





Features

- Compliant with AEC-Q200 Rev-D- Stress Test Qualification for Passive Components in Automotive Applications
- Operating temperature range up to 125 °C
- Low thermal derating factor
- Higher hold currents at elevated temperature
- Choice of operating currents
- RoHS compliant* and halogen free**
- Resettable fault protection of general electronic equipment
- Agency recognition:  

MF-RHT Series - High Temperature PTC Resettable Fuses

Electrical Characteristics

Model	V _{max}	I _{max}	I _{hold}	I _{trip}	Initial Resistance	1 Hour (R ₁) Post-Trip Resistance	Max. Time to Trip		Tripped Power Dissipation	Agency Recognition	
			at 23 °C		at 23 °C Ohms	at 23 °C Ohms	at 23 °C		at 23 °C Watts	cUL	TÜV
	Volts	Amps	Amps		Min.	Max.	Amps	Seconds	Typ.	E174545	R50494578
MF-RHT050	30	40	0.5	0.92	0.48	1.10	2.5	2.5	0.9	✓	✓
MF-RHT070	30	40	0.7	1.4	0.30	0.80	3.5	4.0	1.4	✓	✓
MF-RHT100	30	40	1.0	1.8	0.18	0.43	5.2	5.0	1.4	✓	✓
MF-RHT200	16	100	2.0	3.8	0.045	0.110	12.5	3.0	1.4	✓	✓
MF-RHT200/32	32	50	2.0	3.8	0.045	0.110	12.5	3.0	1.4	✓	✓
MF-RHT300	16	100	3.0	6.0	0.033	0.079	15.0	5.0	3.0	✓	✓
MF-RHT400	16	100	4.0	7.5	0.024	0.060	20.0	5.0	3.3	✓	✓
MF-RHT450	16	100	4.5	7.8	0.022	0.054	22.5	3.0	3.6	✓	✓
MF-RHT500	16	100	5.0	9.0	0.0175	0.045	25.0	9.0	3.6	✓	✓
MF-RHT550	16	100	5.5	10.0	0.0150	0.037	27.5	6.0	3.5	✓	✓
MF-RHT600	16	100	6.0	10.8	0.0130	0.032	30.0	5.0	4.1	✓	✓
MF-RHT650	16	100	6.5	12.0	0.0110	0.026	32.5	5.5	4.3	✓	✓
MF-RHT700	16	100	7.0	13.0	0.0100	0.025	35.0	7.0	4.0	✓	✓
MF-RHT750	16	100	7.5	13.1	0.0094	0.022	37.5	7.0	4.5	✓	✓
MF-RHT800	16	100	8.0	15.0	0.0080	0.020	40.0	8.0	4.2	✓	✓
MF-RHT900	16	100	9.0	16.5	0.0074	0.017	45.0	10.0	5.0	✓	✓
MF-RHT1000	16	100	10.0	18.5	0.0062	0.015	50.0	9.0	5.3	✓	✓
MF-RHT1100	16	100	11.0	20.0	0.0055	0.013	55.0	11.0	5.5	✓	✓
MF-RHT1300	16	100	13.0	24.0	0.0041	0.010	60.0	13.0	6.9	✓	✓

Environmental Characteristics

Item	Condition	Criteria
Operating Temperature	-40 °C to +125 °C	
Recommended Storage	+40 °C max. / 70 % R.H. max.	
Passive Aging	+85 °C, 1000 hours	±5 % typical resistance change
Humidity Aging	+85 °C, 85 % R.H. 1000 hours	±5 % typical resistance change
Thermal Shock	-40 °C to +85 °C, 10 times	±10 % 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} < R < R _{1max})
Moisture Sensitivity Level (MSL)	See Note	
ESD Classification	Class 6 (per AEC-Q200-2, HBM)	

Additional Information

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

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

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MF-RHT Series - High Temperature PTC Resettable Fuses



