

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



RoHS
COMPLIANT
GREEN
(5-2008)

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	POWER RATING ⁽¹⁾ $P_{25\text{ }^{\circ}\text{C}}$ W CHARACTERISTIC U + 250 °C	POWER RATING ⁽¹⁾ $P_{25\text{ }^{\circ}\text{C}}$ 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) (See Standard Electrical Specifications Global Model column for options)	VALUE (5 digits) R = Decimal K = Thousand 1R500 = 1.5 Ω 1K500 = 1.5 k Ω	TOLERANCE (1 digit) D = ± 0.5 % F = ± 1.0 % J = ± 5.0 %	PACKAGING CODE (3 digits) E07 = Tape/reel (MRB10, MRB12) E08 = Tape/reel (MRB01, MRB02, MRB03) E48 = Tape/reel (MRB05, MRB06) E12 = Bulk, up to 100 pc boxes	SPECIAL (up to 3 digits) (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		

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

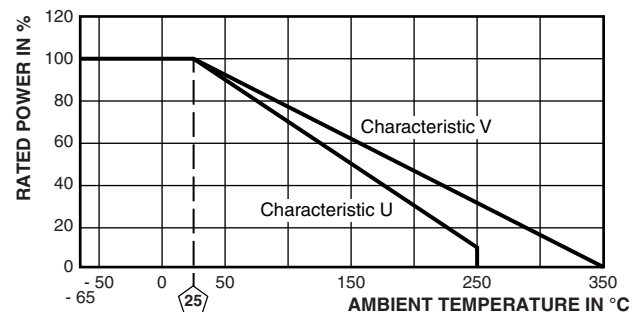
Core: Ceramic: Alumina

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)	(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) ΔR	± (0.1 % + 0.05 Ω) ΔR
High Frequency Vibration	Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each	± (0.1 % + 0.05 Ω) ΔR	± (0.2 % + 0.05 Ω) ΔR
High Temperature Exposure	250 h at + 250 °C for U Characteristic, + 350 °C for V Characteristic	± (0.5 % + 0.05 Ω) ΔR	± (4.0 % + 0.05 Ω) ΔR
Load Life	2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (0.5 % + 0.05 Ω) ΔR	± (3.0 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks	± (0.1 % + 0.05 Ω) ΔR	± (0.2 % + 0.05 Ω) ΔR
Thermal Shock	Rated power applied until thermally stable, then 15 min at - 55 °C	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
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) ΔR	± (2.0 % + 0.05 Ω) ΔR
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) ΔR	± (1.0 % + 0.05 Ω) ΔR



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.