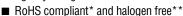


Features

- Radial leaded devices
- Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- Bulk packaging, tape and reel available
- Resettable circuit protection



Applications

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

MF-RM Series - Line Voltage PTC Resettable Fuses

Electrical Characteristics

Model		mum age	Max. Current	I _{hold}	I _{trip}	Initial Resistance	1 Hour Post-Trip Resistance R _{1max}			Tripped Power Dissipation		ency gnition
	Oper.	Inter.	I _{max}	at 2	3 °C	Min. at 23 °C	Max. at 23 °C	at	23 °C	Typ. at 23 °C	cUL	ΤÜV
	VAC	VAC	Amps	An	nps	Ohms	Ohms	Amps	Seconds	Watts	E174545	50232433
MF-RM005/240	240	265	1.0	0.05	0.12	18.5	65.0	0.25	10.0	0.9	1	1
MF-RM008/240	240	265	1.2	0.08	0.19	7.4	26.0	0.40	10.0	0.9	1	1
MF-RM012/240	240	265	1.2	0.12	0.30	3.0	12.0	0.60	15.0	1.0	1	1
MF-RM016/240	240	265	2.0	0.16	0.37	2.5	7.80	0.80	15.0	1.4	1	1
MF-RM025/240	240	265	3.5	0.25	0.56	1.3	3.80	1.25	18.5	1.5	1	1
MF-RM033/240	240	265	4.5	0.33	0.74	0.77	2.60	1.65	21.0	1.7	1	1
MF-RM040/240	240	265	5.5	0.40	0.90	0.60	1.90	2.00	24.0	2.0	1	1
MF-RM055/240	240	265	7.0	0.55	1.25	0.45	1.45	2.75	26.0	3.4	1	1

Environmental Characteristics

Item	Condition	Criteria
Operating Temperature	-20 °C to +85 °C	
Recommended Storage	+40 °C max. / 70 % R.H. max.	
Passive Aging	+85 °C, 1000 hours	±20 % typical resistance change
Humidity Aging	+85 °C, 85 % R.H. 1000 hours	±20 % typical resistance change
Thermal Shock	-40 °C to +85 °C, 10 times	±15 % typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change (marking still legible)
Vibration	MIL-STD-883C, Method 2007.1 Condition A	No change $(R_{min} \le R \le R_{1max})$
Moisture Sensitivity Level (MSL)	See Note	
ESD Classification	Class 6 (per AEC-Q200-2, HBM)	

Additional Information

Click these links for more information:











PRODUCT TECHNICAL INVENTORY SAMPLES

^{**} 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. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.



^{*} RoHS Directive 2015/863, Mar 31, 2015 and Annex.

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
- lacktriangledown 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 - Line Voltage PTC Resettable Fuses

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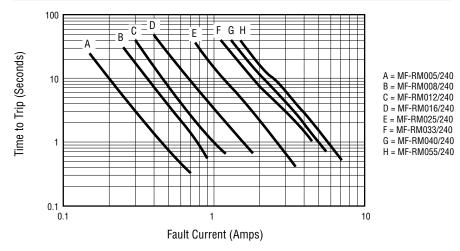
Test Procedures and Requirements

Item	Test Conditions	Accept/Reject Criteria
Visual/Mechanical	Verify dimensions and materials	Per MF physical description
Resistance	In still air @ 23 °C	$R_{min} \le R \le R_{max}$
Time to Trip	At specified current, V _{max} , 23 °C, still air	T ≤ max. time to trip (seconds)
Hold Current	30 min. at I _{hold} , still air	No trip
Trip Cycle Life	Operating voltage, I _{max} , 100 cycles	No arcing or burning
Trip Endurance A	Operating voltage, I _{max} , 24 hours	No arcing or burning
Trip Endurance B	Interrupt voltage, I _{max} , 30 minutes	No arcing or burning
Solderability	245 °C ± 5 °C, 5 seconds	95 % min. coverage

