



WIRE WOUND RESISTORS
CERAMIC ENCASED TYPE

HMW

SERIES

SPACE SAVER

Slim Type Vertical Mounting

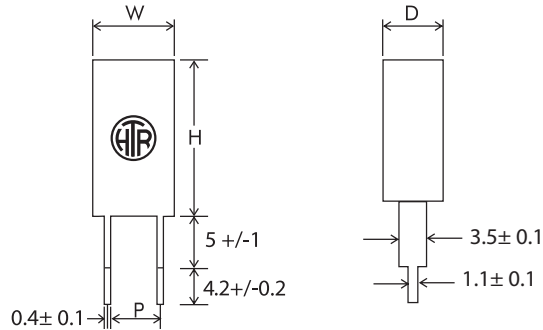
- E.D.D. CR. Mild Steel.
- Undercoat of copper, middle coat of nickel & top coat of dull tin plating.
- 5W & 9W
- R18 to 18K





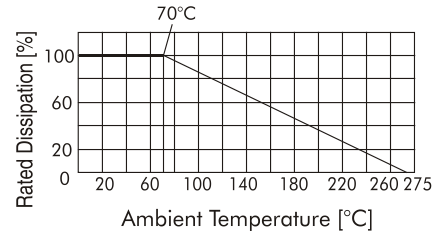
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PHYSICAL CONFIGURATION



HTR TYPE	POWER RATING at 70°C	DIMENSIONS (mm)				RESISTANCE VALUE		TYPICAL WEIGHT PER PC (gms)
		W ± 1	H ± 1.5	D ± 1	P ± 1	min	max	
MW5	5W	15.0	26.5	8.5	10.0	R18	10K	8.5
MW9	9W	15.0	40.5	8.5	10.0	R27	18K	11.0

DERATING CURVE



ELECTRICAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Power Rating (Rated Ambient Temperature)	Full power dissipation at 70°C and linearly derated to zero at +275°C - Refer derating curve above
Operating Temperature Range (Ambient)	-55°C to +275°C with suitable derating as per derating curve.
Voltage Rating / Limiting Voltage / Max Working Voltage	$V = \sqrt{P \times R}$
Maximum Overload Voltage	Varies depending on resistance value, duration of overload and type of pulse waveform. (contact factory for details).
Resistance Tolerances Available J15- C - 5202 para 5.1	±10% (K); ±5% (J); ±3% (H); ±2% (G); ±1% (F)

ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS

PARAMETER/ PERFORMANCE TEST	TEST METHOD-DETAILS	PERFORMANCE REQUIREMENTS
Short Time Overload	JIS- C - 5202 para 5.5 Condition B (Voltage corresponding to 10 times power for 5 sec)	$\Delta R \pm [2\% + R05]$
Dielectric Withstanding Voltage / Voltage Proof	JIS- C - 5202 para 5.7 Condition F (Limiting voltage x 2 or 500V)	$\Delta R \pm [1\% + R05]$
Temperature Co-efficient of Resistance	JIS- C - 5202 para 5.2	± 90 ppm / °C [$>10R$] ± 80 ppm / °C [$<10R$] ± 200 ppm / °C [$<R10$]
Insulation Resistance	JIS- C - 5202 para 5.6 (Condition F)	$>1000M\Omega$ (Min)
Pulse Overload / Intermittent Overload	JIS- C - 5202 para 5.8 (Limiting Voltage x 4) 1 sec on / 25 secs off 10,000 cycles ± 200 cycles	$\Delta R \pm [2\% + R05]$
Endurance - under load with humidity	JIS- C - 5202 para 7.9 1000 hours at 40°C ± 2°C, 95% R.H with limiting voltage (1.5 hours on / 0.5 hours off)	$\Delta R \pm [5\% + R05]$ - Typical
Load Life	JIS- C - 5202 para 7.10 1000 hours at 70°C limiting voltage (1.5 hours on / 0.5 off)	$\Delta R \pm [3\% + R05]$ - Average
Temperature Cycling	JIS- C - 5202 para 7.4 [Room temperature → -55°C → Room temperature → 155°C → Room temperature for 5 cycles.]	$\Delta R \pm [2\% + R05]$ - Typical
Damp Heat (Steady State)	JIS- C - 5202 para 7.5	$\Delta R \pm [2\% + R05]$ - Average
Solvent Resistance	JIS- C - 5202 para 6.9 Solvent A - IPA for 60secs ± 10 secs.	No effect on case filling or marking



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MECHANICAL SPECIFICATIONS

PARAMETER/ PERFORMANCE TEST	TEST METHOD- DETAILS	PERFORMANCE REQUIREMENTS
Pull Test / Robustness of Terminations	Direct load for 15 secs 2 to 4.5 kgs	No effect
Solderability	JIS- C - 5202 para 6.5	$\Delta R \pm [1\%+R05]$ - Typical Continuous and satisfactory (95% Min coverage)

TERMINATION

Material : E.D.D. CR. Mild Steel. Undercoat of copper, middle coat of nickel & top coat of dull tin plating. (ROHS Compliant / lead free plating.)

MARKING

The resistors will be marked as Resistance value followed by tolerance & then symbol "*" for lead free leads & then date code depending upon space.

e.g MW-5* J 1R0-Marking will be HTR LOGO MW5* 1R0 J & datecode

PACKING

- FOR MW-5 ⇒ 200 Resistors shall be packed in small box "A Type" of approximate size 200mmX150mmX70mm
- FOR MW-9 ⇒ 100 Resistors shall be packed in small box "A Type" of approximate size 200mmX150mmX70mm

Note : The ceramic cases used may be steatite ceramic, cordierite ceramic or high alumina ceramic. Thus, the ceramic cases may be off-white or variations of brown / grey, colours which are inherent to these ceramic material.

ORDERING INFORMATION

Series	Type	Packing	Resistance Value	Tolerance
HMW	MW5/MW5*	Bulk MW5/MW5*	100R	J

1. For RoHS Version - MW5*
2. For Pules Type - MW5I*
3. For Inductive Type - NMW5*