33.0
MF-R011/250U	60	250	3.0	0.11	5.0	9.0	16.0
MF-R012/250	60	250	3.0	0.12	4.0	8.0	16.0
MF-R012/250U	60	250	3.0	0.12	6.0	10.0	16.0
MF-R014/250	60	250	3.0	0.14	3.0	6.0	12.0
MF-R014/250U	60	250	3.0	0.14	3.5	6.5	12.0

"U" suffix indicates product without insulation coating.

Environmental Characteristics

Operating/Storage Temperature	-45°C to +85°C	
Maximum Device Surface Temperature in Tripped State	125°C	
Passive Aging	+85°C, 1000 hours	±2% typical resistance change
	+60°C, 1000 hours	±3% typical resistance change
Humidity Aging	+85°C, 85% R.H. 500 hours	±3% 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 Solerability	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/250 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

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

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-R008/250	0.124	0.110	0.095	0.080	0.066	0.059	0.051	0.044	0.033
MF-R011/250U	0.171	0.151	0.131	0.110	0.091	0.081	0.071	0.061	0.046
MF-R012/250	0.186	0.165	0.143	0.120	0.099	0.088	0.077	0.066	0.050
MF-R014/250	0.255	0.199	0.172	0.145	0.119	0.106	0.093	0.080	0.060
MF-R018/250	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}.

Additional Features

■ Patents pending

MF-R/250 Series - Telecom PTC Resettable Fuses

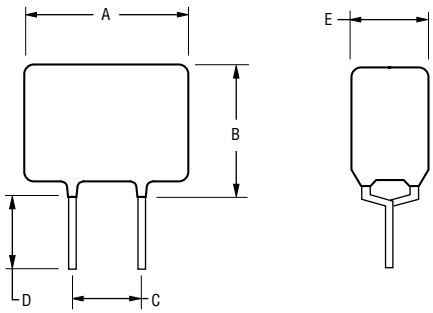
BOURNS®

Product Dimensions

Model	A Max.	B Max.	C Max.	D Nom.	E Nom.	Physical Characteristics		
						Style	Lead Dia.	Material
MF-R008/250U	4.8 (0.189)	9.1 (0.358)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu
MF-R008/250	5.3 (0.209)	9.3 (0.366)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu
MF-R011/250U	5.3 (0.209)	9.4 (0.370)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu
MF-R012/250	6.5 (0.256)	11.0 (0.433)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu
MF-R012/250U	6.0 (0.236)	10.0 (0.394)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu
MF-R014/250	6.5 (0.256)	11.0 (0.433)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu
MF-R014/250U	6.0 (0.236)	10.0 (0.394)	5.1 ± 0.7 (0.201 ± 0.028)	4.7 (0.185)	5.0 (0.197)	1	0.65 (0.026)	Sn/Cu

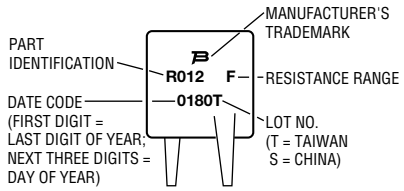
Packaging options:
BULK: 500 pcs. per bag. TAPE & REEL: 1500 pcs. per reel.

DIMENSIONS = MM (INCHES)



Typical Part Marking

Represents total content. Layout may vary.



How to Order

MF - R 012/250 - __ __- __

Multifuse® Product Designator

Series
- R = Radial Leaded Component
- SM = Surface Mount Component

Hold Current, Ihold
008-018 (0.08 - 0.18 Amps)

Max. Interrupt Voltage, V

Resistance Range
Narrow resistance ranges are available on all models; consult Bourns for details.

