Features

- Radial leaded devices
- Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- Bulk packaging, tape and reel available
- Resettable circuit protection
- Agency recognition: c UL us, TÜV
- RoHS compliant* and halogen free**

Applications

- Food blenders, coffee machines
- HVAC
- Electric fans, blowers
- AC adaptors

MF-RM Series - PTC Resettable Fuses

Electrical Characteristics

Model	Typical Current Trip Limit		V_{max}		I_{max}	Initial Resistance	One Hour Post-Trip Resistance	Max. Time to Trip		Tripped Power Dissipation
	I_{hold} at 23 °C	I_{trip} at 23 °C	Operating Voltage	Interrupt Voltage	Interrupt Current	$R_{Min.}$ at 23 °C	R_1 Max. at 23 °C	at 23 °C		PD Typ. at 23 °C
	(A)	(A)	(Vac)	(Vac)	(A)	(Ohms)	(Ohms)	(A)	(Sec.)	(W)
MF-RM005/240	0.05	0.12	240	265	1.0	18.50	65.00	0.25	10.0	0.9
MF-RM008/240	0.08	0.19	240	265	1.2	7.40	26.00	0.40	10.0	0.9
MF-RM012/240	0.12	0.30	240	265	1.2	3.00	12.00	0.60	15.0	1.0
MF-RM016/240	0.16	0.37	240	265	2.0	2.50	7.80	0.80	15.0	1.4
MF-RM025/240	0.25	0.56	240	265	3.5	1.30	3.80	1.25	18.5	1.5
MF-RM033/240	0.33	0.74	240	265	4.5	0.77	2.60	1.65	21.0	1.7
MF-RM040/240	0.40	0.90	240	265	5.5	0.60	1.90	2.00	24.0	2.0
MF-RM055/240	0.55	1.25	240	265	7.0	0.45	1.45	2.75	26.0	3.4

Environmental Characteristics

Operating Temperature	-20 °C to +85 °C	
Humidity Aging	+85 °C, 85 % R.H. 1000 hours	±20 % typical resistance change
Passive Aging	+85 °C, 1000 hours	±20 % typical resistance change
Vibration	MIL-STD-883C, Method 2007.1, Condition A	No change
Solvent Resistance	MIL-STD-202, Method 215	No change

Test Procedures And Requirements For Model MF-RM Series

Item	Test Conditions	Accept/Reject Criteria
Visual/Mechanical	Verify dimensions and material	Per MF physical description
Resistance	In still air @ 23 °C	$R_{min} \le R \le R1_{max}$
Time to Trip	240 Vac, specified current	T ≤ max. time to trip
Hold Current	At Ihold	No trip
Trip Cycle Life	240 Vac, I_{max}, 100 cycles	No arcing or burning
Trip Endurance	a) 240 Vac, I_{max}, 24 hours b) 265 Vac, I_{max}, 30 mins.	No arcing or burning
Solderability	MIL-STD-202, Method 208	95 % min. coverage

UL File Number	E174545	http://www.ul.com/ Follow link to Certifications, then UL File No., enter E174545
TÜV Certificate Number	50232433	http://www.tuvdotcom.com/certificates/50232433?locale=en&page_number=3

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

* 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.

Advantages

- Resettable feature with overtemperature and overcurrent protection can save expensive components from having to be replaced after tripping, e.g., transformers with built in thermal fuses
- Faster than bimetallic switch designs that take on average approximately 30 seconds to cool down and reset
- Generally lower electromagnetic interference than bimetallic switches

Benefits

- Reduced repair and replacement costs
- Reduced nuisance tripping
- Combined overcurrent and overtemperature protector in one device

MF-RM Series - PTC Resettable Fuses

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Thermal Derating Chart - I_{hold} (Amps)

Model	Ambient Operating Temperature							
	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-RM005/240	0.08	0.06	0.05	0.04	0.04	0.03	0.03	0.02
MF-RM008/240	0.12	0.10	0.08	0.07	0.06	0.05	0.04	0.03
MF-RM012/240	0.18	0.15	0.12	0.10	0.09	0.07	0.06	0.04
MF-RM016/240	0.24	0.20	0.16	0.13	0.11	0.10	0.08	0.05
MF-RM025/240	0.38	0.32	0.25	0.21	0.18	0.15	0.13	0.09
MF-RM033/240	0.50	0.42	0.33	0.27	0.23	0.20	0.17	0.11
MF-RM040/240	0.61	0.51	0.40	0.33	0.28	0.24	0.20	0.14
MF-RM055/240	0.80	0.68	0.55	0.46	0.40	0.35	0.29	0.22

