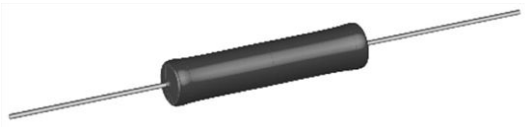
Wirewound Resistors, Non-Magnetic, Non-Inductive, Axial Lead



FEATURES

- High temperature coating (> 350 °C)
- Non-magnetic and all welded constructions greatly enhance frequency response. Combined with non-inductive Ayrton-Perry winding the inductive reactance and signal loss are almost totally eliminated.
- Ideal for Audio Industry
- Compliant to RoHS Directive 2011/65/EU

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**

Note

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL 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
MRA-05	MRA05	4.0	5.0	1, 5, 10	0.01 to 15.0K	0.95
MRA-10	MRA10	7.0	10.0	1, 5, 10	0.05 to 35.0K	4.00
MRA-12	MRA12	10.0	12.0	1, 5, 10	0.05 to 85.0K	4.05

Notes

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

(2) Other tolerances may be available, contact factory

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	MRA 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	10 minimum
Dielectric Withstanding Voltage	V_{AC}	500 for MRA-05 and 1000 for MRA-10 and MRA-12
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: MRA-1225R00JE12

M	R	A	-	1	2	2	5	R	0	0	J	E	1	2		

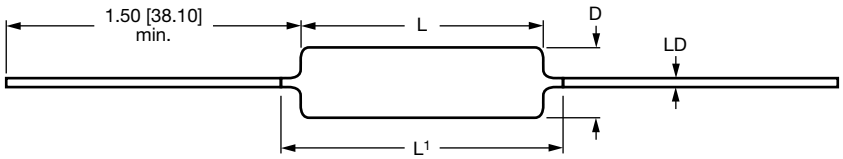
GLOBAL MODEL (6 digits)	VALUE (5 digits)	TOLERANCE (1 digit)	PACKAGING CODE (3 digits)	SPECIAL (up to 2 digits)
(See Standard Electrical Specifications Global Model column for options)	**R** = Decimal **K** = Thousand **1R500** = 1.5 Ω **1K500** = 1.5 kΩ	**F** = ± 1.0 % **J** = ± 5.0 % **K** = ± 10.0 %	**E07** = Tape/reel (MRA-10, MRA-12) **E48** = Tape/reel (MRA-05) **E12** = Bulk, 100 pc boxes	(Dash Number) From **1 to 99** as applicable

Historical Part Number example: MRA12W25R0J

MRA12	W = STANDARD	25 Ω	5 %
HISTORICAL MODEL	TC	RESISTANCE VALUE	TOLERANCE

For technical questions, contact: ww2aresistors@vishay.com

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]
MRA-05	0.562 [14.27]	0.650 [16.51]	0.167 [4.24]	0.032 [0.8]
MRA-10	0.875 [22.22]	0.975 [24.77]	0.312 [7.92]	0.032 [0.8]
MRA-12	1.188 [30.17]	1.280 [32.51]	0.312 [7.92]	0.032 [0.8]

MATERIAL SPECIFICATIONS

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

Core: Ceramic: Alumina

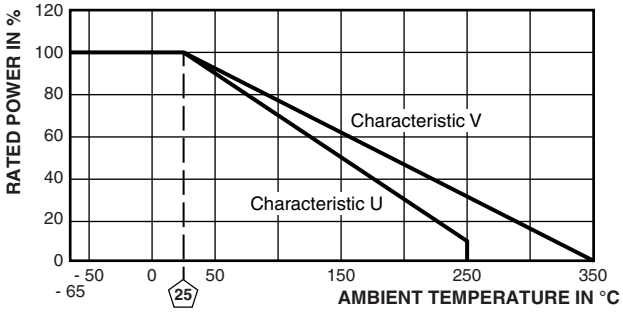
Coating: Special high temperature silicone

Standard Terminals: Tinned copper

End Caps: Copper alloy

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

DERATING



PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST LIMITS	
		(CHARACTERISTIC U)	(CHARACTERISTIC V)
Dielectric Withstanding Voltage	1000 V_{RMS}, 1 min	± (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	± (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 (5 W smaller), 10 x rated power (7 W and larger) for 5 s	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Terminal Strength	5 s to 10 s 10 pound pull test; torsion test - 3 alternating directions, 360 ° each	± (0.1 % + 0.05 Ω) Δ*R*	± (1.0 % + 0.05 Ω) Δ*R*

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.

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 and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. 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.