



**LOW OHM POWER
RESISTORS**

**HEE
SERIES
Size 5930**

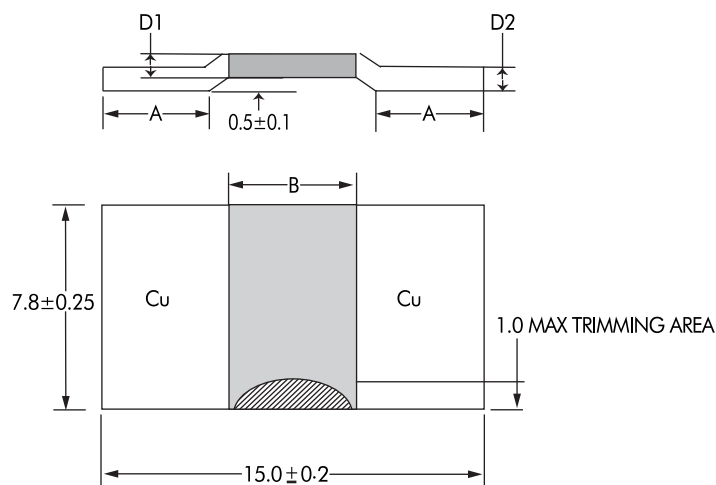
- Open frame electron beam welded punched out type.
- Power Rating at 100°C - upto 10W
- Power Rating at 70°C - upto 15W
R0001 to R002





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PHYSICAL CONFIGURATION



DIMENSIONAL TABLE

SR NO.	HTR TYPE	RESISTANCE VALUE	TOLERANCE	WATTAGE AT 100° C	WATTAGE AT 70° C	A (mm) +0.1/-1.0	B (mm) +0.2/-0.3	D1 (mm) ± 0.10	D2 (mm) ± 0.10	INTERNAL HEAT RESISTANCE (Rthi)	TCR (ppm)	TYPICAL WT. PER PC (gms)
1	HEE10W R0001	R0001	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	10W	15W	4.2	3.7	1.42	1.42	2° K/W	< 200	1.65
2	HEE10W R0002	R0002	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	10W	15W	4.2	5.0	1.40	1.40	3° K/W	< 100	1.60
3	HEE7W R0003	R0003	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	7W	10W	4.2	5.0	0.93	0.93	4.5° K/W	< 100	1.10
4	HEE7W R0005	R0005	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	7W	10W	4.2	4.4	1.63	1.42	5° K/W	< 75	1.62
5	HEE6W R0005	R0005	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	6W	8W	4.2	5.0	0.55	0.55	8° K/W	< 75	0.61
6	HEE5W R0006	R0006	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	5W	8W	4.2	5.0	0.46	0.46	10° K/W	< 75	0.53
7	HEE6W R001	R001	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	6W	9W	4.2	4.9	0.91	0.91	8° K/W	< 50	0.90
8	HEE4W R002	R002	± 0.25, ± 0.5, ± 1, ± 2, ± 3, ± 5%	4W	7W	4.2	4.9	0.46	0.70	16° K/W	< 50	0.44

APPLICATIONS

- Accurate current sensing for power hybrid applications.
- Suitable for welding on bus bars.
- High current applications for automotive market.
- Frequency converters.
- Power modules.

FEATURES

- 10W constant power possible in R0002.
- Capable of carrying current upto 225amp (R0002) continuous basis.
- Sturdy copper connectors.
- Excellent long term stability.
- Maximum solder temperature upto 350°C for 30 seconds.



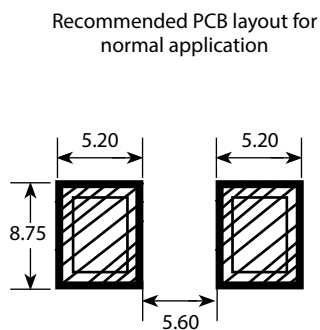
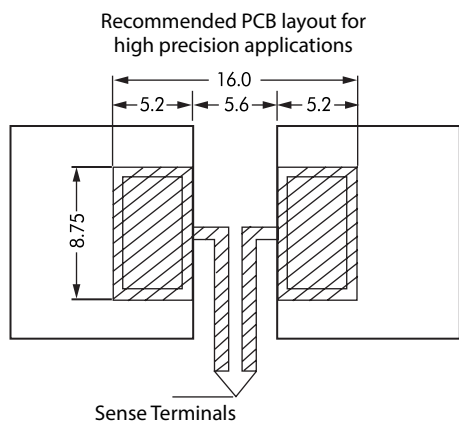
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ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS

