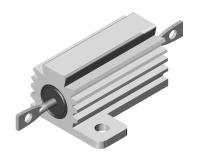




Wirewound Resistors, Industrial Power, Aluminum Housed, Chassis Mount



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





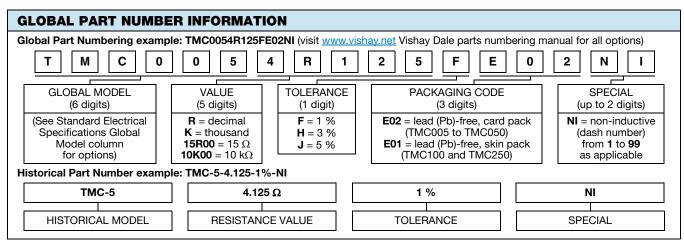
RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

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			
TMC005NI	TMC-5NI	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			
TMC010NI	TMC-10NI	12.5	0.05 to 23.5K	1, 3, 5	5			
TMC025	TMC-25	25	0.01 to 95.2K	1, 3, 5	12			
TMC025NI	TMC-25NI	25	0.05 to 47.6K	1, 3, 5	12			
TMC050	TMC-50	50	0.01 to 273K	1, 3, 5	28			
TMC050NI	TMC-50NI	50	0.05 to 136K	1, 3, 5	28			
TMC100	TMC-100	100	0.05 to 90K	1, 3, 5	353			
TMC100NI	TMC-100NI	100	0.05 to 37.5K	1, 3, 5	353			
TMC250	TMC-250	250	0.05 to 116K	1, 3, 5	637			
TMC250NI	TMC-250NI	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	\pm 20 for 10 Ω and above; \pm 50 for 1 Ω to 9.9 $\Omega,$ \pm 100 for 0.5 Ω to 0.99 Ω				
Maximum Working Voltage	V	$(P \times R)^{1/2}$				
Insulation Resistance	Ω	10 000 M Ω minimum dry, 1000 M Ω minimum after moisture test				
Solderability	-	Meets requirements of ANSI J-STD-002				
Operating Temperature Range	°C	-55 to +250				

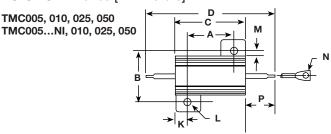


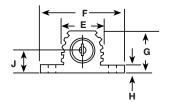
Revision: 23-Jun-16 1 Document Number: 31806



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DIMENSIONS in inches [millimeters]

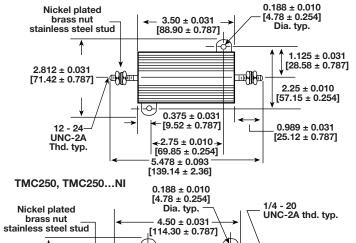


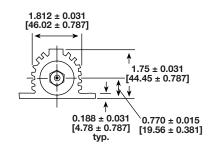


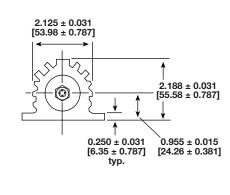
GLOBAL	BAL DIMENSIONS in inches [millimeters]													
MODEL	Α	В	С	D	E	F	G	Н	J	K	L	М	N	Р
TMC005 TMC005NI	0.444 ± 0.005 [11.28 ± 0.127]	0.490 ± 0.005 [12.45 ± 0.127]	0.600 ± 0.030 [15.24 ± 0.787]	1.125 ± 0.062 [28.58 ± 1.57]	0.334 ± 0.015 [8.48 ± 0.381]	0.646 ± 0.015 [16.41 ± 0.381]	0.320 ± 0.015 [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 TMC010NI	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 TMC025NI	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 TMC050NI	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]









1.25 ± 0.062 [31.75 ± 1.575]



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 TMC005NI	TMC010 TMC010NI	TMC025 TMC025NI	TMC050 TMC050NI	TMC100 TMC100NI	TMC250 TMC250NI				
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.

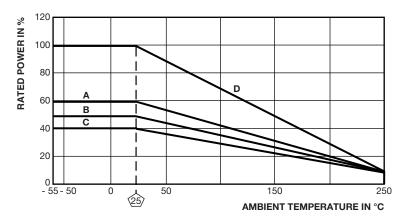
Curves A, B, C apply to operation of unmounted resistors. Curve D applies to all types when mounted to specified heat sink.

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



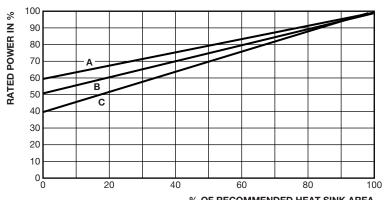
REDUCED HEAT SINK DERATING

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



% OF RECOMMENDED HEAT SINK AREA



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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	\pm (0.5 % + 0.05 Ω) ΔR				
Short Time Overload	5x rated power for 5 s	\pm (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	\pm (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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