
## Features

- Compliant with AEC-Q200 Rev-C- 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

# MF-RHT Series - PTC Resettable Fuses

## Electrical Characteristics

| Model | V max. Volts | I max. Amps | $I_{hold}$ | $I_{trip}$ | Resistance | | Max. Time To Trip | | Tripped Power Dissipation |
|---|---|---|---|---|---|---|---|---|---|
| | | | Amperes at 23 °C | | Ohms at 23 °C | | Amperes at 23 °C | Seconds at 23 °C | Watts at 23 °C |
| | | | Hold | Trip | $R_{Min.}$ | $R_1$Max. (Post Trip) | | Max. | Typ. |
| MF-RHT070 | 16 | 40 | 0.7 | 1.4 | 0.3 | 0.8 | 3.5 | 4.0 | 1.4 |
| MF-RHT200 | 16 | 100 | 2.0 | 3.8 | 0.045 | 0.110 | 12.5 | 3.0 | 1.4 |
| MF-RHT450 | 16 | 100 | 4.5 | 7.8 | 0.022 | 0.054 | 22.5 | 3.0 | 3.6 |
| MF-RHT650 | 16 | 100 | 6.5 | 12.0 | 0.011 | 0.026 | 32.5 | 5.5 | 4.3 |
| MF-RHT750 | 16 | 100 | 7.5 | 13.1 | 0.0094 | 0.022 | 37.5 | 7.0 | 4.5 |
| MF-RHT1300 | 16 | 100 | 13.0 | 24.0 | 0.0041 | 0.010 | 60.0 | 13.0 | 6.9 |

## Environmental Characteristics

| | | |
|---|---|---|
| Operating Temperature | -40 °C to +125 °C | |
| Storage Temperature | -40 °C to +85 °C | |
| Passive Aging | +85 °C, 1000 hours | ±15 % typical resistance change |
| Humidity Aging | +85 °C, 85 % R.H. 1000 hours | ±15 % typical resistance change |
| Thermal Shock | MIL-STD-202, Method 107, +125 °C to -40 °C,10 cycles | ±10 % typical resistance change |
| Vibration | MIL-STD-883C, Method 2007.1, Condition A | No change |

## Test Procedures And Requirements For Model MF-RHT 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 ≤ R1max |
| Time to Trip | At specified current, 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 |
| Solderability | MIL-STD-202, Method 208 | 95 % min. coverage |

## 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 | 125 °C |
| MF-RHT070 | 0.95 | 0.87 | 0.79 | 0.7 | 0.62 | 0.56 | 0.51 | 0.47 | 0.39 | 0.17 |
| MF-RHT200 | 2.71 | 2.49 | 2.26 | 2.00 | 1.77 | 1.60 | 1.46 | 1.34 | 1.11 | 0.49 |
| MF-RHT450 | 6.1 | 5.6 | 5.1 | 4.5 | 4.0 | 3.6 | 3.3 | 3.0 | 2.5 | 1.1 |
| MF-RHT650 | 8.8 | 8.1 | 7.4 | 6.5 | 5.7 | 5.3 | 4.8 | 4.3 | 3.6 | 1.6 |
| MF-RHT750 | 10.2 | 9.4 | 8.6 | 7.5 | 6.6 | 6.1 | 5.6 | 5.0 | 4.1 | 1.9 |
| MF-RHT1300 | 17.7 | 16.3 | 14.8 | 13.0 | 11.4 | 10.5 | 9.6 | 8.6 | 7.2 | 3.3 |

## How to Order

**MF - RHT 750 - __**

Multifuse® Product Designator

Series
RHT = High Temperature Radial Leaded Component

Hold Current, Ihold
070 - 1300 (0.70 - 13.00 Amps)

Packaging Options
- = Bulk Packaging
- 2 = Tape and Reel*
- AP = Ammo-Pak*

*Packaged per EIA 486-B

* 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.

## Applications

- Protection of automotive circuitry including engine control modules
- Overcurrent surge protection of electronic equipment required to operate at high operating temperature ranges
- Resettable fault protection of general electronic equipment

