



**LOW OHM BATTERY
SHUNT RESISTORS**

**HEB
SERIES**

Sizes 8518, 8420,
7036, 6918, 6315,
6018, 5520, 5216

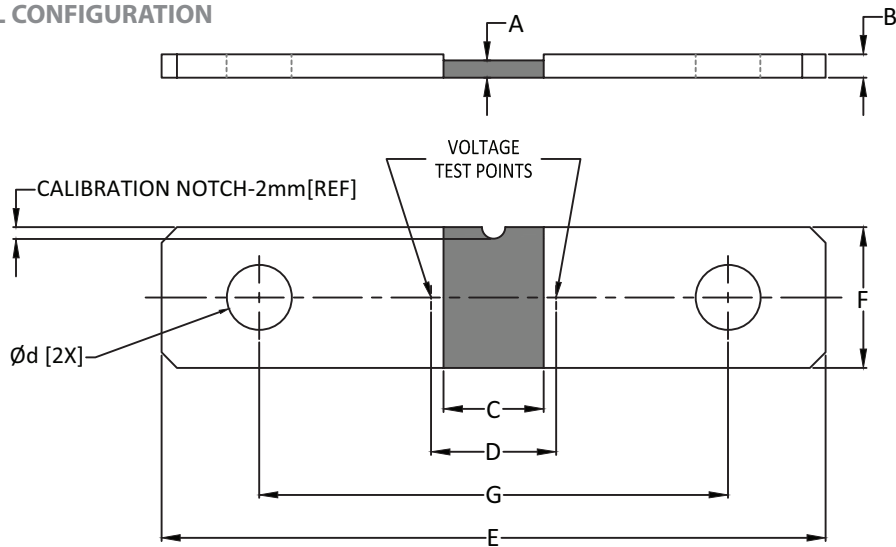
- Open frame electron beam welded punched out type
 - 6W to 50W
 - R000035 to R001





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PHYSICAL CONFIGURATION



DIMENSIONAL TABLE

SR NO	HTR Type	Resistance Value	Tolerance*	A	B	C	D	E	F	G	$\phi d \pm 0.10$	CHAMFER	
				± 0.20	± 0.1	± 0.5	± 0.2	± 0.3	± 0.10				
1	HEB36W R00005 (8518)	R00005	$\pm 3, \pm 5, \pm 10\%$	2.2	3	4.5	7.7	85	18	60 ± 0.2	8.3	2X45° (3Place)	5X45° (1Place)
2	HEB36W R000125 (8518)	R000125	$\pm 3, \pm 5, \pm 10\%$	2	3	10.3	13.5	85	18	60 ± 0.2	8.3	2X45° (4Place)	
3	HEB36W R00025 (8518)	R00025	$\pm 3, \pm 5, \pm 10\%$	2	3	21	24.2	85	18	60 ± 0.2	8.3		
4	HEB15W R0001 (8518)	R0001	$\pm 3, \pm 5, \pm 10\%$	2.2	3	9	12.2	85	18	60 ± 0.2	8.3		
5	HEB8W R0002 (8518)	R0002	$\pm 3, \pm 5, \pm 10\%$	2	3	16.5	19.7	85	18	60 ± 0.2	8.3		
6	HEB7W R0005 (8518)	R0005	$\pm 3, \pm 5, \pm 10\%$	2	3	12.8	15.8	85	18	60 ± 0.2	8.3		
7	HEB36W R000035 (8420)	R000035	$\pm 3, \pm 5, \pm 10\%$	2	3	4.8	8	84	20	60 ± 0.2	8.3		
8	HEB36W R00005 (8420)	R00005	$\pm 3, \pm 5, \pm 10\%$	2.2	3	5	8.2	84	20	60 ± 0.2	8.3		
9	HEB36W R00025 (8420)	R00025	$\pm 3, \pm 5, \pm 10\%$	2	3	23	26.2	84	20	60 ± 0.2	8.3		
10	HEB15W R0001 (8420)	R0001	$\pm 3, \pm 5, \pm 10\%$	2.2	3	10	13.2	84	20	60 ± 0.2	8.3		
11	HEB8W R0002 (8420)	R0002	$\pm 3, \pm 5, \pm 10\%$	2	3	18	21.2	84	20	60 ± 0.2	8.3		
12	HEB7W R0005 (8420)	R0005	$\pm 3, \pm 5, \pm 10\%$	2	3	14	17.2	84	20	60 ± 0.2	8.3		
13	HEB6W R001 (8420)	R001	$\pm 3, \pm 5, \pm 10\%$	2	3	28	31.2	84	20	60 ± 0.2	8.3		
14	HEB50W R00005 (7036)	R00005	$\pm 3, \pm 5, \pm 10\%$	2.2	3	9	12.5	70	36	50 ± 0.1	8.5		
15	HEB36W R00005 (6918)	R00005	$\pm 3, \pm 5, \pm 10\%$	2.2	3	4.5	6.6	69	18	52 ± 0.1	6.8	2X45° (3Place)	5X45° (1Place)
16	HEB36W R000075 (6315)	R000075	$\pm 3, \pm 5, \pm 10\%$	1.92	3	5	8.1	63	15.5	48 ± 0.1	5	2X45° (3Place)	5X45° (1Place)
17	HEB15W R0001 (6018)	R0001	$\pm 3, \pm 5, \pm 10\%$	2	3	8.3	11.4	60	18	44 ± 0.1	6.6	2X45° (3Place)	5X45° (1Place)
18	HEB15W R0001 (5520)	R0001	$\pm 3, \pm 5, \pm 10\%$	2.2	3	10	18.2	55	20	40 ± 0.1	8.25		
19	HEB50W R00005 (5520)	R00005	$\pm 3, \pm 5, \pm 10\%$	2	3	4.55	6.7	55	20	40 ± 0.1	6.3		
20	HEB15W R0001 (5216)	R0001	$\pm 3, \pm 5, \pm 10\%$	2.2	3	8.1	11.2	52	16	33.7 ± 0.1	6.6	2X45° (3Place)	3X45° (1Place)
21	HEB15W R00005 (5216)	R00005	$\pm 3, \pm 5, \pm 10\%$	2.2	3	4.6	6.8	52	16	35 ± 0.1	6.8	2X45° (3Place)	5X45° (1Place)