Thermal Derating Table - Ihold (Amps)

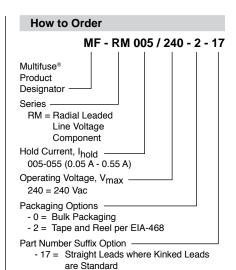
Model	Ambient Operating Temperature									
	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 ºC		
MF-RM005/240	0.08	0.06	0.05	0.04	0.04	0.03	0.03	0.02		
MF-RM008/240	0.12	0.10	0.08	0.07	0.06	0.05	0.04	0.03		
MF-RM012/240	0.18	0.15	0.12	0.10	0.09	0.07	0.06	0.04		
MF-RM016/240	0.24	0.20	0.16	0.13	0.11	0.10	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		

Typical Time to Trip at 23 °C



The Time to Trip curves represent typical performance of a device in a simulated application environment.

Actual performance in specific customer applications may differ from these values due to the influence of other variables.



MF-RM Series - Line Voltage PTC Resettable Fuses

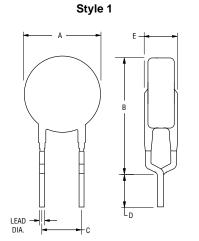
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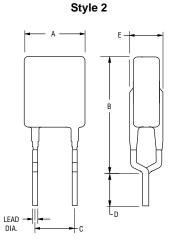
Product Dimensions

Model	A	В	(;	D	Е	Physical Characteristics		
Model	Max.	Max.	Nom.	Tol. ±	Min.	Max.	Style	Lead Dia.	Material
MF-RM005/240	8.3 (0.327)	12.9 (0.508)	<u>5.1</u> (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	<u>0.51</u> (0.020)	Sn/Cu
MF-RM008/240	8.3 (0.327)	12.9 (0.508)	<u>5.1</u> (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	<u>0.51</u> (0.020)	Sn/Cu
MF-RM012/240	8.3 (0.327)	12.9 (0.508)	<u>5.1</u> (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	<u>0.51</u> (0.020)	Sn/Cu
MF-RM016/240	9.9 (0.390)	13.8 (0.543)	<u>5.1</u> (0.201)	0.7 (0.028)	7.6 (0.299)	3.8 (0.150)	1	<u>0.51</u> (0.020)	Sn/Cu
MF-RM025/240	10.0 (0.394)	20.0 (0.787)	<u>5.1</u> (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)	<u>5.1</u> (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)	<u>5.1</u> (0.201)	0.7 (0.028)	7.6 (0.299)	4.1 (0.161)	2	0.81 (0.032)	Sn/Cu

DIMENSIONS: $\frac{M}{(INC)}$

MM (INCHES)





Represents total content. Layout may vary.

PART IDENTIFICATION RM055
DATE CODE (FIRST DIGIT = LAST DIGIT OF YEAR; NEXT THREE DIGITS = DAY OF YEAR)

MANUFACTURER'S TRADEMARK

COUNTRY OF MANUFACTURE (S = CHINA)

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

Packaging Quantity

Packaging options	Models	Unit Quantity (Pcs.)	Unit
Bulk	Bulk All models		Bag
Tono 9 Dool	MF-RM005/240 ~ MF-RM040/240		Dool
Tape & Reel	MF-RM055/240	1000	Reel

MF-RM Series Tape and Reel Specifications

Devices taped using EIA-468/IEC 60286-2 standards. See table below and figures for details.

