Rev Date : 22/05/2019

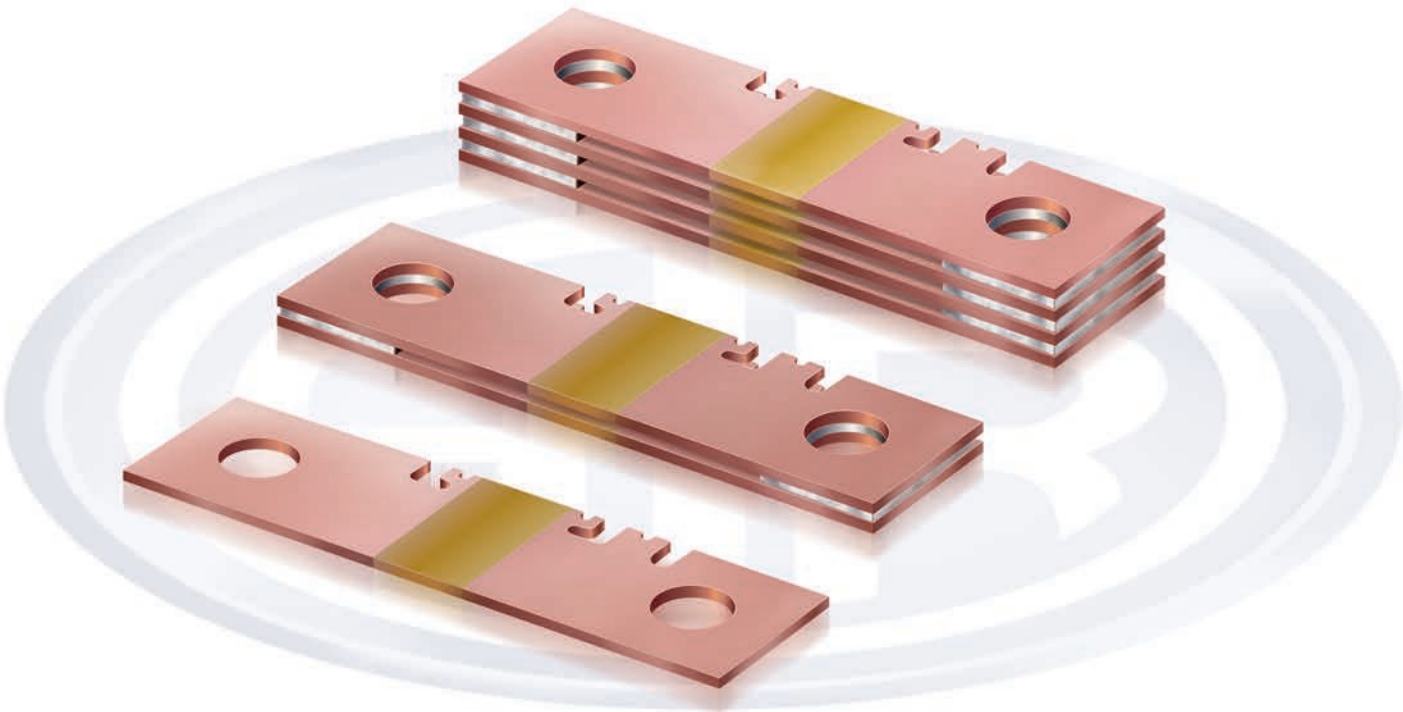
POWER METAL STRIP
SHUNT RESISTORS FOR ENERGY METERS

HVE
SERIES
Size 5515

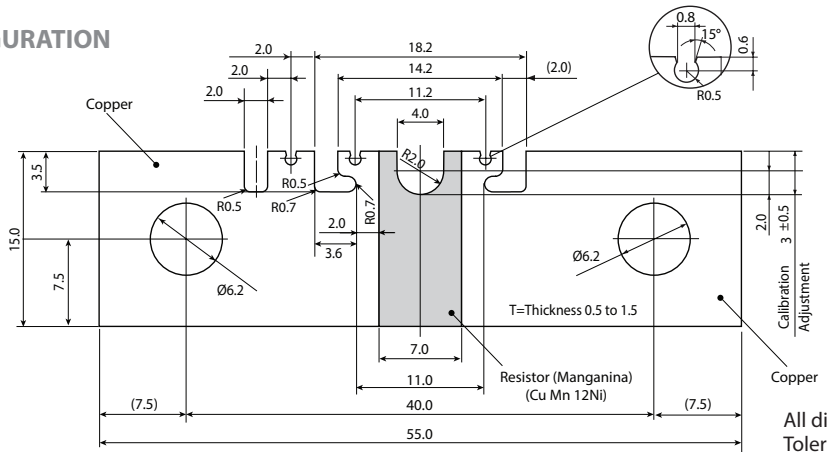
• 4-Terminal (Kelvin) connection design.
•Extremely low resistance values.
•Very low inductance (<0.5nH)
• Negligible EMF (3µ V/°C)

AEC-Q200 Qualified

Pb-free RoHS COMPLIANT



PHYSICAL CONFIGURATION



All dimensions in mm
Tolerance ± 0.127 mm

APPLICATIONS

- Designed for precision energy meter applications.
- Current sensing in bus bar.
- Current sensing in welding equipments.
- Current sensing in battery chargers.

