Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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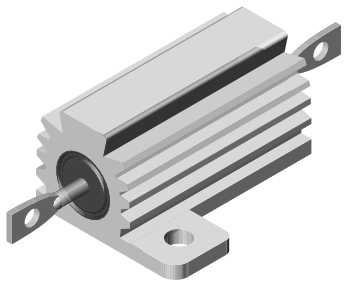
Wirewound Resistors, Industrial Power, Aluminum Housed, Chassis Mount



FEATURES

- Molded construction for total environmental protection
- Complete welded construction
- Available in non-inductive styles (NI special) with Ayrton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect
- Excellent stability in operation (< 1 % change in resistance)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free
e4
RoHS COMPLIANT
HALOGEN FREE GREEN (5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{25\,°C}$ W	RESISTANCE RANGE Ω	TOLERANCE ± %	WEIGHT (typical) g
TMC005	TMC-5	7.5	0.02 to 24.5K	1, 3, 5	3
TMC005…NI	TMC-5-…-NI	7.5	0.05 to 12.75K	1, 3, 5	3
TMC010	TMC-10	12.5	0.01 to 47.1K	1, 3, 5	5
TMC010…NI	TMC-10-…-NI	12.5	0.05 to 23.5K	1, 3, 5	5
TMC025	TMC-25	25	0.01 to 95.2K	1, 3, 5	12
TMC025…NI	TMC-25-…-NI	25	0.05 to 47.6K	1, 3, 5	12
TMC050	TMC-50	50	0.01 to 273K	1, 3, 5	28
TMC050…NI	TMC-50-…-NI	50	0.05 to 136K	1, 3, 5	28
TMC100	TMC-100	100	0.05 to 90K	1, 3, 5	353
TMC100…NI	TMC-100-…-NI	100	0.05 to 37.5K	1, 3, 5	353
TMC250	TMC-250	250	0.05 to 116K	1, 3, 5	637
TMC250…NI	TMC-250-…-NI	250	0.05 to 48.5K	1, 3, 5	637

Note
- The NI is for two digit "special" number to indicate a non-inductive part.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	TMC RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 20 for 10 Ω and above; ± 50 for 1 Ω to 9.9 Ω, ± 100 for 0.5 Ω to 0.99 Ω
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	Ω	10 000 MΩ minimum dry, 1000 MΩ minimum after moisture test
Solderability	-	Meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	-55 to +250

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: TMC0054R125FE02NI (visit www.vishay.net Vishay Dale parts numbering manual for all options)

T	M	C	0	0	5	4	R	1	2	5	F	E	0	2	N	I

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 **15R00** = 15 Ω **10K00** = 10 kΩ	**F** = 1 % **H** = 3 % **J** = 5 %	**E02** = lead (Pb)-free, card pack (TMC005 to TMC050) **E01** = lead (Pb)-free, skin pack (TMC100 and TMC250)	**NI** = non-inductive (dash number) from **1** to **99** as applicable

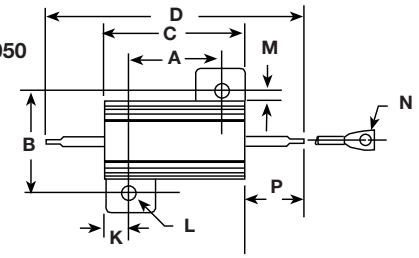
Historical Part Number example: TMC-5-4.125-1%-NI

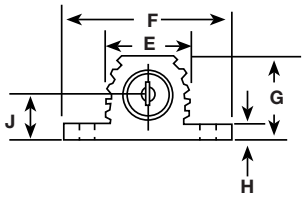
TMC-5	4.125 Ω	1 %	NI
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE	SPECIAL

For technical questions, contact: ww2aresistors@vishay.com

DIMENSIONS in inches [millimeters]