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	$R_{min} \leq R \leq R_{max}$
Time to Trip	At specified current, V_{max} , 23 °C	$T \leq$ 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
Solderability	245 °C \pm 5 °C, 5 seconds	95 % min. coverage

Thermal Derating Table - 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	125 °C
MF-RHT050	0.68	0.62	0.56	0.5	0.44	0.4	0.36	0.34	0.28	0.12
MF-RHT070	0.95	0.87	0.79	0.7	0.62	0.56	0.51	0.47	0.39	0.17
MF-RHT100	1.36	1.24	1.13	1.0	0.89	0.80	0.73	0.67	0.56	0.24
MF-RHT200	2.71	2.49	2.26	2.0	1.77	1.60	1.46	1.34	1.11	0.49
MF-RHT200/32	2.71	2.49	2.26	2.0	1.77	1.60	1.46	1.34	1.11	0.49
MF-RHT300	4.07	3.74	3.41	3.0	2.65	2.40	2.21	2.00	1.66	0.74
MF-RHT400	5.57	5.11	4.65	4.0	3.62	3.29	3.01	2.73	2.27	1.01
MF-RHT450	6.1	5.6	5.1	4.5	4.0	3.6	3.3	3.0	2.5	1.1
MF-RHT500	6.78	6.22	5.67	5.0	4.44	4	3.67	3.33	2.78	1.22
MF-RHT550	7.47	6.86	6.24	5.5	4.85	4.41	4.04	3.66	3.05	1.36
MF-RHT600	8.20	7.50	6.80	6.0	5.3	4.9	4.4	4	3.3	1.5
MF-RHT650	8.8	8.1	7.4	6.5	5.7	5.3	4.8	4.3	3.6	1.6
MF-RHT700	9.51	8.73	7.95	7.0	6.17	5.61	5.15	4.66	3.88	1.73
MF-RHT750	10.2	9.4	8.6	7.5	6.6	6.1	5.6	5.0	4.1	1.9
MF-RHT800	10.87	9.98	9.08	8.0	7.06	6.41	5.88	5.33	4.43	1.97
MF-RHT900	12.21	11.19	10.16	9.0	7.97	7.20	6.56	6.04	5.01	2.19
MF-RHT1000	13.6	12.5	11.4	10.0	8.8	8.10	7.40	6.60	5.50	2.5
MF-RHT1100	14.94	13.72	12.49	11.0	9.7	8.82	8.09	7.32	6.09	2.71
MF-RHT1300	17.7	16.3	14.8	13.0	11.4	10.5	9.6	8.6	7.2	3.3

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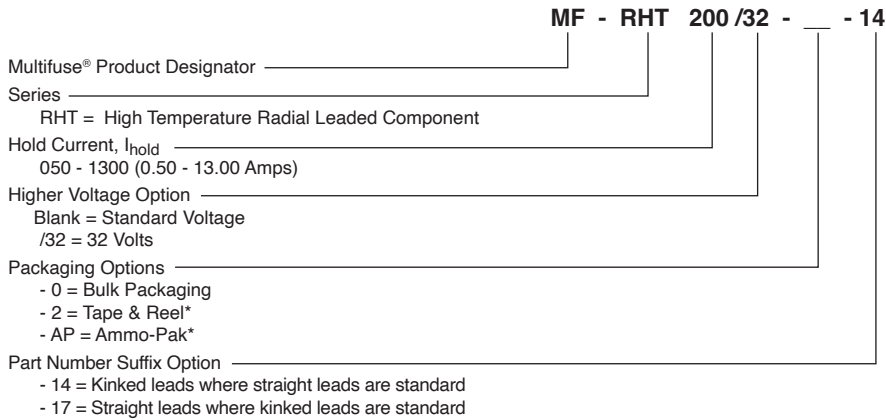
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MF-RHT Series - High Temperature PTC Resettable Fuses



