Wirewound Resistor, 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"
- 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	HISTORICAL MODEL	POWER RATING (1) $P_{25\,°C}$ W CHARACTERISTIC U + 250 °C	POWER RATING (1) $P_{25\,°C}$ W CHARACTERISTIC V + 350 °C	RESISTANCE RANGE Ω ± 0.25 %	RESISTANCE RANGE Ω ± 0.5 %, ± 1 %, ± 5 %	WEIGHT (typical) g
MRP1/4	MRP1/4	0.25	-	0.499 to 3.4K	0.1 to 3.4K	0.19
MRP1/A	MRP1/2A	0.5	-	0.499 to 5.0K	0.1 to 5.0K	0.21
MRP1/2	MRP1/2	0.75	-	0.499 to 6.85K	0.1 to 6.85K	0.21
MRP001	MRP01	1.0	-	0.499 to 10.4K	0.1 to 10.4K	0.27
MRP01A	MRP1A	1.2	-	0.499 to 10.4K	0.1 to 10.4K	0.36
MRP002	MRP02	2.25	3.0	0.1 to 18.74K	0.1 to 18.74K	0.87
MRP02A	MRP2A	2.5	3.25	0.1 to 32.3K	0.1 to 32.3K	1.11
MRP02B	MRP2B	1.5	2.25	0.1 to 10.5K	0.1 to 10.5K	0.67
MRP02C	MRP2C	3.5	4.25	0.1 to 47.1K	0.1 to 47.1K	1.33
MRP003	MRP03	3.0	3.75	0.1 to 24.5K	0.1 to 24.5K	0.96
MRP03B	MRP3B	3.5	4.25	0.1 to 33.0K	0.1 to 33.0K	1.28
MRP004	MRP04	4.0	5.0	0.1 to 48.0K	0.1 to 48.0K	1.73
MRP04B	MRP4B	5.0	6.5	0.1 to 90.9K	0.1 to 90.9K	3.03
MRP005	MRP05	5.5	7.0	0.1 to 89.8K	0.1 to 89.8K	3.20
MRP007	MRP07	7.0	9.0	0.1 to 144.9K	0.1 to 144.9K	4.11
MRP010	MRP10	10.0	12.0	0.1 to 273.0K	0.1 to 273.0K	8.40
MRP10B	MRP10B	9.0	11.0	0.1 to 168.0K	0.1 to 168.0K	5.50
MRP015	MRP15	15.0	20.0	0.1 to 285.0K	0.1 to 285.0K	16.70

Note

(1) Vishay Mills MRP models have two power ratings depending on operation temperature and stability requirements. Models not available for characteristic V are: MRP1/4, MRP1/A, MRP1/2 and MRP01A.

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: MRP00110R00JE08 (visit www.vishay.net Vishay Dale parts numbering manual for all options)

M	R	P	0	0	1	1	0	R	0	0	J	E	0	8		

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	**C** = ± 0.25 % **D** = ± 0.5 % **F** = ± 1 % **J** = ± 5 %	**E07** = Tape/reel (MRP03B, MRP004, MRP04B, MRP005, MRP007) **E08** = Tape/reel (MRP1/4, MRP1/A, MRP1/2, MRP001) **E29** = Tape/reel (MRP010, MRP10B) **E48** = Tape/reel (MRP01A, MRP01B, MRP002, MRP02A, MRP02B, MRP02C, MRP003) **E12** = Bulk, up to 100 pc boxes	(Dash Number) From **1** to **99** as applicable **NI** = Non-inductive

Historical Part Number example: MRP01W10R0J

MRP01	W = STANDARD	10 Ω	5 %
HISTORICAL MODEL	TC	RESISTANCE VALUE	TOLERANCE

For technical questions, contact: ww2aresistors@vishay.com

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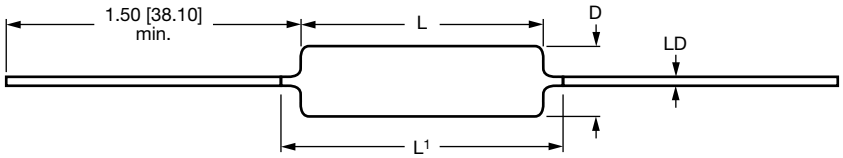
DIMENSIONS in inches [millimeters]