Product Dimensions

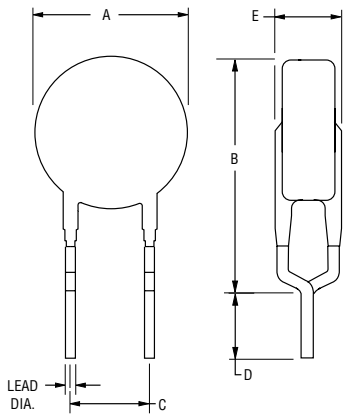
Model	A	B	C		D	E	Physical Characteristics		
	Max.	Max.	Nom.	Tol. ±	Min.	Max.	Style	Lead Dia.	Material
MF-RM005/240	8.3 (0.327)	12.9 (0.508)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	0.51 (0.020)	Sn/Cu
MF-RM008/240	8.3 (0.327)	12.9 (0.508)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	0.51 (0.020)	Sn/Cu
MF-RM012/240	8.3 (0.327)	12.9 (0.508)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	0.51 (0.020)	Sn/Cu
MF-RM016/240	9.9 (0.390)	13.8 (0.543)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	0.51 (0.020)	Sn/Cu
MF-RM025/240	10.0 (0.394)	20.0 (0.787)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	2	0.65 (0.026)	Sn/Cu
MF-RM033/240	11.4 (0.449)	20.0 (0.787)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	2	0.65 (0.026)	Sn/Cu
MF-RM040/240	11.5 (0.453)	20.9 (0.823)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	2	0.65 (0.026)	Sn/Cu
MF-RM055/240	14.0 (0.551)	22.4 (0.882)	5.1 (0.201)	0.7 (0.028)	7.6 (0.299)	4.1 (0.161)	2	0.81 (0.032)	Sn/Cu

Packaging options:
BULK: 500 pcs. per bag.
TAPE & REEL: 2000 pcs. per reel (MF-RM005/240~MF-RM040/240); 1000 pcs. per reel (MF-RM055/240)

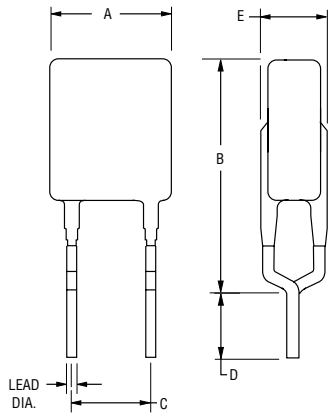
0.51 (24AWG)
0.65 (22AWG)
0.81 (20AWG)

DIMENSIONS: MM / (INCHES)

Style 1



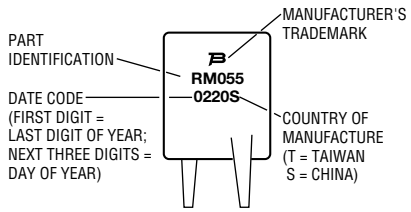
Style 2



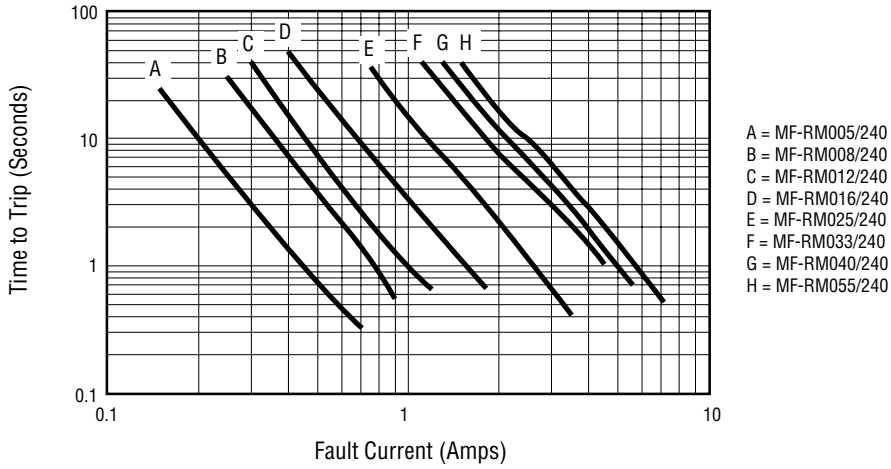
Also available with straight leads (see How to Order).

Typical Part Marking

Represents total content. Layout may vary.



