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LOW OHM POWER RESISTORS

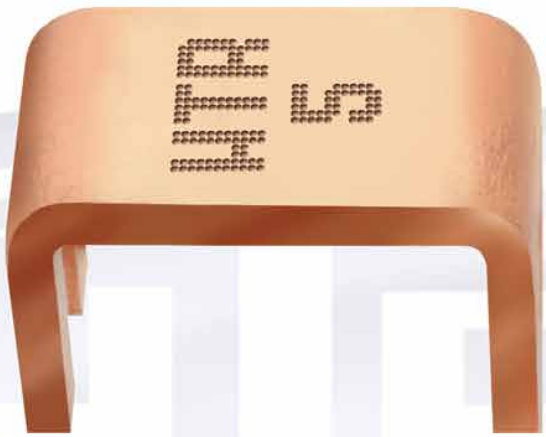
HHE

SERIES
Size 3820

- Open frame electron beam welded punched out type.
- Power Rating at 100°C - upto 5W
- Power Rating at 70°C - upto 7W
- R0003 to R002

As per AEC-Q200

Pb-free * RoHS COMPLIANT



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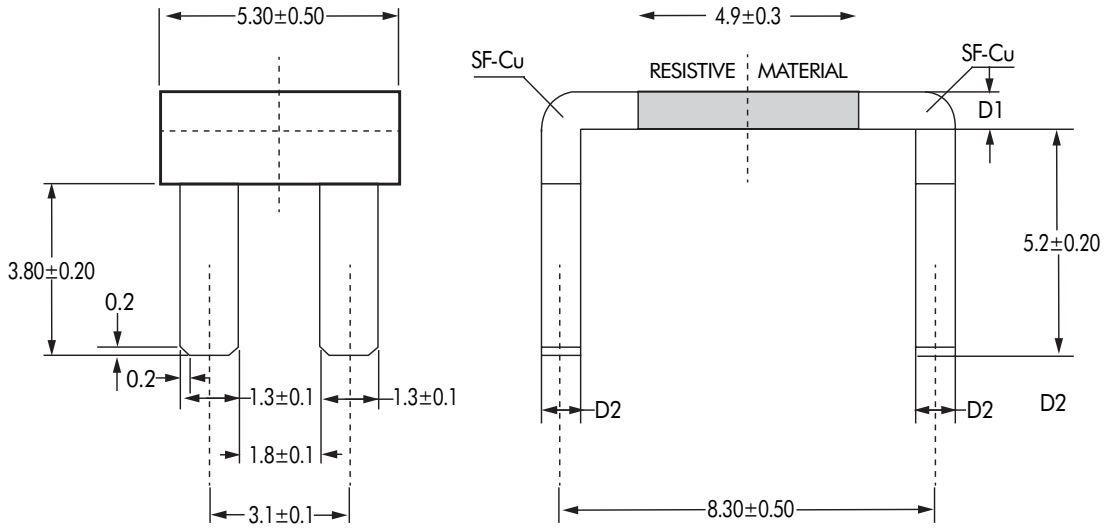
PHYSICAL CONFIGURATION



DIMENSIONAL TABLE

SR NO.	HTR TYPE	WATTAGE AT 100° C	WATTAGE AT 70° C	D1 (mm)	D2 (mm)	INTERNAL HEAT RESISTANCE (Rthi)	TCR (ppm)	TYPICAL WT. PER PC (gms)
1	HHE5W* R0003 F	5W	10W	1.42 ± 0.10	1.42 ± 0.10	4° K/W	< 100	1.10
2	HHE5W* R0005 F	5W	9W	0.86 ± 0.10	0.86 ± 0.10	7° K/W	< 100	0.65
3	HHE5W* R001 F	5W	8W	1.36 ± 0.10	1.36 ± 0.10	8° K/W	< 100	0.89
4	HHE4W* R002 F	4W	6W	0.68 ± 0.10	0.68 ± 0.10	15° K/W	< 100	0.44

APPLICATIONS

- Power tools due to nature of physical construction.
- High current applications for the automotive sector.
- Frequency convertors.
- Power modules.

FEATURES

- 5W constant power possible in R0003.
- Constant current carrying capability upto 120amp (R0003).
- Sturdy copper connectors.
- Excellent long term stability.