TMC005, 010, 025, 050
TMC005…NI, 010, 025, 050

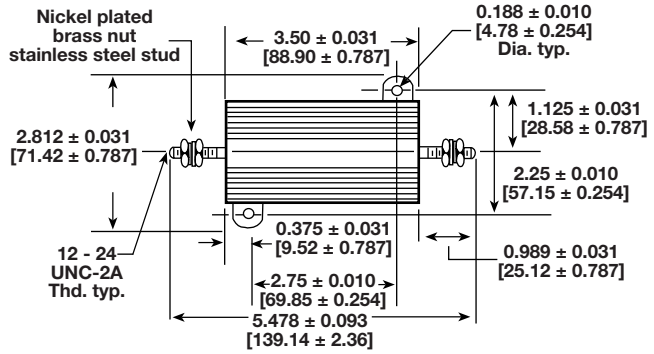


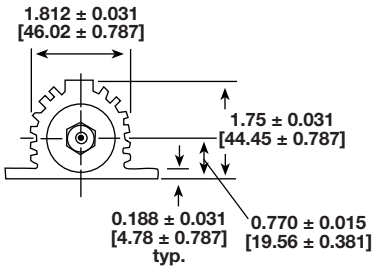


GLOBAL MODEL	DIMENSIONS in inches [millimeters]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
TMC005 TMC005…NI	0.444 ± 0.005 [11.28 ± 0.127]	0.490 ± 0.005 [12.45 ± 0.127]	0.600 ± 0.030 [15.24 ± 0.787]	1.125 ± 0.062 [28.58 ± 1.57]	0.334 ± 0.015 [8.48 ± 0.381]	0.646 ± 0.015 [16.41 ± 0.381]	0.320 ± 0.015 [8.13 ± 0.381]	0.065 ± 0.010 [1.65 ± 0.254]	0.133 ± 0.010 [3.38 ± 0.254]	0.078 ± 0.010 [1.98 ± 0.254]	0.093 ± 0.005 [2.36 ± 0.127]	0.078 ± 0.015 [1.98 ± 0.381]	0.050 ± 0.005 [1.27 ± 0.127]	0.266 ± 0.062 [6.76 ± 1.57]
TMC010 TMC010…NI	0.562 ± 0.005 [14.27 ± 0.127]	0.625 ± 0.005 [15.88 ± 0.127]	0.750 ± 0.031 [19.05 ± 0.787]	1.375 ± 0.062 [34.93 ± 1.57]	0.420 ± 0.015 [10.67 ± 0.381]	0.800 ± 0.015 [20.32 ± 0.381]	0.390 ± 0.015 [9.91 ± 0.381]	0.075 ± 0.010 [1.91 ± 0.254]	0.165 ± 0.010 [4.19 ± 0.254]	0.093 ± 0.010 [2.36 ± 0.254]	0.094 ± 0.005 [2.39 ± 0.127]	0.102 ± 0.015 [2.59 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.312 ± 0.062 [7.92 ± 1.57]
TMC025 TMC025…NI	0.719 ± 0.005 [18.26 ± 0.127]	0.781 ± 0.005 [19.84 ± 0.127]	1.062 ± 0.031 [26.97 ± 0.787]	1.938 ± 0.062 [49.23 ± 1.57]	0.550 ± 0.015 [13.97 ± 0.381]	1.080 ± 0.015 [27.43 ± 0.381]	0.546 ± 0.015 [13.87 ± 0.381]	0.075 ± 0.010 [1.91 ± 0.254]	0.231 ± 0.010 [5.87 ± 0.254]	0.172 ± 0.010 [4.37 ± 0.254]	0.125 ± 0.005 [3.18 ± 0.127]	0.115 ± 0.015 [2.92 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.438 ± 0.062 [11.13 ± 1.57]
TMC050 TMC050…NI	1.562 ± 0.005 [39.67 ± 0.127]	0.844 ± 0.005 [21.44 ± 0.127]	1.968 ± 0.031 [49.99 ± 0.787]	2.781 ± 0.062 [70.64 ± 1.57]	0.630 ± 0.015 [16.00 ± 0.381]	1.140 ± 0.015 [28.96 ± 0.381]	0.610 ± 0.015 [15.49 ± 0.381]	0.088 ± 0.010 [2.24 ± 0.254]	0.260 ± 0.010 [6.60 ± 0.254]	0.196 ± 0.010 [4.98 ± 0.254]	0.125 ± 0.005 [3.18 ± 0.127]	0.107 ± 0.015 [2.72 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.438 ± 0.062 [11.13 ± 1.57]

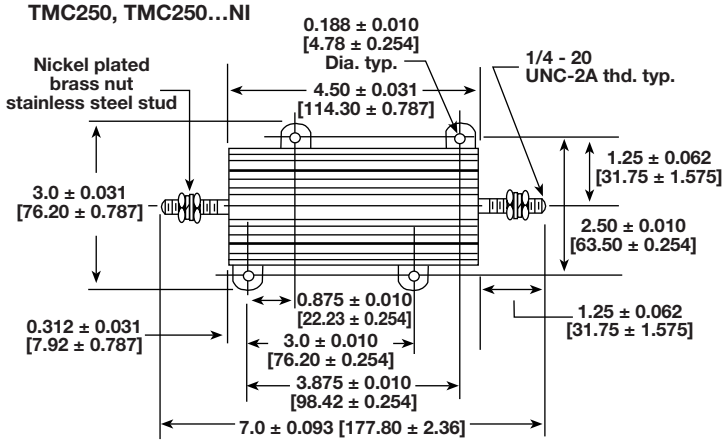
DIMENSIONS in inches [millimeters]

