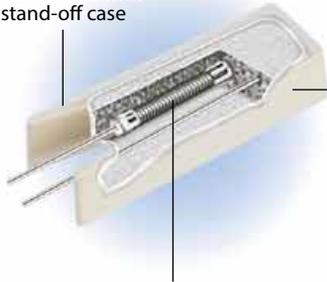




Flame proof high temperature ceramic case with stand-off case



Inorganic fire retardant encapsulant

Alloy wire wound element on fibreglass substrate/ ceramic substrate

WIRE WOUND RESISTORS CERAMIC ENCASED TYPE

HMV

SERIES

SPACE SAVER

Slim Type Vertical Mounting

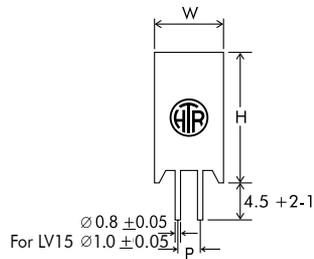
- Especially designed for crowded PCB's
- Ceramic stand-off's
- 2.5W to 15W
- R04 to 36K





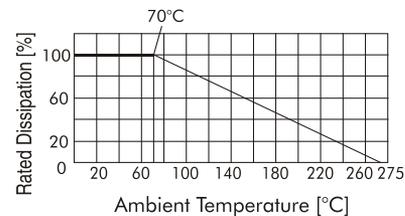
WIRE WOUND
RESISTORS
CERAMIC
ENCASED TYPE
HMV

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	
M2	2.5W	11.0	20.5	7.0	5.0	R04	5K0	3.8
M4	4W	12.0	25.0	7.0	5.0	R04	8K7	5.0
LV5	5W	13.0	25.5	9.0	5.0	R04	13K	6.4
M7	7W	12.5	38.0	9.0	5.0	R05	18K	7.5
LV7	7W	13 (± 1.5)	38.5	9.0	5.0	R05	22K	10.5
LV10	10W	16.0	35.0	12.0	7.5	R10	26K	15.5
LV10A	10W	13.0	50.0	9.0	5.0	R10	36K	13.0
LV15	15W	20.0 (± 1.5)	38.0	13.0	7.5	R10	26K	30.0

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)	>1000MΩ (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

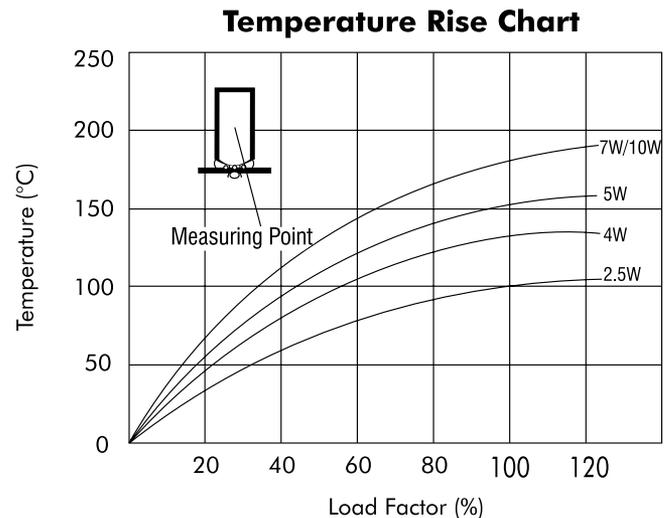


WIRE WOUND
RESISTORS
CERAMIC
ENCASED TYPE
HMV

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)

TEMPERATURE RISE (AT FULL POWER) (Ambient Temperature 32°C)



- The graph provided is general in nature and reflects temperature rise of some selected resistance values and is provided solely for the general guidance of the design engineer.
- Temperature at Solder Joint on PCB would be substantially lower (please consult factory for details)

TYPICAL APPLICATIONS

- The HMV series originated in the Far East to provide low cost high power resistors, which could be vertically mounted firmly on to a PCB with stability provided by its ceramic legs.
- These resistors find wide application in colour TV's, VCR's, Printers, Fax Machines, Inverters and Power supplies.
- Due to the nature of their construction, they can withstand surges quite efficiently. Please refer to "Pulse / Surge capability of resistors".
- For certain applications, these resistors can be supplied fitted with thermal fuse. (please contact factory for details).

Note :

- Type LV10 & LV10A can be provided with 1.0mm leads if required, please specify at the time of placing of the order.
- The ceramic cases used may be steatite ceramic or 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.
- Non inductive type available upto 1K0.

ORDERING INFORMATION

Series	Type	Packing	Resistance Value	Tolerance
HMV	LV5/LV5*	Bulk LV5/LV5*	100R	J

- For RoHS version - M-7 *
- For Pulse Type - M-7 I
- For Non Inductive Type - N M-7
- For 1.0mm lead wire - LV-10 (1)