How to Order



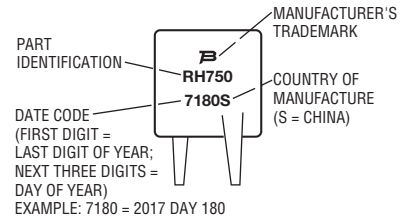
*Packaged per EIA-468

Packaging Quantity

Packaging options	Models	Unit Quantity (Pcs.)	Unit
Bulk	MF-RHT050 ~ MF-RHT800	500	Bag
	MF-RHT900 ~ MF-RHT1300	250	
Tape & Reel	MF-RHT050 ~ MF-RHT400	3000	Reel
	MF-RHT450 ~ MF-RHT700	1500	
	MF-RHT750 ~ MF-RHT1300	1000	
Ammo-Pack	MF-RHT050 ~ MF-RHT400	2000	Pack
	MF-RHT450 ~ MF-RHT900	1000	
	MF-RHT1000 ~ MF-RHT1300	500	

Typical Part Marking

Represents total content. Layout may vary.



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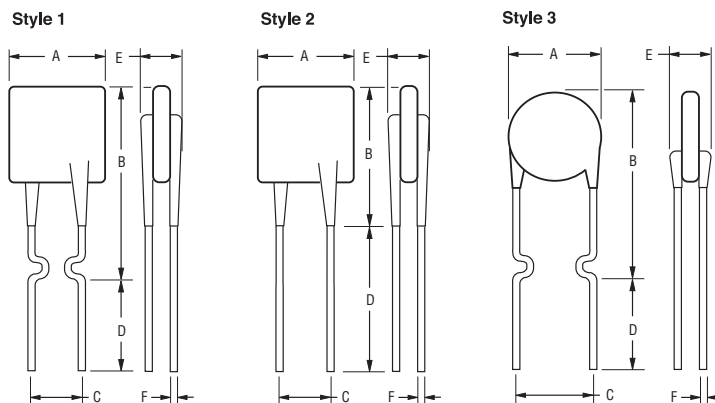
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MF-RHT Series - High Temperature PTC Resettable Fuses

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Product Dimensions

Model	A	B	C		D	E	F	Physical Characteristics	
	Max.	Max.	Nom.	Tol. ±	Min.	Max.	Nom.	Style	Material
MF-RHT050	$\frac{7.40}{(0.291)}$	$\frac{12.7}{(0.500)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.51}{(0.020)}$	3	Sn/CuFe
MF-RHT070	$\frac{6.86}{(0.27)}$	$\frac{10.8}{(0.425)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.51}{(0.020)}$	1	Sn/CuFe
MF-RHT100	$\frac{9.70}{(0.382)}$	$\frac{13.6}{(0.535)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.51}{(0.020)}$	3	Sn/CuFe
MF-RHT200	$\frac{9.4}{(0.37)}$	$\frac{14.0}{(0.55)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.51}{(0.020)}$	3	Sn/CuFe
MF-RHT200/32	$\frac{9.4}{(0.37)}$	$\frac{14.0}{(0.55)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.51}{(0.020)}$	3	Sn/CuFe
MF-RHT300	$\frac{8.80}{(0.35)}$	$\frac{13.8}{(0.55)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT400	$\frac{10.0}{(0.394)}$	$\frac{15.0}{(0.591)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT450	$\frac{10.4}{(0.41)}$	$\frac{15.6}{(0.61)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT500	$\frac{11.2}{(0.441)}$	$\frac{18.9}{(0.744)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT550	$\frac{11.2}{(0.441)}$	$\frac{18.9}{(0.744)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT600	$\frac{11.2}{(0.441)}$	$\frac{21.0}{(0.827)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT650	$\frac{12.7}{(0.50)}$	$\frac{22.2}{(0.88)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT700	$\frac{14.0}{(0.55)}$	$\frac{21.9}{(0.862)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT750	$\frac{14.0}{(0.55)}$	$\frac{21.9}{(0.862)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT800	$\frac{16.5}{(0.65)}$	$\frac{22.5}{(0.88)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT900	$\frac{16.5}{(0.65)}$	$\frac{25.7}{(1.012)}$	$\frac{5.1}{(0.201)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT1000	$\frac{17.5}{(0.689)}$	$\frac{26.7}{(1.051)}$	$\frac{10.2}{(0.402)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT1100	$\frac{21.0}{(0.827)}$	$\frac{26.1}{(1.028)}$	$\frac{10.2}{(0.402)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.0}{(0.12)}$	$\frac{0.81}{(0.032)}$	2	Sn/Cu
MF-RHT1300	$\frac{23.5}{(0.925)}$	$\frac{28.7}{(1.130)}$	$\frac{10.2}{(0.402)}$	$\frac{0.7}{(0.028)}$	$\frac{7.6}{(0.30)}$	$\frac{3.6}{(0.14)}$	$\frac{1.0}{(0.040)}$	2	Sn/Cu