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 +140° C. For Manganin (< 1% Stability) - Full power dissipation at 135° C and linearly derated to zero at +170° C.
Inductance	< 3nH
Resistance Tolerance	± 1% (0.5% and other tolerance available on request)
Temperature Range	- 55° C to +170° C (Suitably derated as per derating curve provided)
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 24 h**]**	ΔR ± 0.2% - Average
Temperature Coefficient of Resistance (Ambient Temperature Range 20° C - 60° C)	From 100 ppm / K (Depending on Resistance Value)
Temperature Cycling -2000 cycles (-55° C to 150° C)	ΔR ± 0.5% - Average
Life Test / Operational Life - 2000 h rated power with Temperature limitation on Terminal kept at 120° C	ΔR ± 1% - Average
Moisture Resistance [MIL-STD-202 method106]	ΔR ± 0.1% - Typical
Mechanical Shock [100 g. 6 ms half sine]	ΔR ± 0.2% - Typical
Vibration, High Frequency [20 g. 10-2000 Hz]	ΔR ± 0.2% - Typical
Bias Humidity [+85° C, 85% RH, 1000h]	ΔR ± 0.5% - Typical

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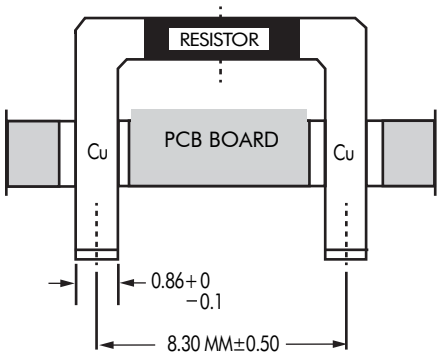
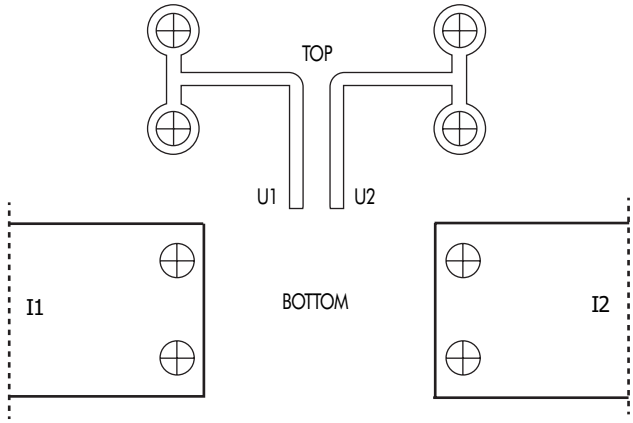
GUIDE FOR MOUNTING



GUIDE FOR PCB LAYOUT



RECOMMENDED SOLDER PROFILE

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

PACKING

BULK

Resistors shall be packed in sealed plastic packets with silica gel pouch placed in small cardboard cartons
(Type 'I' Box) of approximate size 70mmx70mmx70mm - 500pcs. & such 4 Boxes packed in
(Type 'A' Box) of approximate size 200mmx150mmx70mm & 8 Boxes in
(Type 'B' Box) of approximate size 295mmx140mmx80mm.
& such 36 Boxes of Type 'I' or 6 Boxes of Type 'A' packed in Master Carton of approximate size 320mmx245mmx245mm.
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
HHE5W* ROOO3 F	HTR ROOO3 1% DATECODE

ORDERING INFORMATION

SERIES	TYPE	PACKING	RESISTANCE VALUE	TOLERANCE
HHE	(Without Sleeve) - HHE5W / HHE5W* (With Sleeve) - HHE5W(S) / HHE5W*(S)	Bulk (Without Sleeve) - HHE5W / HHE5W* Bulk (With Sleeve) - HHE5W(S) / HHE5W*(S)	R0005	F

Note : For HTR part number with sleeve - Resistors element covered with SILICONE RUBBER SLEEVE to prevent solder on element.
Sleeve Rated at 220°C (Can withstand 220°C without deterioration to its properties)