Typical Time to Trip at 23 °C



A = MF-RM005/240
B = MF-RM008/240
C = MF-RM012/240
D = MF-RM016/240
E = MF-RM025/240
F = MF-RM033/240
G = MF-RM040/240
H = MF-RM055/240

How to Order

MF - RM 005 / 240 - 2 - 17

Multifuse® Product Designator

Series
RM = Radial Leaded Component

Hold Current, I_{hold}
005-055 (0.05 A - 0.55 A)

Operating Voltage, V_{max}
240 = 240 Vac

Packaging Options
- 0 = Bulk Packaging
- 2 = Tape and Reel

Part Number Suffix Option
- 17 = Straight Leads in Place of Standard Kinked Leads

*Packaged per EIA486-B

MF-RM 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	18 (.709)	-0.5/+1.0 (-0.02/+.039)
Hold down tape width	W_0	W_4	11 (.433)	min.
Hold down tape			No protrusion	
Top distance between tape edges	W_2	W_6	3 (.118)	max.
Sprocket hole position	W_1	W_5	9 (.354)	-0.5/+0.75 (-0.02/+0.03)
Sprocket hole diameter	D_0	D_0	4 (.157)	±0.2 (±.079)
Abscissa to plane (MF-RM005/240~MF-RM016/240)	H	H	18.5 (.728)	±3.0 (±.118)
Abscissa to plane (MF-RM025/240~MF-RM055/240)	H_0	H_0	16 (.63)	±0.5 (±.02)
Abscissa to top (MF-RM005/240~MF-RM016/240)	H_1	H_1	32.2 (1.268)	max.
Abscissa to top (MF-RM025/240~MF-RM055/240)	H_1	H_1	45.0 (1.772)	max.
Overall width w/lead protrusion (MF-RM005/240~MF-RM016/240)		C_1	43.2 (1.701)	max.
Overall width w/lead protrusion (MF-RM025/240~MF-RM055/240)		C_1	56.0 (2.205)	max.
Overall width w/o lead protrusion (MF-RM005/240~MF-RM016/240)		C_2	42.5 (1.673)	max.
Overall width w/o lead protrusion (MF-RM025/240~MF-RM055/240)		C_2	56.0 (2.205)	max.
Lead protrusion	l_1	L_1	1.0 (.039)	max.
Protrusion of cutout	L	L	11 (.433)	max.
Protrusion beyond hold-down tape	l_2	l_2	Not specified	
Sprocket hole pitch	P_0	P_0	12.7 (.500)	±0.3 (±.012)
Pitch tolerance			20 consecutive	±1 (±.039)
Device pitch (MF-RM005/240-MF-RM040/240)			12.7 (.500)	±0.3 (±.012)
Device pitch (MF-RM055/240)			25.4 (1.00)	±0.6 (±.024)
Tape thickness	t	t	0.9 (.035)	max.
Tape thickness with splice (MF-RM005/240~MF-RM040/240)		t_1	1.5 (.059)	max.
Tape thickness with splice (MF-RM055/240)		t_1	2.3 (.091)	max.
Splice sprocket hole alignment			0	±0.3 (±.012)
Body lateral deviation	Δh	Δh	0	±1 (±.039)
Body tape plane deviation	Δp	Δp	0	±0.3 (±.012)
Lead seating plane deviation	ΔP_1	P_1	3.81 (.015)	±0.7 (±.028)
Lead spacing	F	F	5.08 (.200)	+0.8/-0.5 (+.031/-.020)

DIMENSIONS: MM (INCHES)

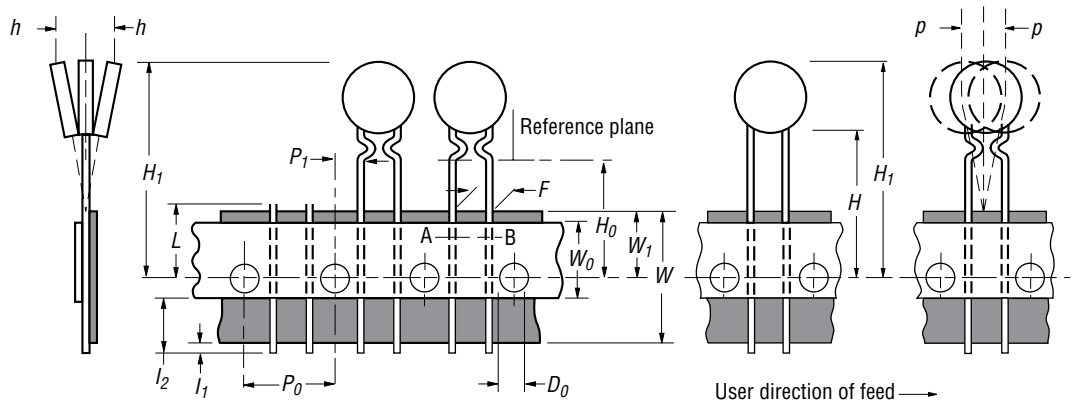
MF-RM Series Tape and Reel Specifications