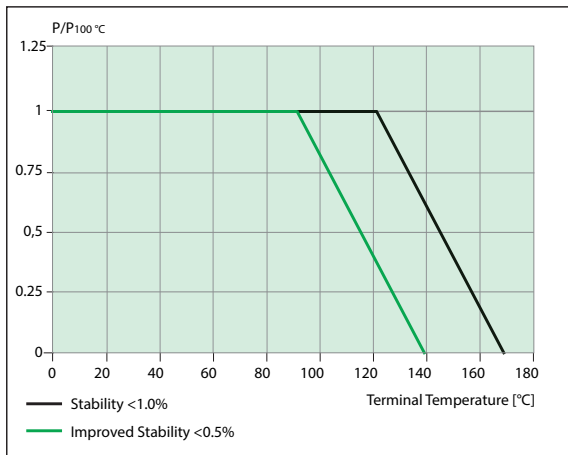
PARAMETER / PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Power Rating	For FeCrAl - Full power dissipation at 70° C and linearly derated to zero at +170° C. For Manganin (< 0.5% Improved Stability) - Full power dissipation at 90° C & linearly derated to zero at +140° C. For Manganin (< 1% Stability) - Full power dissipation at 120° C and linearly derated to zero at +170° C.
Inductance	< 3nH
Temperature Range	- 55° C to +170° C
Voltage Rating / Limiting Voltage / Max. Working Voltage (Subject to max. Terminal Temperature of 120° C)	$\sqrt{P \times R}$
Low Temperature Storage and Operation [-65° C for 250 h]	$\Delta R \pm 0.1\%$ - Average
Temperature Coefficient of Resistance (Ambient Temperature Range 20° C - 60° C)	From 50 ppm / K (Depending on Resistance Value)
Temperature Cycling -2000 cycles (-55° C to 150° C)	$\Delta R \pm 0.5\%$ - Average
Life Test / Operational Life - 2000 h rated power with Temperature limitation on Terminal kept at 120° C	$\Delta R \pm 1\%$ - Average
Moisture Resistance [MIL-STD-202 method106]	$\Delta R \pm 0.1\%$ - Average
Mechanical Shock [100 g. 6 ms half sine]	$\Delta R \pm 0.2\%$ - Typical
Vibration, High Frequency [20 g. 10-2000 Hz]	$\Delta R \pm 0.2\%$ - Typical
Bias Humidity [+85° C, 85% RH, 1000h]	$\Delta R \pm 0.5\%$ - Typical
Resistance to Soldering Heat	260° C for 10 sec / 8h steam aging
High Temperature Exposure – 2000h / 170° C	$\Delta R \pm 1\%$ - Average (In covered condition)

RECOMMENDED SOLDER PROFILE

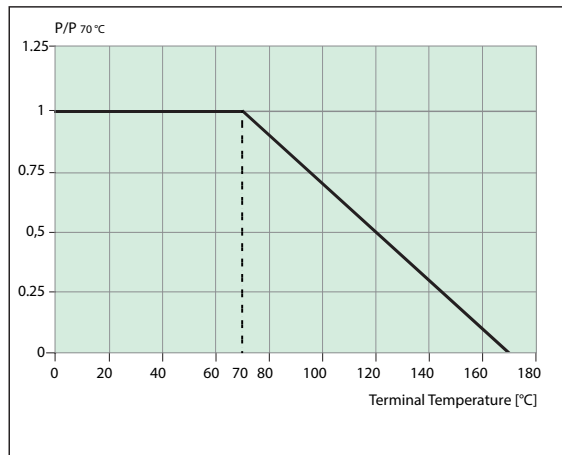
Reflow, IR - and wave soldering			
Temperature (°C)	260	255	217
Time (Sec)	Peak	40	90



TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 90°C & 120°C

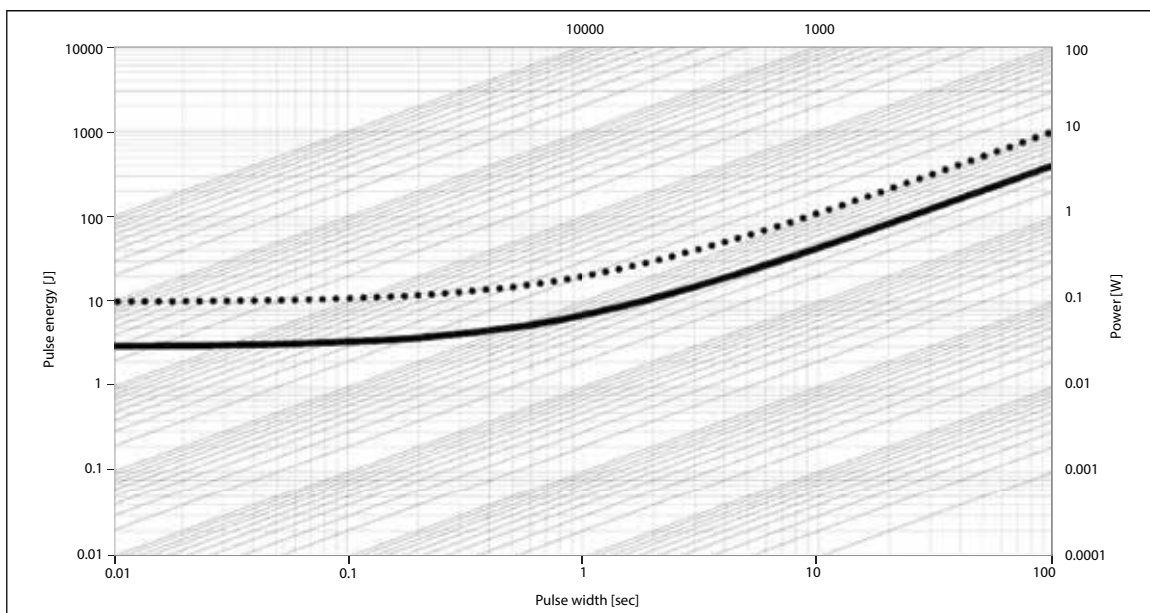


TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 70°C



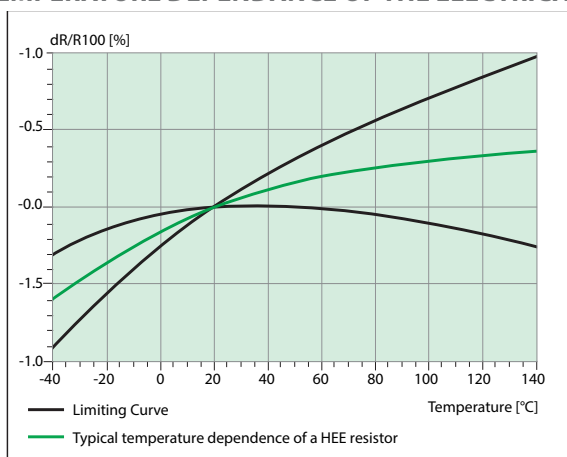
In case the Design Engineer requires a specific graph of a particular component it can be supplied on request.

MAXIMUM PULSE ENERGY WITH RESPECT TO PULSE POWER FOR PERMANANT OPERATION



In this graph the max. & min. curve are shown as ••• and — for all resistance values, the area between the max. & min. curve is applicable. 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





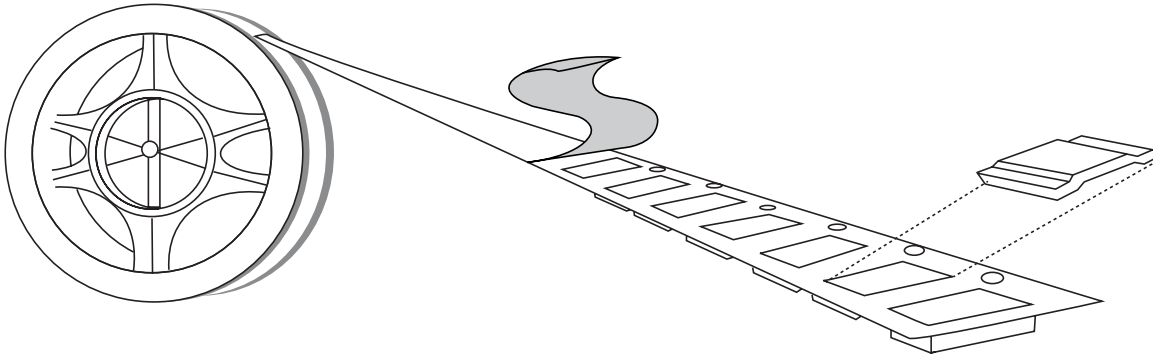
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PACKAGING

A. BULK

Resistors shall be packed in the plastic Box-K-44 of approximate size 162mmx104mmx37mm - 1500 pcs/box and this box will be vacuum sealed with polythene of 100 micron. With enclose silica gel.

B. TAPE & REEL PACKING



SPECIFICATION	TAPEWIDTH	PARTS PER REEL
EIA-481-D	24mm	2000 pcs

STORAGE CONDITION

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

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

ORDERING INFORMATION AS AN EXAMPLE

SERIES	HTR PART NO.	TYPE	RESISTANCE VALUE	TOLERANCE	MARKING ON RESISTOR
HEE	HEE6W	Tape & Reel – HEE6WTR	R001	± 1%	HTR HEE R001 1% DATECODE
HEE	HEE7W	Bulk - HEE7W	R0005	± 0.5%	HTR HEE R0005 0.5% DATECODE
HEE	HEE10W	Tape & Reel – HEE10WTR	R0001	± 5%	HTR HEE R0001 5% DATECODE

Part no of HEE6W, Tape and reel with resistance value R001 and 1% tolerance, will be **HEE6WTR R001 ±1%**

Part no of HEE7W, Bulk with resistance value R0005 and 0.5% tolerance, will be **HEE7W R0005 ±0.5%**

Part no of HEE10W, Tape and reel with resistance value R0001 and 5% tolerance, will be **HEE10WTR R0001 ±5%**