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

Also available with kinked and straight leads in place of standard leads (see How to Order).

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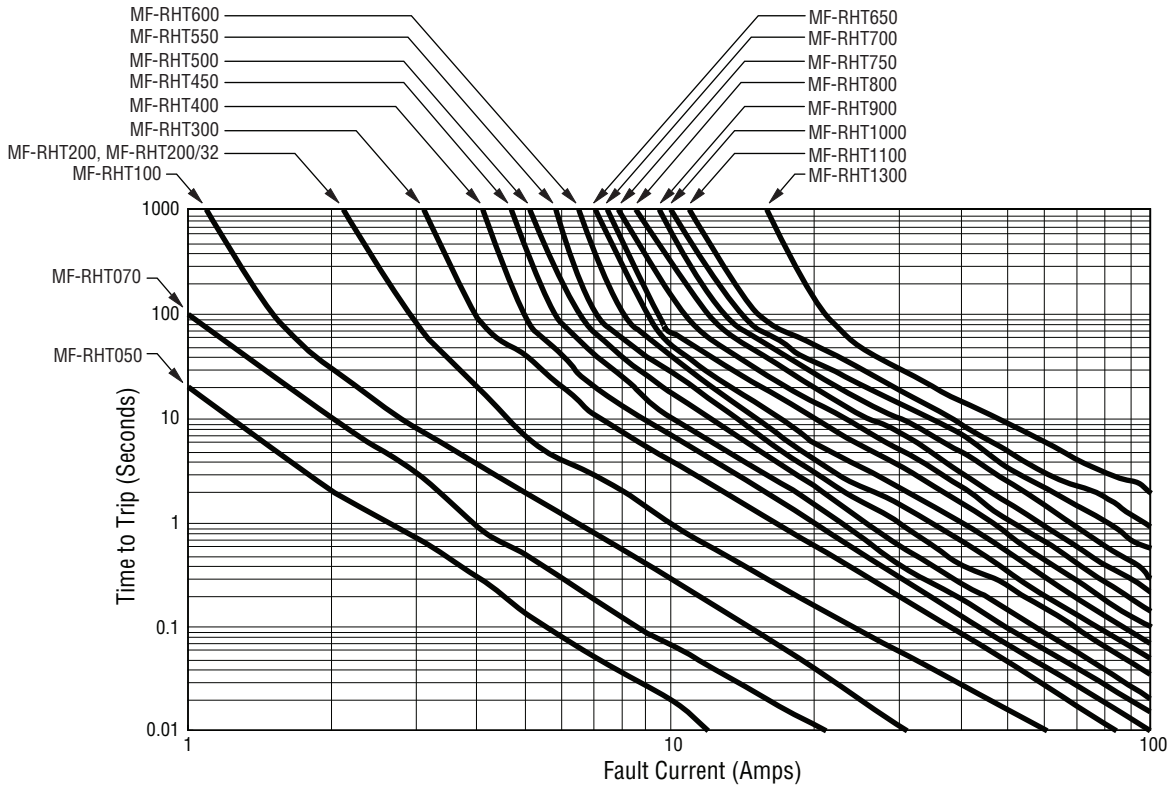
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MF-RHT Series - High Temperature PTC Resettable Fuses



