

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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL 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
MRA-05	MRA05	4.0	5.0	1, 5, 10	0.01 to 15.0K	1.00
MRA-10	MRA10	7.0	10.0	1, 5, 10	0.05 to 35.0K	3.87
MRA-12	MRA12	10.0	12.0	1, 5, 10	0.05 to 85.0K	5.02

Notes

- (1) Vishay Mills MRA models have two power ratings depending on the 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** (visit www.vishay.net Vishay Dale parts numbering manual for all options)

M	R	A	-	1	2	2	5	R	0	0	J	E	1	2		
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GLOBAL MODEL (6 digits)
(See Standard Electrical Specifications Global Model column for options)

VALUE (5 digits)
R = Decimal K = Thousand 1R500 = 1.5 Ω 1K500 = 1.5 kΩ

TOLERANCE (1 digit)
F = ± 1.0 % J = ± 5.0 % K = ± 10.0 %

PACKAGING CODE (3 digits)
E07 = Tape/reel (MRA-10, MRA-12) E48 = Tape/reel (MRA-05) E12 = Bulk, up to 100 pc boxes

SPECIAL (up to 2 digits)
(Dash Number) From 1 to 99 as applicable

Historical Part Number example: **MRA12W25R0J**

MRA12
HISTORICAL MODEL

W = STANDARD
TC

25 Ω
RESISTANCE VALUE

5 %
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]
MRA-05	0.562 [14.27]	0.650 [16.51]	0.167 [4.24]	0.032 [0.813]
MRA-10	0.875 [22.22]	0.975 [24.76]	0.312 [7.92]	0.040 [1.016]
MRA-12	1.188 [30.18]	1.280 [32.51]	0.312 [7.92]	0.040 [1.016]

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) 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	± (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 (5 W smaller), 10 x rated power (7 W and larger) for 5 s	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Terminal Strength	5 s to 10 s 10 pound pull test; torsion test - 3 alternating directions, 360 ° each	± (0.1 % + 0.05 Ω) ΔR	± (1.0 % + 0.05 Ω) ΔR



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