FEATURES

- Upto 5W permanent power in free air.
- High pulse power rating (1KW for 0.1 Sec - Single pulse).
- Punched component of Electron Beam Welded Copper / Manganina Copper / Copper Strip (Cu Mn 12Ni).
- These resistors can also be supplied soldered together in parallel connection in stacked format to create lower resistance value & enhanced heat dissipation.

ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS

PARAMETER / PERFORMANCE TEST / METHOD	PERFORMANCE REQUIREMENTS
Power Rating	5W For Manganina (Cu Mn 12 Ni) - Full power dissipation at 105°C & linearly derated to zero at +135°C.
Inductance	< 0.5nH to < 3nH
Resistance Tolerance	± 5% (1% and other tolerances available on request)
Temperature Range	- 55°C to +140°C
Voltage Rating / Limiting Voltage / Max. Working Voltage (Subject to max. terminal temperature of 120°C)	$\sqrt{P \times R}$
Temperature Coefficient of Resistance (Ambient temperature range 20°C - 60°C)	< 20 ppm / K (depending on resistance value)
Life Test / Operational Life - 2000 h rated power with Temperature limitation on Terminal kept at 120° C	ΔR ± 1% - Average
Thermal EMV (0-60° C)	0.3µV/°C
Internal heat resistance (Rthi)	From 2°K/W
Resistance Values	0.00016 / 0.0002 / 0.00025 / 0.0003 / 0.0004 / 0.0005 ohms
Thermal Shock MIL-STD-202 method 107-B1	0.2 %
Short Time Overload MIL-R-26E (5 times rated power, 5 Sec)	0.2 %
Solderability MIL-STD-202 method 208	>95% coverage
Resistance to Solvents MIL-STD-202 method 215, 2.1a, 2.1d	no damage
Low Temperature Storage & Operation MIL-STD-26E	0.1%
Resistance to Soldering Heat MIL-STD-202 method 210B	0.1%
Moisture Resistance MIL-STD-202 method 106	0.1%
Shock MIL-STD-202 method 213-A	0.2 %
Vibration, High Frequency MIL-STD-202 method 204B	0.2 %
Storage Life at Elevated Temperature MIL-STD-202 method 108-F	0.3 %
High Temperature Exposure 125°C, 2000h	0.3 %

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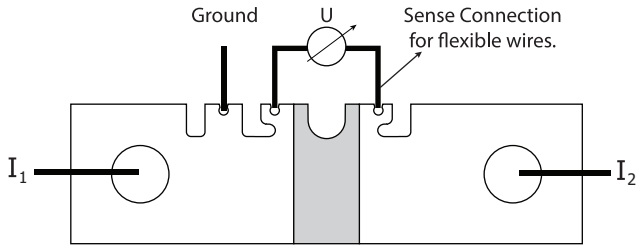
CONNECTION DIAGRAM



PACKAGING

- Resistors are packed in sealed plastic box with lid having a polyurethane foam bottom layer - 200 pcs in box of approximate size 135mm X 90mm X 40mm. On top of these 200 pcs a similar polyurethane foam sheet is placed prior to closing the lid. This box is shrink wrapped and 8 such plastic boxes are placed in a master carton of approximate size 310mm X 205mm X 95mm = Total 1600 pcs / master carton.
- Stacked & soldered resistors, packaging details on request (Depending on stack size).

Storage Condition (Packed) : Temp 25°C to 35°C, Humidity 30 to 80% RH, Shelf life - 12 months

Floor Life (Unpacked) : Temp 25°C to 35°C, Humidity 30 to 80% RH, Floor life - 15 days