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-RHT Series Tape and Reel Specifications

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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	$\frac{18}{(.709)}$	$\frac{+1.0/-0.5}{(+.039/- .020)}$
Hold down tape width	W_0	W_0	$\frac{5}{(.197)}$	min.
Hold down tape	No protrusion			
Adhesive tape position	W_2	W_2	$\frac{3}{(.118)}$	max.
Sprocket hole position	W_1	W_1	$\frac{9}{(.354)}$	$\frac{+0.75-0.5}{(+.030/- .020)}$
Sprocket hole diameter	D_0	D_0	$\frac{4}{(.157)}$	$\frac{\pm 0.2}{(\pm .0078)}$
Height to seating plane (straight lead)	H	H	$\frac{18 \sim 20}{(.709 \sim .787)}$	
Height to seating plane (formed lead)	H_0	H_0	$\frac{16}{(.630)}$	$\frac{\pm 0.5}{(\pm .020)}$
Overall height above abscissa: MF-RHT050 ~ MF-RHT900	H_1	H_1	$\frac{38.5}{(1.516)}$	max.
Overall height above abscissa: MF-RHT1000 ~ MF-RHT1300	H_1	H_1	$\frac{45.0}{(1.772)}$	max.
Cutout length		L	$\frac{11}{(.433)}$	max.
Sprocket hole pitch: MF-RHT050 ~ MF-RHT900	P_0	P_0	$\frac{12.7}{(.500)}$	$\frac{\pm 0.3}{(\pm .012)}$
Sprocket hole pitch: MF-RHT1000 ~ MF-RHT1300	P_0	P_0	$\frac{30.0}{(1.18)}$	$\frac{\pm 0.6}{(\pm .024)}$
Device pitch: MF-RHT050 ~ MF-RHT900	P	P	$\frac{25.4}{(1.00)}$	$\frac{\pm 0.6}{(\pm .024)}$
Device pitch: MF-RHT1000 ~ MF-RHT1300	P	P	$\frac{30.0}{(1.18)}$	$\frac{\pm 0.6}{(\pm .024)}$
Pitch tolerance			20 consecutive	$\frac{\pm 1}{(\pm .039)}$
Composite tape thickness	t	t	$\frac{0.9}{(.035)}$	max.
Overall tape and lead thickness: MF-RHT050 ~ MF-RHT200/32	t_1	t_1	$\frac{2.0}{(.079)}$	max.
Overall tape and lead thickness: MF-RHT300 ~ MF-RHT1300	t_1	t_1	$\frac{2.3}{(.091)}$	max.
Splice sprocket hole alignment			0	$\frac{\pm 0.3}{(\pm .012)}$
Front-to-back deviation	Δ_h	Δ_h	0	$\frac{\pm 1.0}{(\pm .039)}$
Side-to-side deviation	Δ_p	Δ_p	0	$\frac{\pm 1.3}{(\pm .051)}$
Ordinate to adjacent component lead: MF-RHT050 ~ MF-RHT900	P_1	P_1	$\frac{3.81}{(.150)}$	$\frac{\pm 0.7}{(\pm .028)}$
Ordinate to adjacent component lead: MF-RHT1000 ~ MF-RHT1300	P_1	P_1	$\frac{9.9}{(.390)}$	$\frac{\pm 0.7}{(\pm .028)}$
Lead spacing: MF-RHT050 ~ MF-RHT900	F	F	$\frac{5.08}{(.200)}$	$\frac{+0.6/-0.2}{(+.024/- .008)}$
Lead spacing: MF-RHT1000 ~ MF-RHT1300	F	F	$\frac{10.2}{(.400)}$	$\frac{+0.6/-0.2}{(+.024/- .008)}$