# MF-RHT Series - PTC Resettable Fuses

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### Product Dimensions

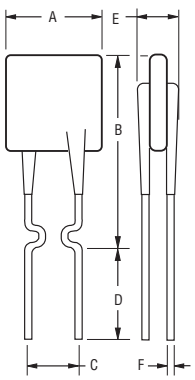
| Model | A | B | C | | D | E | F | Physical Characteristics | |
|---|---|---|---|---|---|---|---|---|---|
| | Max. | Max. | Nom. | Tol. ± | Min. | Max. | Nom. | Style | Material |
| MF-RHT070 | 6.86 (0.27) | 10.8 (0.425) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.0 (0.12) | 0.51 (0.020) | 1 | Sn/CuFe |
| MF-RHT200 | 9.4 (0.37) | 14.0 (0.55) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.0 (0.12) | 0.51 (0.020) | 3 | Sn/Cu |
| MF-RHT450 | 10.4 (0.41) | 15.6 (0.61) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.0 (0.12) | 0.81 (0.032) | 2 | Sn/Cu |
| MF-RHT650 | 12.7 (0.50) | 22.2 (0.88) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.0 (0.12) | 0.81 (0.032) | 2 | Sn/Cu |
| MF-RHT750 | 14.0 (0.55) | 23.5 (0.93) | 5.1 (0.201) | 0.7 (0.028) | 7.6 (0.30) | 3.0 (0.12) | 0.81 (0.032) | 2 | Sn/Cu |
| MF-RHT1300 | 23.5 (0.925) | 28.7 (1.17) | 10.2 (0.402) | 0.7 (0.028) | 7.6 (0.30) | 3.6 (0.14) | 1.0 (0.040) | 2 | Sn/Cu |

Packaging:
BULK: 500 pcs. per bag
TAPE & REEL: MF-RHT070 ~ MF-RHT200 = 3000 pcs. per reel; MF-RHT450 ~ MF-RHT650 = 1500 pcs. per reel; MF-RHT750 ~ MF-RHT1300 = 1000 pcs. per reel
AMMO-PACK: MF-RHT070 ~ MF-RHT200 = 2000 pcs. per pack; MF-RHT450 ~ MF-RHT750 = 1000 pcs. per pack; MF-RHT1300 = 500 pcs. per pack

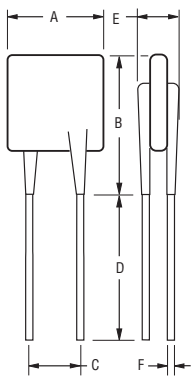
0.51 (24AWG)
0.81 (20AWG)
1.0 (18AWG)

DIMENSIONS: MM (INCHES)

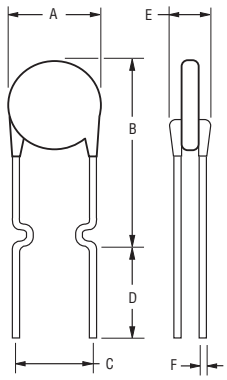
**Style 1**




**Style 2**

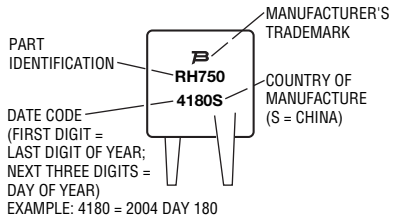



**Style 3**

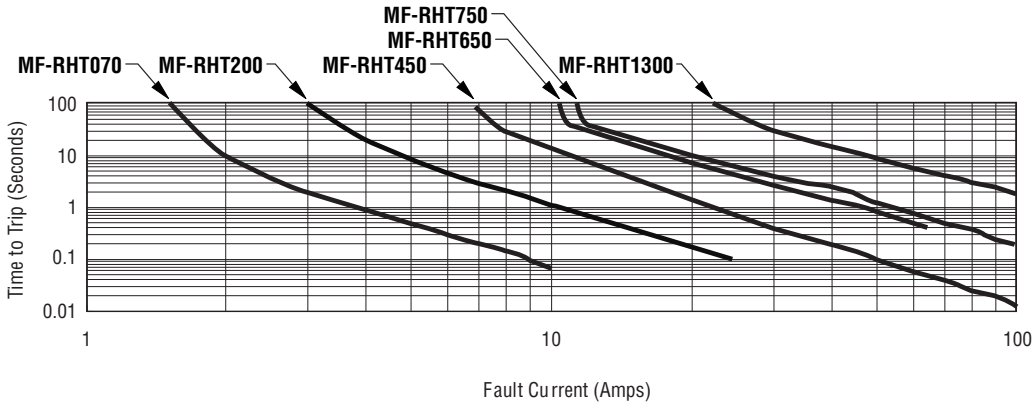



### Typical Part Marking

Represents total content. Layout may vary.