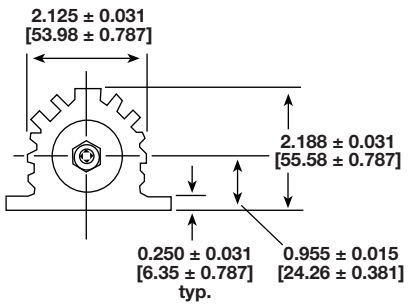
TMC100, TMC100…NI





TMC250, TMC250…NI





POWER RATING

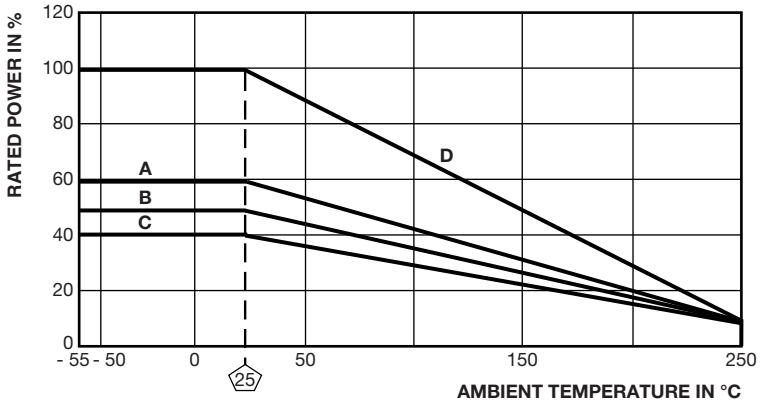
Vishay TMC resistor wattage ratings are based on mounting to the following heat sink:

TMC005 and TMC010: 4" x 6" x 2" x 0.040" thick aluminum chassis (129 sq. in. surface area)
TMC025: 5" x 7" x 2" x 0.040" thick aluminum chassis (167 sq. in. surface area)
TMC050: 12" x 12" x 0.059" thick aluminum panel (291 sq. in. surface area)
TMC100 and TMC250: 12" x 12" x 0.125" thick aluminum panel (294 sq. in. surface area)

FREE AIR POWER RATING						
GLOBAL MODEL	**TMC005 TMC005...NI**	**TMC010 TMC010...NI**	**TMC025 TMC025...NI**	**TMC050 TMC050...NI**	**TMC100 TMC100...NI**	**TMC250 TMC250...NI**
W at 25 °C	4.5	7.5	12.5	20	40	100

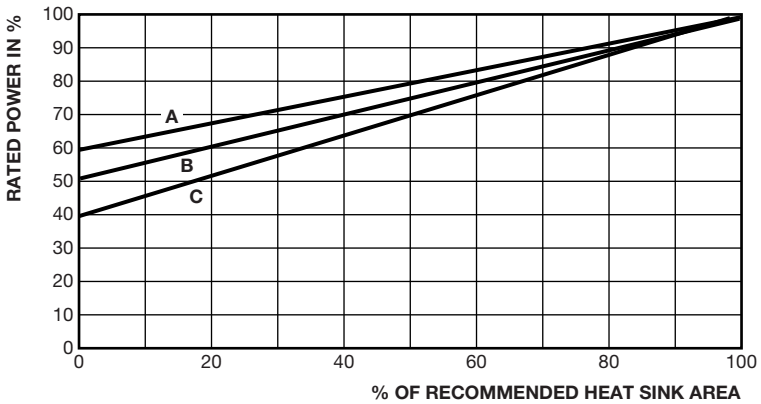
AMBIENT TEMPERATURE DERATING

Derating is required for ambient temperatures above 25 °C, see the following graph.
Curves **A**, **B**, **C** apply to operation of unmounted resistors. Curve **D** applies to all types when mounted to specified heat sink.
A = TMC005 and TMC010 size resistor, unmounted
B = TMC025 size resistor, unmounted
C = TMC050, TMC100 and TMC250 size resistor, unmounted
D = All types mounted to recommended aluminum heat sink



REDUCED HEAT SINK DERATING

Derating is also required when recommended heat sink area is reduced.
A = TMC005 and TMC010 size resistor
B = TMC025 size resistor
C = TMC050, TMC100 and TMC250 size resistor



MATERIAL SPECIFICATIONS

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

Core: ceramic, steatite or alumina, depending on physical size

Encapsulant: silicone molded construction

Housing: aluminum with hard anodic coating

End Caps: stainless steel

Standard Terminals: For TMC005 through TMC050 size terminal finish - Lead (Pb)-free is Ni/Pd/Au, finish is on copper clad steel core terminal. For TMC100 and TMC250 terminals are threaded stainless steel.

Part Marking: HEI, model, wattage, value, tolerance, date code

TMC NON-INDUCTIVE

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by model number with special (TMC005…NI, for example).

SPECIAL MODIFICATIONS

A number of special modifications to the aluminum housed resistor style are available upon request. Special modifications include:

- Terminal configurations and materials
- Resistance values and tolerances
- Low resistance temperature coefficient (RTC)
- Housing configuration
- Threaded mounting holes
- Preconditioning and other additional testing

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at -55 °C	± (0.5 % + 0.05 Ω) ΔR
Short Time Overload	5x rated power for 5 s	± (0.5 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{RMS} TMC005, TMC010 and TMC025; 2000 V_{RMS} for TMC050; 4500 V_{RMS} for TMC100 and TMC250; duration 1 min	± (0.2 % + 0.05 Ω) ΔR
High Temperature Storage	250 °C for 2 h	± (0.5 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (1.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 *g*'s for 6 ms, 10 shocks	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each	± (0.2 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.05 Ω) ΔR
Terminal Strength	30 s, 5 pound pull test for TMC005 and TMC010, 10 pound pull test for other sizes	± (0.2 % + 0.05 Ω) ΔR

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