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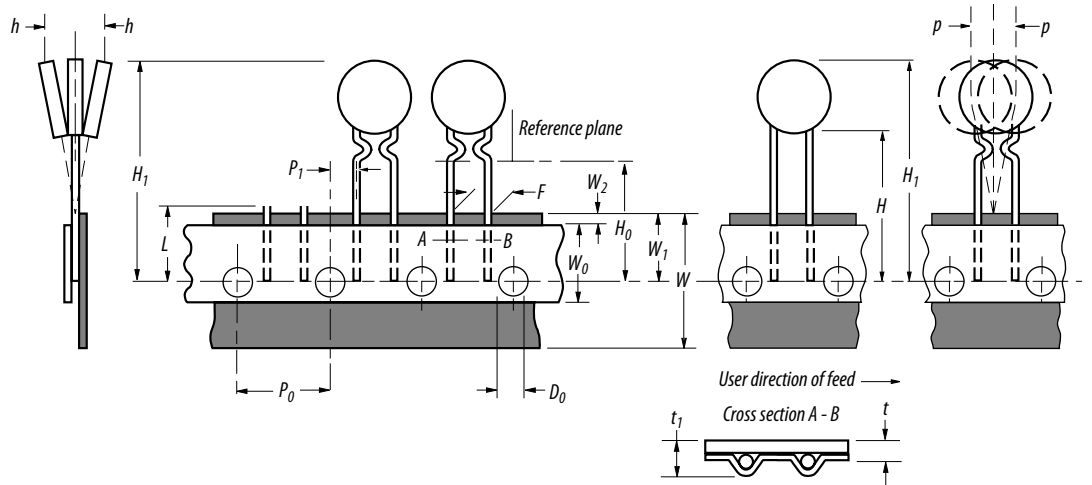
MF-RHT Series Tape and Reel Specifications

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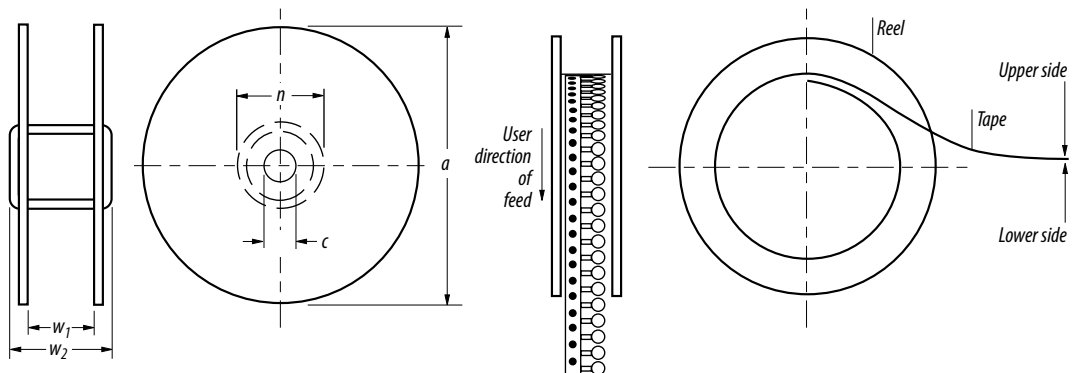
Devices taped using EIA-468/IEC 60286-2 standards. See table below and figures for details.

Dimension Description	IEC Mark	EIA Mark	Dimensions	Tolerance
Reel width including flanges and hub	W_4	w_2	$\frac{62.0}{(2.44)}$	max
Dimension between flanges (measured at hub)	W_3	w_1	allow proper reeling and unreeling	
Reel diameter	A	a	$\frac{370.0}{(14.57)}$	max.
Space between flanges (at hub, excluding device)			$\frac{4.75}{(.187)}$	± 3.25 ($\pm .128$)
Arbor hole diameter	C	c	$\frac{26.0}{(1.024)}$	± 12.0 ($\pm .472$)
Core diameter	N	n	$\frac{80}{(3.15)}$	min.
Box dimensions			$\frac{62 \times 372 \times 372}{(2.44 \times 14.6 \times 14.6)}$	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



MF-RHT SERIES, REV. T, 01/23

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