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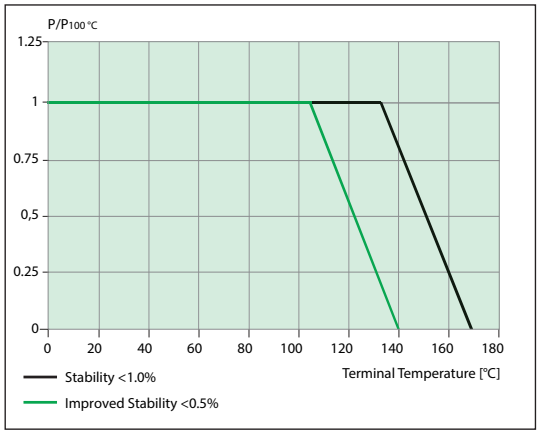
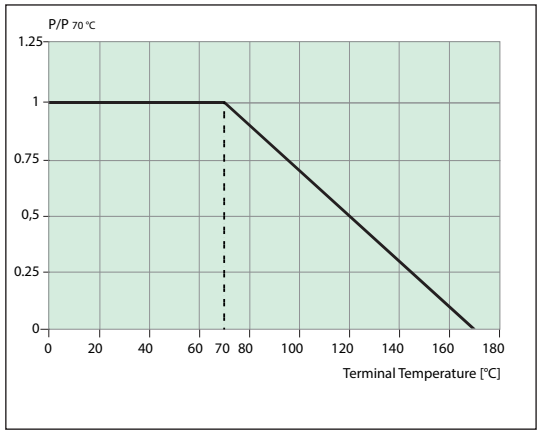
TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 105°C & 135°C

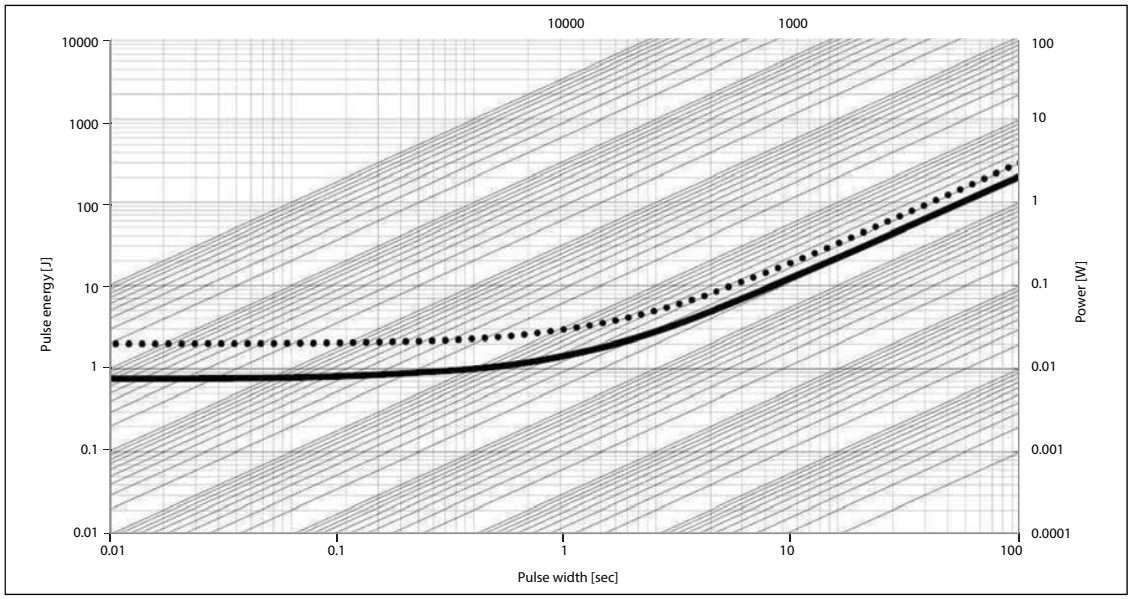


TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 70°C



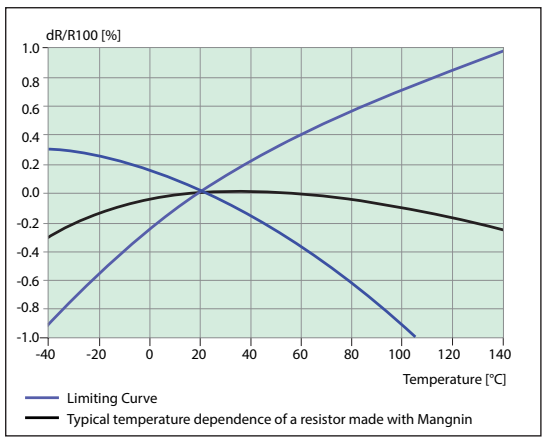
In case the Design Engineer requires a specific graph of a particular component it can be supplied on request.

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 HHE SERIES



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