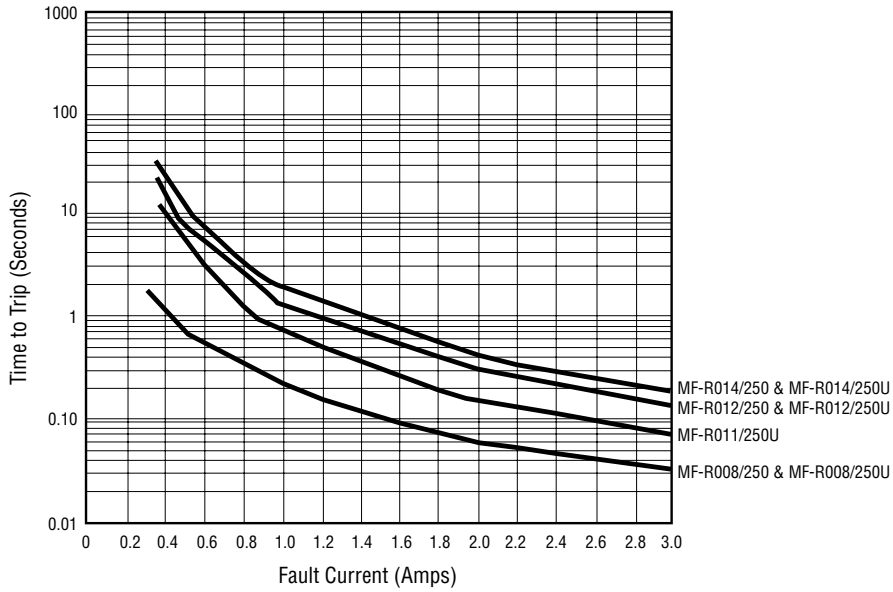
Resistance Sorted in Bins
- 05 = 0.5 Ω

Packaging Options
- __ = Bulk Packaging
- 2 = Tape and Reel*

*Packaged per EIA486-B

NOTE: All parts are also available "binned". All parts within a package will be within 0.5Ω of each other within the initial resistance range.

Typical Time to Trip at 23°C



MF-R, MF-RX & MF-R/250 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*	18 (.709)	-0.5/+1.0 (-0.02/+.039)
Hold down tape width		*W4*	5 (.197)	min.
Hold down tape	*W0*		No protrusion	
Top distance between tape edges	*W2*	*W6*	3 (.118)	max.
Sprocket hole position	*W1*	*W5*	9 (.354)	-0.5/+0.75 (-0.02/+0.03)
Sprocket hole diameter	*D0*	*D0*	4 (.157)	±0.2 (±.0078)
Abscissa to plane (straight lead)	*H*	*H*	18.5 (.728)	±3.0 (±.118)
Abscissa to plane (kinked lead)	*H0*	*H0*	16 (.63)	±0.5 (±.02)
Abscissa to top	*H1*	*H1*	32.2 (1.268)	max.
Overall width w/lead protrusion		*C1*	43.2 (1.7)	max.
Overall width w/o lead protrusion		*C2*	42.5 (1.673)	max.
Lead protrusion	*I1*	*L1*	1.0 (.039)	max.
Protrusion of cutout	*L*	*L*	11 (.433)	max.
Protrusion beyond hold tape	*I2*	*I2*	Not specified	
Sprocket hole pitch	*P0*	*P0*	12.7 (0.5)	±0.3 (±.012)
Pitch tolerance			20 seconds	± 1 second
Device pitch: MF-R010 – MF-R160			12.7 (0.5)	
Device pitch: MF-R185 – MF-R400			25.4 (1.0)	
Device pitch: MF-RX110 – MF-RX160			12.7 (0.5)	
Device pitch: MF-RX185 – MF-RX375			12.7 (0.5)	
Device pitch: MF-R012/250			25.4 (1.0)	
Tape thickness	*t*	*t*	0.9 (.035)	max.
Tape thickness with splice		*t1*	2.0 (.079)	max.
Splice sprocket hole alignment			0	±0.3 (±.012)
Body lateral deviation	Δh	Δh	0	±1.0 (±.039)
Body tape plane deviation	Δp	Δp	0	±1.3 (±.051)
Lead seating plane deviation	$\Delta P1$	*P1*	0	±0.7 (±.028)
Lead spacing	*F*	*F*	5.08 (0.2)	±0.8 (±.035)
Reel width	*w*	*w*	56 (2.205)	max.
Reel diameter	*d*	*a*	370 (14.57)	max.
Space between flanges less device			4.75 (.187)	±3.25 (±.128)