### 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 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 (±.0078) |
| Abscissa to plane (straight lead) | $H$ | $H$ | 18.5 (.728) | ±3.0 (±.118) |
| Abscissa to plane (kinked lead) | $H_0$ | $H_0$ | 16 (.63) | ±0.5 (±.02) |
| Abscissa to top: MF-RHT070 ~ MF-RHT450 | $H_1$ | $H_1$ | 32.2 (1.268) | max. |
| Abscissa to top: MF-RHT650 ~ MF-RHT1300 | $H_1$ | $H_1$ | 45.0 (1.837) | max. |
| Overall width w/lead protrusion: MF-RHT070 ~ MF-RHT450 | | $C_1$ | 42.5 (1.673) | max. |
| Overall width w/lead protrusion: MF-RHT650 ~ MF-RHT1300 | | $C_1$ | 55.0 (2.165) | max. |
| Overall width w/o lead protrusion: MF-RHT070 ~ MF-RHT450 | | $C_2$ | 42.5 (1.673) | max. |
| Overall width w/o lead protrusion: MF-RHT650 ~ MF-RHT1300 | | $C_2$ | 54.0 (2.126) | 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 (0.5) | ±0.3 (±.012) |
| Pitch tolerance | | | 20 consecutive | ±1 (±.039) |
| Device pitch: MF-RHT070 ~ MF-RHT450 | | | 12.7 (0.5) | ±0.3 (±.012) |
| Device pitch: MF-RHT650 ~ MF-RHT1300 | | | 25.4 (1.0) | ±0.6 (±.024) |
| Tape thickness | $t$ | $t$ | 0.9 (.035) | max. |
| Tape thickness with splice: MF-RHT070 | | $t_1$ | 1.5 (.059) | max. |
| Tape thickness with splice: MF-RHT450 ~ MF-RHT1300 | | $t_1$ | 2.3 (.091) | max. |
| Splice sprocket hole alignment | | | 4.0 (.157) | ±0.2 (±.008) |
| Body lateral deviation | $\Delta h$ | $\Delta h$ | 0 | ±1 (±.039) |
| Body tape plane deviation | $\Delta p$ | $\Delta p$ | 0 | ±0.3 (±.012) |
| Ordinate to adjacent component lead | $P_1$ | $P_1$ | 3.81 (.015) | ±0.07 (±.028) |

DIMENSIONS: MM (INCHES)

# MF-RHT Series Tape and Reel Specifications

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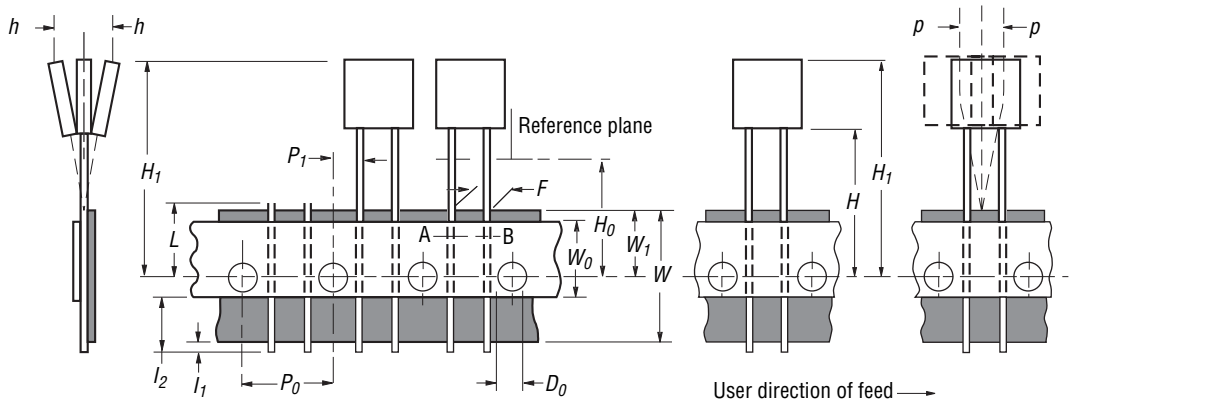
| Dimension Description | IEC Mark | EIA Mark | Dimensions | |
|---|---|---|---|---|
| | | | Dimensions | Tolerance |
| Lead spacing: MF-RHT070 ~ MF-RHT750 | *F* | *F* | 5.08 (0.2) | -0.2/+0.8 (-0.006/+0.031) |
| Lead spacing: MF-RHT1300 | *F* | *F* | 10.2 (0.402) | -0.2/+0.8 (-0.006/+0.031) |
| Reel width: MF-RHT070 ~ MF-RHT450 | *w* | $W_2$ | 56 (2.20) | max. |
| Reel width: MF-RHT650 ~ MF-RHT1300 | *w* | $W_2$ | 63.5 (2.50) | max. |
| Reel diameter | *d* | *a* | 370.0 (14.57) | max. |
| Space between flanges less device | $W_1$ | *h* | 4.75 (.187) | ±3.25 (±.128) |
| Arbor hole diameter | *f* | *c* | 26.0 (1.02) | ±12.0 (±.472) |
| Core diameter | *h* | *n* | 80.0 (3.15) | max. |
| Box | | | 62 (2.44) 355 (14.0) 345 (13.6) | |
| Consecutive missing places | | | 3 | max. |
| Empty places per reel | | | Not specified | |

**Taped Component Dimensions - Figure 1**




**Reel Dimensions - Figure 2**