

**CURRENT SENSE / LOW OHM  
CERAMIC ENCASED TYPE**

**HMVL**

**SERIES**

**SPACE SAVER**

**Slim Type Vertical Mounting**

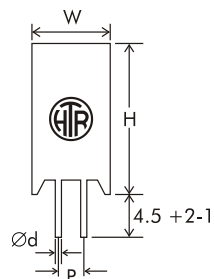
- Especially designed for crowded PCB's
- Ceramic stand-offs.
- Any resistance value possible within resistance range given.
- 2.5W to 15W
- R004 to R20





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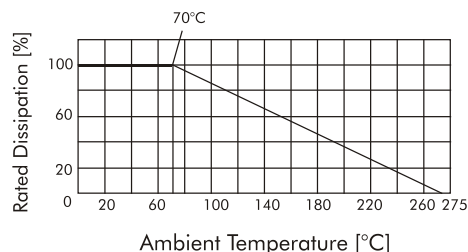
## PHYSICAL CONFIGURATION



HTR TYPE	POWER RATING at 70°C	DIMENSIONS (mm)					RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		W ±1	H ±1.5	D ±1	Ød ±0.05	P ±1	min	max	
M2L	2.5W	11.0	20.5	7.0	0.8	5.0	R004	R063	3.5
M4L	4W	12.0	25.0	7.0	0.8	5.0	R004	R10	4.5
LV5L	5W	13.0	25.5	9.0	0.8/1.0	5.0	R004	R10	6.0
M7L	7W	12.5	38.0	9.0	0.8/1.0	5.0	R005	R15	7.0
LV7L	7W	13±1.5	38.5	9.0	0.8/1.0	5.0	R005	R15	12.5
LV10L	10W	16.0	35.0	12.0	0.8/1.0	7.5	R005	R15	14.5
LV10AL	10W	13.0	50.0	9.0	0.8/1.0	5.0	R005	R20	12.5
LV15L	15W	20±1.5	38	13.0	1.0	7.5	R005	R15	30

- LV5L / M7L / LV7L / LV10L / LV15L and LV10AL are also available with 1mmØ terminations which contributes to lowering the TCR of the resistor.
- The resistance values must be checked using 4½ digit micro-ohm meter with four wire system and insulated clips.

## DERATING CURVE



## ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
<b>Power Rating</b> (Rated Ambient Temperature)	Full Power dissipation at 70°C and linearly derated to zero at +275°C (Refer Derating Curve above)
<b>Resistance Tolerances Available</b>	±10% (K); ±5% (J); ±3% (H); ±2% (G); ±1% (F)
<b>Operating Temperature Range</b>	-55°C to +275°C with suitable derating as per derating curve.
<b>Voltage Rating / Limiting Voltage / Max. Working Voltage</b>	$V = \sqrt{P \times R}$
<b>Voltage Proof / Dielectric Withstanding Voltage</b> (based on 1000V rms for 60secs)	$\Delta R \pm [1\% + R05]$ - Average. No flashover or mechanical damage
<b>Insulation Resistance</b> [MIL STD 202F - Test Method 302]	>1000M (Min)
<b>Short Time Overload</b> (5 x Rated power upto 2 watts and 10 x Rated power 3 watts and above for 5 secs)	$\Delta R \pm [1\% + R0005]$ - Average $\Delta R \pm [2\% + R0005]$ - For resistance values near maximum range.
<b>Temperature Co-efficient of Resistance</b> [Measured from -55°C to +125°C referenced to +25°C]	±60 to 400 ppm/°C (Depending on resistance value)
<b>Thermal Shock</b> [-65°C to +125°C, 5 cycles, 15 mins at each extreme temperature]	$\Delta R \pm [1.5\% + R0005]$ - Average
<b>Mechanical Shock</b> (Specified Pulse) [MIL STD 202F - Test Method 213B condition 'C']	$\Delta R \pm [0.75\% + R0005]$ - Typical
<b>Moisture Resistance</b> [MIL STD 202F - Test Method 106E with step 7b eliminated]	$\Delta R \pm [1.25\% + R0005]$ - Average
<b>Damp Heat</b> (Steady State) / Humidity (40°C at 95% R.H for 250 hours)	$\Delta R \pm [1.5\% + R0005]$ - Typical
<b>Endurance - Load Life</b> (70°C with limiting voltage - 1.5 hours on / 0.5 hours off)	$\Delta R \pm [2.5\% + R0005]$ - Average - 2000 hours duration $\Delta R \pm [\leq 2.0\% + R0005]$ - Typical - 1000 hours duration
<b>Solvent Resistance</b> [IPA for 60 secs ±10 secs]	No effect on case filling / marking



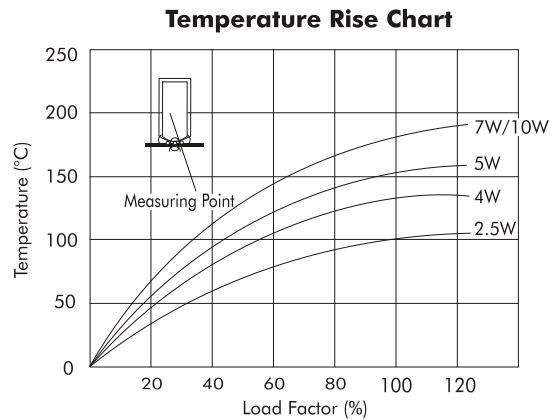
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## MECHANICAL SPECIFICATIONS

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
<b>Pull Test / Robustness of Terminations</b> [Direct load 2 to 4.5 Kgs depending on size for 15 secs]	No effect
<b>Resistance to Soldering Heat</b> (260°C - 270°C for 4 secs)	$\Delta R \pm [0.1\% + R0005]$ - Typical
<b>Solderability</b> [MIL STD 202F - Test Method 208F]	Must meet the requirements laid down (95% satisfactory coverage)
<b>Marking</b>	As per IEC Pub. 60062

## TEMPERATURE RISE (AT FULL POWER) (Ambient temperature 32°C)

•Temperature rise at solder joint on PCB would be substantially lower. (Consult factory for details)



## TYPICAL APPLICATIONS

These resistors find wide application in inverters and power supplies.

The HMVL series offers a practical solution to current sensing applications where PCB space is at a premium and low inductance is required - SMPS and linear power supplies.

For the effective utilization of these resistors, please refer "Application / Design notes for current sense resistors".

## ORDERING INFORMATION

Series	Type	Packing	Resistance Value	Tolerance
HMVL	M7L/M7L*	Bulk M7L/M7L*	R068	J

1. For RoHS version - M-7L \*
2. For 1mm terminations - M-7L (1)