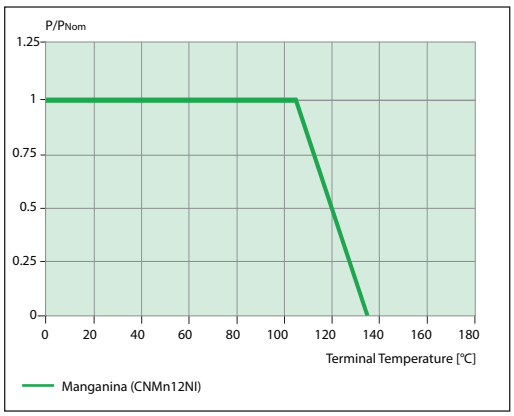
MARKING

HTR PART NO	PRINTING
HVE5W* R0002 J	HTR R0002 5% DATECODE

ORDERING INFORMATION

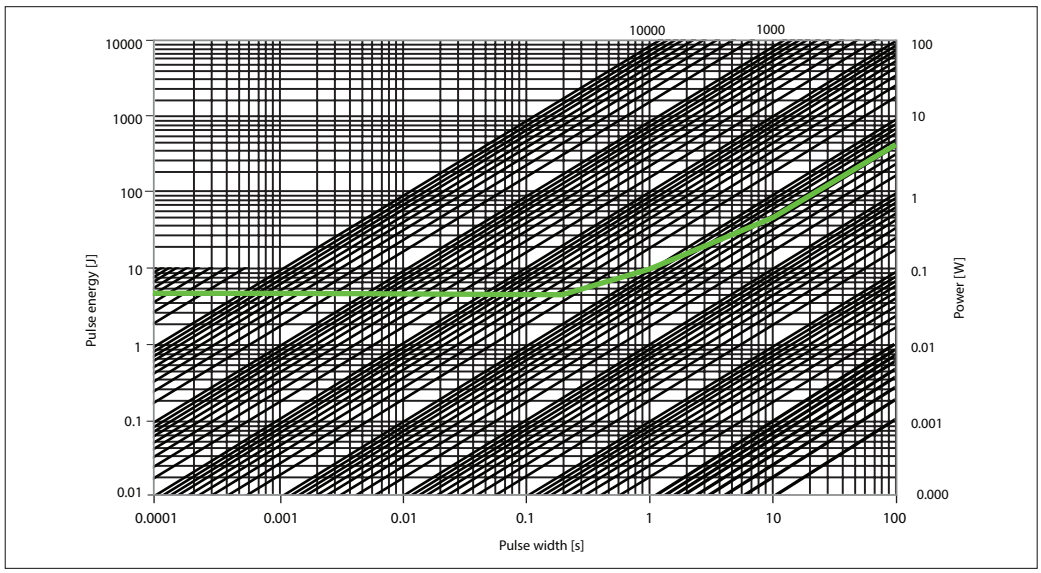
SERIES	TYPE	PACKING	RESISTANCE VALUE	TOLERANCE
HVE	HVE5W*	Bulk	R0002	J

TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 105° C



In case the Design Engineer requires a specific graph of a particular component it can be supplied on request.

MAXIMUM PULSE ENERGY WITH RESPECT TO PULSE POWER FOR PERMANENT OPERATION



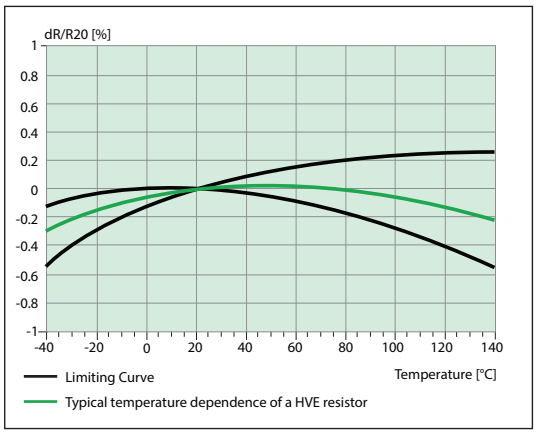
Pulse power for continuous operation.

This curve is only valid for the resistance value R0002.

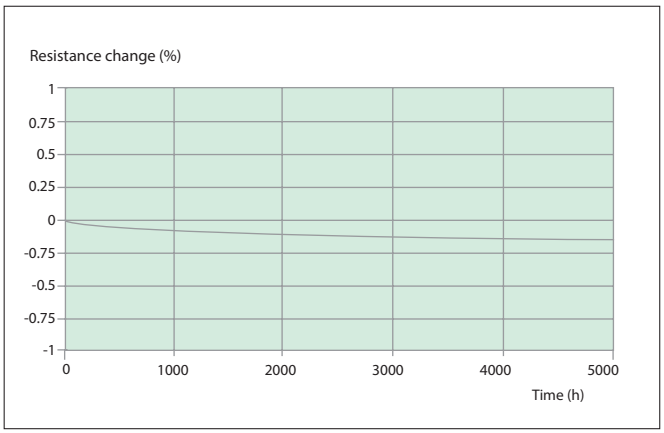
The shape of the curve in the range below 0.1 sec will be different for other resistance values.

In case the Design Engineer requires a specific graph of a particular component it can be supplied on request.

TYPICAL TEMPERATURE DEPENDANCE OF THE ELECTRICAL RESISTANCE



TYPICAL CURVE SHOWING LONG TERM STABILITY OF MANGANINA (Cu Mn 12Ni) RESISTORS AT 140°C



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