DIMENSIONS = MM (INCHES)

Dimension Description	IEC Mark	EIA Mark	Dimensions	
			Dimensions	Tolerance
Space between flanges less device			4.75 (.187)	±3.25 (±.128)
Arbor hole diameter	*f*	*c*	26 (1.024)	±12.0 (±.472)
Core diameter	*h*	*n*	80 (3.15)	max.
Box			56 (2.2) 372 (14.6) 372 (14.6)	max.
Consecutive missing places			3 maximum	
Empty places per reel			Not specified	

DIMENSIONS = MM (INCHES)

Taped Component Dimensions

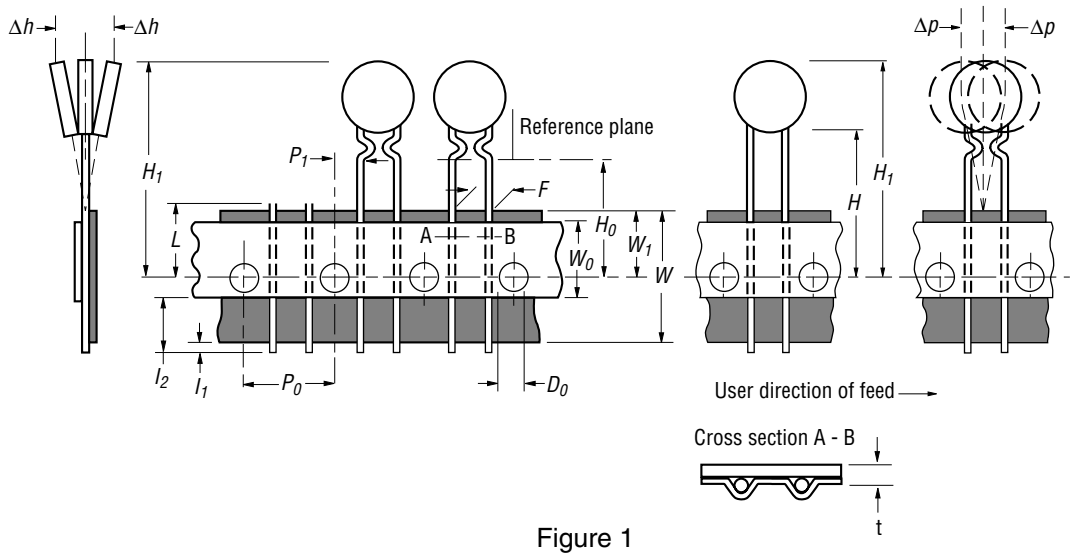


Figure 1

Reel Dimensions

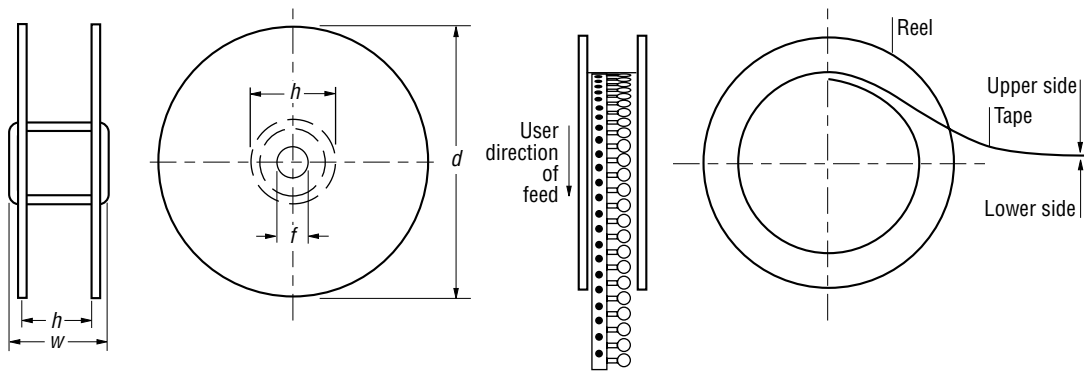


Figure 2