BOURNS®

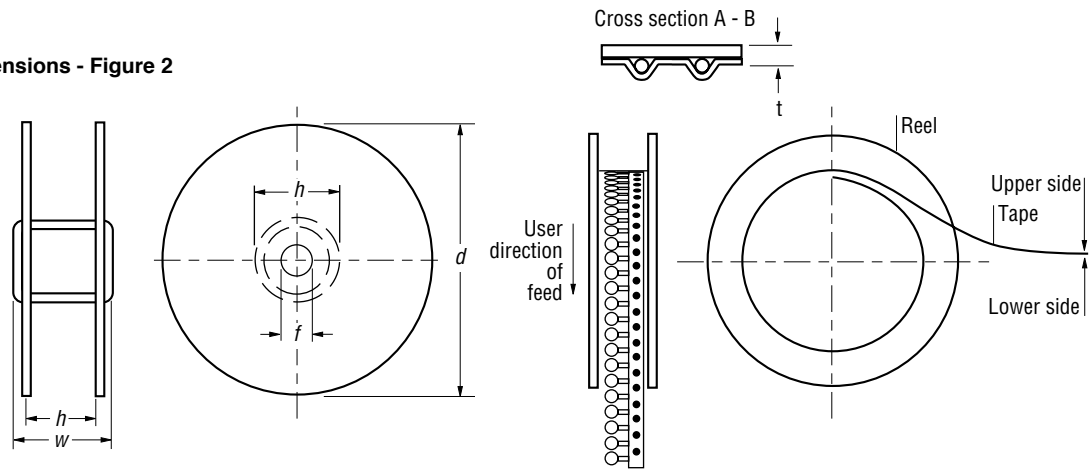
Dimension Description	IEC Mark	EIA Mark	Dimensions			Tolerance
			Dimensions			
Reel width (MF-RM005/240~MF-RM040/240)	*w*	w_2	56.0 (2.20)			max.
Reel width (MF-RM055/240)	*w*	w_2	63.5 (2.50)			max.
Reel diameter	*d*	*a*	370.0 (14.57)			max.
Space between flanges (MF-RM005/240~MF-RM040/240)	*h*	w_1	48.0 (1.89)			max.
Space between flanges (MF-RM055/240)	*h*	w_1	55.0 (2.17)			max.
Arbor hole diameter	*f*	*c*	26.0 (1.02)			±12.0 (±.472)
Core diameter	*h*	*n*	91.0 (3.58)			max.
Box			64 (2.5)	372 (14.6)	372 (14.6)	max.
Consecutive missing places			3			max.
Empty places per reel			0.1 %			max.

DIMENSIONS: MM (INCHES)

Taped Component Dimensions - Figure 1



Reel Dimensions - Figure 2



Application Notice

- Users are responsible for independent and adequate evaluation of Bourns® Multifuse® Polymer PTC devices in the user's application, including the PPTC device characteristics stated in the applicable data sheet.
- Polymer PTC devices must not be allowed to operate beyond their stated maximum ratings. Operation in excess of such maximum ratings could result in damage to the PTC device and possibly lead to electrical arcing and/or fire. Circuits with inductance may generate a voltage above the rated voltage of the polymer PTC device and should be thoroughly evaluated within the user's application during the PTC selection and qualification process.
- Polymer PTC devices are intended to protect against adverse effects of temporary overcurrent or overtemperature conditions up to rated limits and are not intended to serve as protective devices where overcurrent or overvoltage conditions are expected to be repetitive or prolonged.
- In normal operation, polymer PTC devices experience thermal expansion under fault conditions. Thus, a polymer PTC device must be protected against mechanical stress, and must be given adequate clearance within the user's application to accommodate such thermal expansion. Rigid potting materials or fixed housings or coverings that do not provide adequate clearance should be thoroughly examined and tested by the user, as they may result in the malfunction of polymer PTC devices if the thermal expansion is inhibited.
- Exposure to lubricants, silicon-based oils, solvents, gels, electrolytes, acids, and other related or similar materials may adversely affect the performance of polymer PTC devices.
- Aggressive solvents may adversely affect the performance of polymer PTC devices. Conformal coating, encapsulating, potting, molding, and sealing materials may contain aggressive solvents including but not limited to xylene and toluene, which are known to cause adverse effects on the performance of polymer PTCs. Such aggressive solvents must be thoroughly cured or baked to ensure their complete removal from polymer PTCs to minimize the possible adverse effect on the device.
- Recommended storage conditions should be followed at all times. Such conditions can be found on the applicable data sheet and on the Multifuse® Polymer PTC Moisture/Reflow Sensitivity Classification (MSL) note: https://www.bourns.com/docs/RoHS-MSL/msl_mf.pdf

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MF-RM005/240-0 MF-RM005/240-2 MF-RM008/240-0 MF-RM008/240-2 MF-RM012/240-0 MF-RM012/240-2 MF-RM016/240-0 MF-RM016/240-2 MF-RM025/240-0 MF-RM025/240-2 MF-RM033/240-0 MF-RM033/240-2 MF-RM040/240-0 MF-RM040/240-2 MF-RM055/240-0 MF-RM055/240-2