MODEL	DIMENSIONS in inches [millimeters]			
	L ± 0.062 [1.57]	L[1] Max.	D ± 0.031 [0.79]	LD ± 0.002 [0.051]
MRP1/4	0.230 [5.84]	0.330 [8.38]	0.094 [2.39]	0.020 [0.508]
MRP1/A	0.275 [6.98]	0.375 [9.52]	0.094 [2.39]	0.020 [0.508]
MRP1/2	0.310 [7.87]	0.415 [10.54]	0.094 [2.39]	0.020 [0.508]
MRP001	0.406 [10.31]	0.500 [12.70]	0.094 [2.39]	0.020 [0.508]
MRP01A	0.540 [13.72]	0.640 [16.26]	0.094 [2.39]	0.020 [0.508]
MRP002	0.500 [12.70]	0.600 [15.24]	0.167 [4.24]	0.032 [0.813]
MRP02A	0.500 [12.70]	0.600 [15.24]	0.230 [5.84]	0.032 [0.813]
MRP02B	0.375 [9.52]	0.475 [12.06]	0.167 [4.24]	0.032 [0.813]
MRP02C	0.625 [15.87]	0.725 [18.41]	0.218 [5.54]	0.032 [0.813]
MRP003	0.562[14.27]	0.650 [16.51]	0.167 [4.24]	0.032 [0.813]
MRP03B	0.750 [19.05]	0.845 [21.46]	0.167 [4.24]	0.032 [0.813]
MRP004	0.812 [20.62]	0.900 [22.86]	0.218 [5.54]	0.032 [0.813]
MRP04B	0.875 [22.22]	0.975 [24.76]	0.312 [7.92]	0.032 [0.813]
MRP005	0.932 [23.67]	1.025 [26.03]	0.312 [7.92]	0.032 [0.813]
MRP007	1.188 [30.18]	1.280 [32.51]	0.312 [7.92]	0.032 [0.813]
MRP010	1.780 [45.21]	1.860 [47.24]	0.360 [9.14]	0.040 [1.016]
MRP10B	1.720 [43.69]	1.800 [45.72]	0.312 [7.92]	0.032 [0.813]
MRP015	1.850 [46.99]	1.960 [49.78]	0.475 [12.06]	0.050 [1.270]

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	MRP 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 (MRP1/4 thru MRP01A) and 10 min (MRP002 and larger)
Dielectric Withstanding Voltage	V_{AC}	500 for 1.2 W and smaller; 1000 for 2.25 W and larger
Operating Temperature Range	°C	Characteristic U = - 65 to + 250; Characteristic V = - 65 to + 350
Maximum Working Voltage	V	$(P \times R)^{1/2}$

MATERIAL SPECIFICATIONS

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

Core: Ceramic: Steatite or alumina, depending on physical size

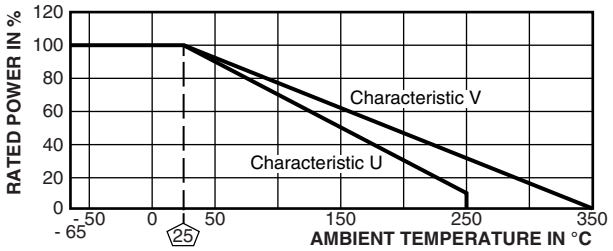
Coating: Special high temperature silicone

Standard Terminals: Tinned copper clad steal

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 for MRP1/4 thru MRP01A; 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 25 °C at rated power, 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*
Shock, Thermal	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 (1.2 W smaller), 10 x rated power (2.25 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 (MRP1/4 thru MRP01A), 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*

For technical questions, contact: ww2aresistors@vishay.com

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