Dimension Description	IEC Mark	EIA Mark	Dimensions	Tolerance
Carrier tape width	W	W	<u>18</u> (.709)	+1.0/-0.5 (+.039/020)
Hold down tape width	W_0	W_0	<u>5</u> (.197)	min.
Hold down tape		No p	rotrusion	
Adhesive tape position	W ₂	W ₂	<u>3</u> (.118)	max.
Sprocket hole position	W ₁	W ₁	<u>9</u> (.354)	+0.75/-0.5 (+.030/020)
Sprocket hole diameter	D ₀	D ₀	<u>4</u> (.157)	±0.2 (±.0078)
Height to seating plane (straight lead)	Н	Н	18 ~ 20 (.709 ~ .787)	
Height to seating plane (formed lead)	H ₀	H ₀	<u>16</u> (.630)	±0.5 (±.020)
Overall height above abscissa: MF-RM005/240 ~ RM016/240	H ₁	H ₁	38.5 (1.516)	max.
Overall height above abscissa: MF-RM025/240 ~ RM055/240	H ₁	H ₁	48.0 (1.890)	max.
Cutout length		L	<u>11</u> (.433)	max.
Sprocket hole pitch	P ₀	P ₀	12.7 (.500)	±0.3 (±.012)
Device pitch: MF-RM005/240 ~ MF-RM040/240	Р	Р	12.7 (.500)	±0.3 (±.012)
Device pitch: MF-RM055/240	Р	Р	<u>25.4</u> (1.00)	±0.3 (±.012)
Pitch tolerance			20 consecutive	±1 (±.039)
Composite tape thickness	t	t	0.9 (.035)	max.
Overall tape and lead thickness: MF-RM005/240 ~ MF-RM040/240	t ₁	t ₁	2.0 (.079)	max.
Overall tape and lead thickness: MF-RM055/240	t ₁	t ₁	2.3 (.091)	max.
Splice sprocket hole alignment			0	±0.3 (±.012)
Front-to-back deviation	Δ _h	Δ_h	0	±1.0 (±.039)
Side-to-side deviation	Δρ	Δ_p	0	±1.3 (±.051)
Ordinate to adjacent component lead	P ₁	P ₁	3.81 (.150)	±0.7 (±.028)
Lead spacing	F	F	5.08 (.200)	+0.6/-0.2 (+.024/008)
0 " 1				0.40.4

— Continued on next page —

DIMENSIONS:

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

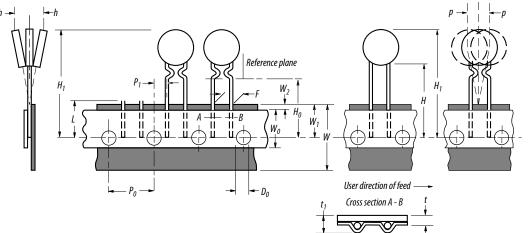
MF-RM Series Tape and Reel Specifications

Devices taped using EIA-468/IEC 60286-2 standards. See table below and figures for details.

Dimension Description	IEC Mark	EIA Mark	Dimensions	Tolerance
Reel width including flanges and hub	W_4	w ₂	<u>62.0</u> (2.44)	max
Dimension between flanges (measured at hub)	W_3	w ₁	allow proper reeling	g and unreeling
Reel diameter	А	а	370.0 (14.57)	max.
Space between flanges (at hub, excluding device)			<u>4.75</u> (.187)	±3.25 (±.128)
Arbor hole diameter	С	С	<u>26.0</u> (1.024)	±12.0 (±.472)
Core diameter	N	n	<u>80</u> (3.15)	min.
Box dimensions			62 x 372 x 372 (2.44 x 14.6 x 14.6)	max.
Consecutive missing places			3	max.
Empty places per reel			Less than 0.1 %	

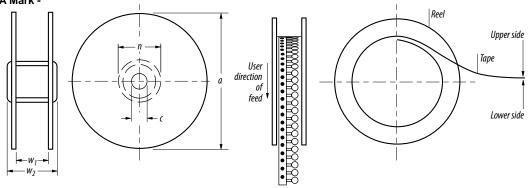
Taped Component Dimensions -

per EIA Mark -Figure 1



Reel Dimensions - per EIA Mark -

Figure 2



Bourns® Multifuse® PPTC Resettable Fuses

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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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X-ON Electronics

Largest Supplier of Electrical and Electronic Components

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