*Lower tolerance available on request.

Note

- Alignment pins can be provided to align the resistor with PCB. This also helps prevent the resistor from moving during wave soldering process.
- For electrical connections separate pins can be provided on request.



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APPLICATIONS

- Current sensing resistor for electronic battery management in electric vehicles and solar inverters

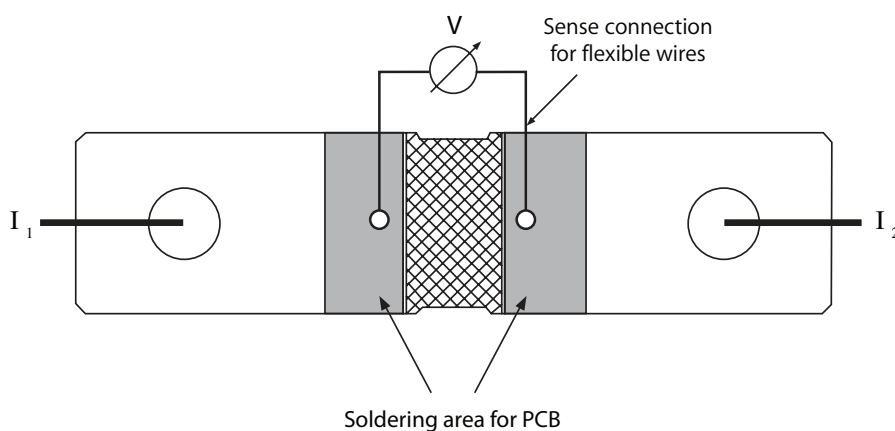
FEATURES

- Continuous current load upto 400A (0.5 m-ohm)
- Maximum fastening torque 12Nm
- Shunt available with tinned or without tinned terminals
- Alignment pins to prevent the resistor from moving during the soldering process can be provided
- Measurement pins to measure the voltage can be provided.

ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS

PARAMETER / PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Power Rating	For FeCrAl - Full power dissipation at 70° C and linearly derated to zero at +170° C. For Manganin (< 0.5% Improved Stability) - Full power dissipation at 105° C & linearly derated to zero at +135° C. For Manganin (< 1% Stability) - Full power dissipation at 140° C and linearly derated to zero at +170° C.
Inductance	< 1nH
Temperature Range	- 40° C to +170° 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)	< 50 ppm / K (Depending on Resistance Value) For resistance values < 0.05 m Ω TCR on Request
Life Test / Operational Life - 2000 h rated power with Temperature limitation on Terminal kept at 120° C	$\Delta R \pm 0.1\%$ - Average
Thermal EMV (0-60° C)	0.3 μ V/K
Internal heat resistance (Rthi)	From 2°K/W

CONNECTION DIAGRAM



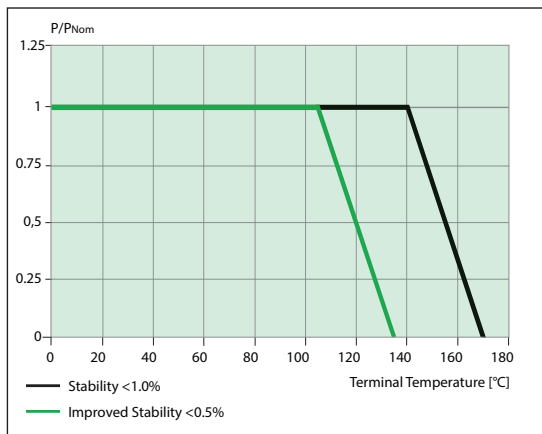


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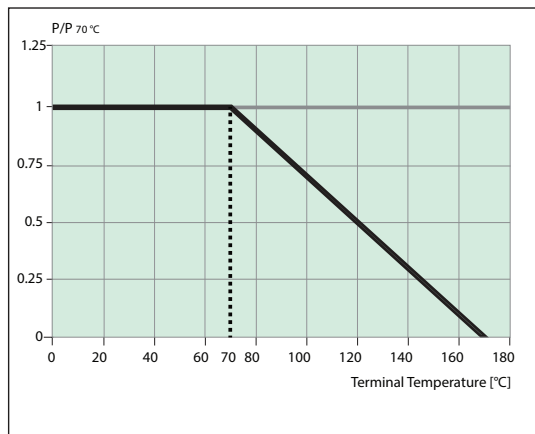
HEB

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TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 105° C & 140° C

