Wirewound Resistors, Commercial Power, Silicone Coated, Axial Lead



FEATURES

- High temperature coating (> 350 °C)
- Complete welded construction
- Available in non-inductive styles with Ayrton-Perry winding for lowest reactive components, special "NI"
- Higher power to size ratio as compared to equivalent sized resistors
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING (1) $P_{25\,°C}$ W CHARACTERISTIC U + 250 °C	POWER RATING (1) $P_{25\,°C}$ W CHARACTERISTIC V + 350 °C	TOLERANCE (2) %	RESISTANCE RANGE Ω	WEIGHT (typical) g
MRB01	1.0	1.5	0.5, 1, 5	0.085 to 5.0K	0.30
MRB02	1.5	2.2	0.5, 1, 5	0.05 to 6.85K	0.32
MRB03	2.25	3.0	0.5, 1, 5	0.05 to 10.4K	0.34
MRB05	4.0	5.0	0.5, 1, 5	0.015 to 24.5K	0.70
MRB06	5.0	6.0	0.5, 1, 5	0.02 to 32.3K	1.60
MRB10	7.0	10.0	0.5, 1, 5	0.03 to 90.9K	4.20
MRB12	10.0	12.0	0.5, 1, 5	0.04 to 144.9K	4.70

Notes

(1) Vishay Mills MRB models have two power ratings depending on operation temperature and stability requirements.

(2) Other tolerances may be available, contact factory

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	MRB RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 30 for 10 Ω and above; ± 50 for 1.0 Ω to 9.9 Ω; ± 90 for 0.5 Ω to 0.99 Ω
Terminal Strength	lb	5 min (MRB01 thru MRB03) and 10 min (MRB05 and larger)
Dielectric Withstanding Voltage	V_{AC}	500 for 3 W and smaller; 1000 for 4 W and larger
Operating Temperature Range	°C	Characteristic U = - 65 to + 250, Characteristic V = - 65 to + 350
Maximum Working Voltage	V	$(P \times R)^{1/2}$

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: MRB02250R0FE08 (visit www.vishay.net Vishay Dale parts numbering manual for all options)

M	R	B	0	2	2	5	0	R	0	F	E	0	8			

GLOBAL MODEL (5 digits)	VALUE (5 digits)	TOLERANCE (1 digit)	PACKAGING CODE (3 digits)	SPECIAL (up to 3 digits)
(See Standard Electrical Specifications Global Model column for options)	**R** = Decimal **K** = Thousand **1R500** = 1.5 Ω **1K500** = 1.5 kΩ	**D** = ± 0.5 % **F** = ± 1.0 % **J** = ± 5.0 %	**E07** = Tape/reel (MRB10, MRB12) **E08** = Tape/reel (MRB01, MRB02, MRB03) **E48** = Tape/reel (MRB05, MRB06) **E12** = Bulk, up to 100 pc boxes	(Dash Number) From **1** to **999** as applicable **NI** = Non-inductive

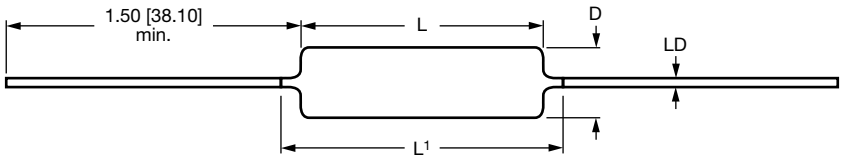
Historical Part Number example: MRB02W250R0F

MRB02	W = STANDARD	250 Ω	1 %
HISTORICAL MODEL	TC	RESISTANCE VALUE	TOLERANCE

For technical questions, contact: ww2aresistors@vishay.com

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DIMENSIONS in inches [millimeters]



MODEL	DIMENSIONS in inches [millimeters]			
	L ± 0.062 [1.57]	L^1 Max.	D ± 0.031 [0.79]	LD ± 0.002 [0.051]
MRB01	0.285 [7.24]	0.375 [9.52]	0.110 [2.79]	0.020 [0.508]
MRB02	0.310 [7.87]	0.420 [10.67]	0.094 [2.39]	0.020 [0.508]
MRB03	0.406 [10.31]	0.500 [12.70]	0.110 [2.79]	0.020 [0.508]
MRB05	0.562 [14.27]	0.650 [16.51]	0.187 [4.75]	0.032 [0.813]
MRB06	0.500 [12.70]	0.600 [15.24]	0.218 [5.54]	0.032 [0.813]
MRB10	0.875 [22.22]	0.975 [24.76]	0.312 [7.92]	0.032 [0.813]
MRB12	1.188 [30.18]	1.280 [32.51]	0.312 [7.92]	0.032 [0.813]

MATERIAL SPECIFICATIONS

Element: Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

Core: Ceramic: Alumina

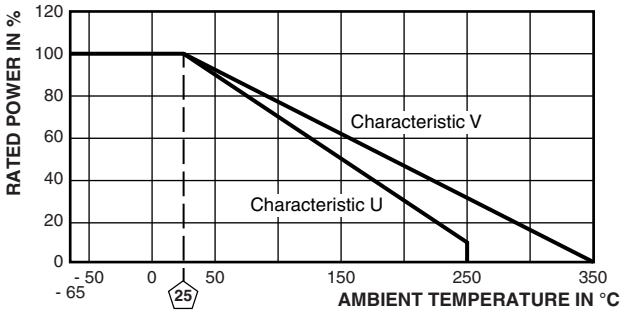
Coating: Special high temperature silicone

Standard Terminals: Tinned copper clad steel

End Caps: Stainless steel

Part Marking: MILLS, model, value, tolerance, date code

DERATING



PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST LIMITS (CHARACTERISTIC U)	TEST LIMITS (CHARACTERISTIC V)
Dielectric Withstanding Voltage	500 V_{RMS}, 1 min (MRB01 thru MRB03); 1000 V_{RMS}, 1 min for all others	± (0.1 % + 0.05 Ω) Δ*R*	± (0.1 % + 0.05 Ω) Δ*R*
High Frequency Vibration	Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each	± (0.1 % + 0.05 Ω) Δ*R*	± (0.2 % + 0.05 Ω) Δ*R*
High Temperature Exposure	250 h at + 250 °C for U Characteristic, + 350 °C for V Characteristic	± (0.5 % + 0.05 Ω) Δ*R*	± (4.0 % + 0.05 Ω) Δ*R*
Load Life	2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (0.5 % + 0.05 Ω) Δ*R*	± (3.0 % + 0.05 Ω) Δ*R*
Low Temperature Storage	- 65 °C for 24 h	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 *g*'s for 6 ms, 10 shocks	± (0.1 % + 0.05 Ω) Δ*R*	± (0.2 % + 0.05 Ω) Δ*R*
Thermal Shock	Rated power applied until thermally stable, then 15 min at - 55 °C	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Short Time Overload	5 x rated power (3 W and smaller), 10 x rated power (4 W and larger) for 5 s	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Terminal Strength	Pull test 5 s to 10 s, 5 lb (MRB01 thru MRB03), 10 lb for all others; torsion test - 3 alternating directions, 360 ° each	± (0.1 % + 0.05 Ω) Δ*R*	± (1.0 % + 0.05 Ω) Δ*R*

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