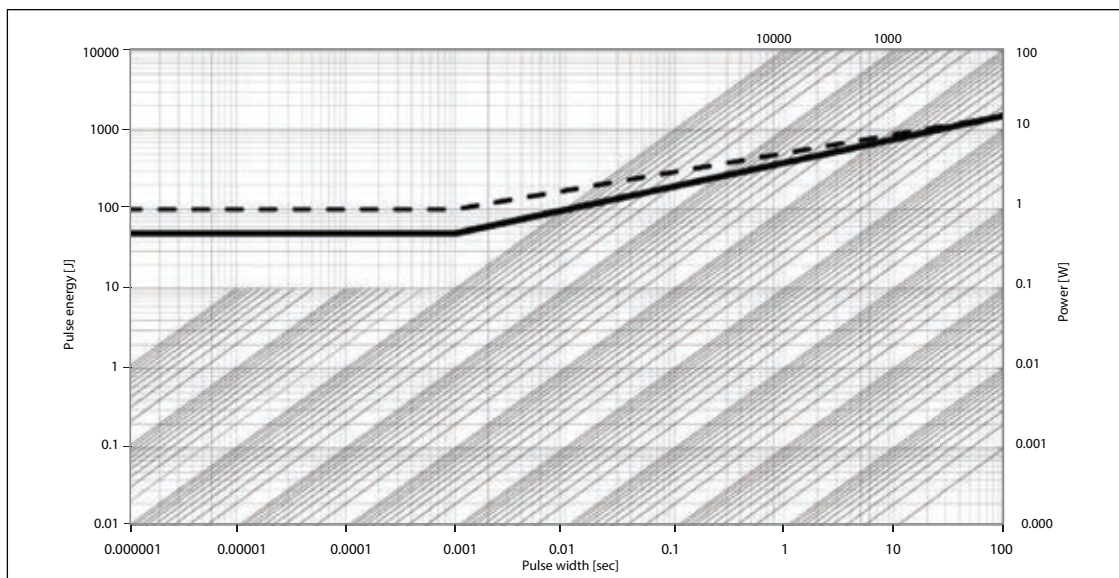


TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 70° C



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 PERMANANT OPERATION

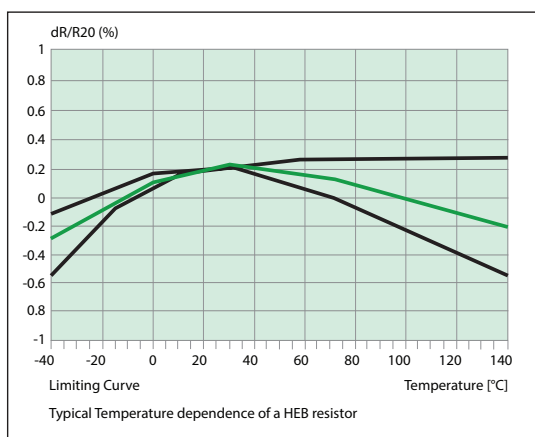


— — Single pulse — Pulse power for continuous operation.

This curve is only valid for the resistance value R0001. 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





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PACKAGING

SR NO.	HTR Type	Pieces Per Inner Box	Inner Box Dimension (L X W X H)
1	HEB36W R00005 (8518)	100	162mm X 104mm X 37mm
2	HEB36W R000125 (8518)	100	162mm X 104mm X 37mm
3	HEB36W R00025 (8518)	100	162mm X 104mm X 37mm
4	HEB15W R0001 (8518)	100	162mm X 104mm X 37mm
5	HEB8W R0002 (8518)	100	162mm X 104mm X 37mm
6	HEB7W R0005 (8518)	100	162MM X 104MM X 37MM
7	HEB36W R000035 (8420)	100	162mm X 104mm X 37mm
8	HEB36W R00005 (8420)	100	162mm X 104mm X 37mm
9	HEB36W R00025 (8420)	100	162mm X 104mm X 37mm
10	HEB15W R0001 (8420)	100	162mm X 104mm X 37mm
11	HEB8W R0002 (8420)	100	162mm X 104mm X 37mm
12	HEB7W R0005 (8420)	100	162mm X 104mm X 37mm
13	HEB6W R001 (8420)	100	162mm X 104mm X 37mm
14	HEB50W R00005 (7036)	100	162mm X 104mm X 37mm
15	HEB36W R00005 (6918)	100	162mm X 104mm X 37mm
16	HEB36W R000075 (6315)	100	162mm X 104mm X 37mm
17	HEB15W R0001 (6018)	100	162mm X 104mm X 37mm
18	HEB15W R0001 (5520)	100	162mm X 104mm X 37mm
19	HEB50W R00005 (5520)	100	162mm X 104mm X 37mm
20	HEB15W R0001 (5216)	100	162mm X 104mm X 37mm
21	HEB15W R00005 (5216)	100	162mm X 104mm X 37mm

Note : Resistor can be packed on trays to mount with Pick and Place machine or Robotic arm. Please contact HTR for more information.

STORAGE CONDITION

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

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

Floor Life for plated pieces (Unpacked): Temp 25°C to 35°C, Humidity 30 to 80% RH, Floor life - 6 months.

ORDERING INFORMATION

SERIES	HTR PART NO.	TYPE	RESISTANCE VALUE	TOLERANCE	MARKING ON RESISTOR
HEB	HEB15W R0001 (5520) ± 5%	HEB15W (5520) HEB15W-T (5520)	R0001	± 5%	HTR R0001 5% DATECODE
HEB	HEB8W R0002 (8518) ± 3%	HEB8W (8518) HEB8W-T (8518)	R0002	± 3%	HTR R0002 3% DATECODE
HEB	HEB36W R00025 (8420) ± 10%	HEB36W (8420) HEB36W-T (8420)	R00025	± 10%	HTR R00025 10% DATECODE

All types are RoHS compliant.

For without tinning :

Part no of HEB15W (5520), with resistance value R0001 and 5% tolerance, HTR part no. will be **HEB15W (5520) R0001 ±5%**

For Tinned terminals-T :

Part no of HEB15W-T (5520), with resistance value R0001 and 5% tolerance, HTR part no. will be **HEB15WT (5520) R0001 ±5%**.