



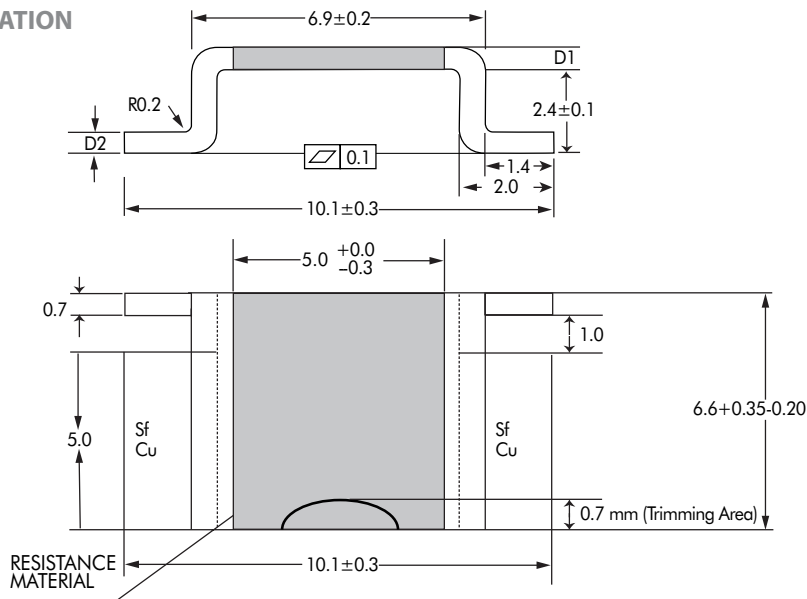
**LOW OHM
POWER RESISTORS**

**HRE
SERIES
Size 4026**

- Open frame electron beam welded punched out type
 - Power Rating at 100°C - upto 5W
 - Power Rating at 70°C - upto 10W
- R0002 to R005



PHYSICAL CONFIGURATION



DIMENSIONAL TABLE

SR NO.	HI-TECH PART NAME	WATTAGE AT 100° C	WATTAGE AT 70° C	D1 (mm)	D2 (mm)	INTERNAL HEAT RESISTANCE (Rthi)	TCR (ppm)	TYPICAL WT. PER PC (gms)
1	HRE5W R0002 F	5W	10W	1.30 ± 0.10	0.40 ± 0.10	4° K/W	< 50	1.30
2	HRE5W R0003 F	5W	9W	0.99 ± 0.10	0.40 ± 0.10	5° K/W	< 50	0.91
3	HRE5W R0005 F	5W	8W	0.65 ± 0.10	0.40 ± 0.10	8° K/W	< 50	0.45
4	HRE5W R001 F	5W	8W	1.13 ± 0.10	0.40 ± 0.10	9° K/W	< 50	0.81
5	HRE4W R0007 F	4W	8W	0.47 ± 0.10	0.40 ± 0.10	12° K/W	< 50	0.33
6	HRE4W R001 F	4W	6W	0.35 ± 0.10	0.40 ± 0.10	14° K/W	< 50	0.27
7	HRE4W R002 F	4W	5W	0.50 ± 0.10	0.40 ± 0.10	14° K/W	< 50	0.40
8	HRE3W R003 F	3W	5W	0.34 ± 0.10	0.40 ± 0.10	21° K/W	< 50	0.27
9	HRE3W R004 F	3W	4W	0.34 ± 0.10	0.40 ± 0.10	28° K/W	< 50	0.27
10	HRE3W R005 F	2W	3W	0.34 ± 0.10	0.40 ± 0.10	33° K/W	< 50	0.27

APPLICATIONS

- Current sensor for power hybrid applications.
- High current applications for automotive market.
- Frequency convertors.
- Power modules.

FEATURES

- 5W constant power possible in R0002.
- Constant current carrying capability upto 160amp (R0002).
- Sturdy copper connectors.
- Maximum solder temperature upto 350°C for 30 seconds.

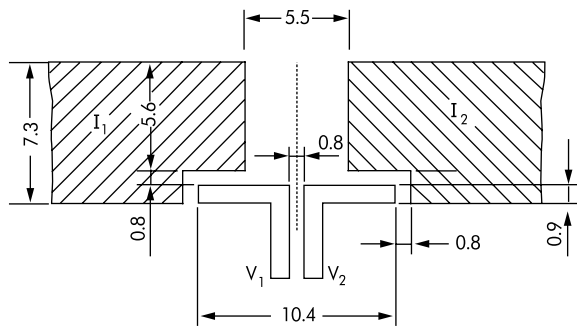
ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS

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 100° C & linearly derated to zero at +140° C. For Manganin (< 1% Stability) - Full power dissipation at 130° 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]	$\Delta R \pm 0.1\%$ - Average
Temperature Coefficient of Resistance (Ambient Temperature Range 20° C - 60° C)	From 20 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



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RECOMMENDED PCB - LAYOUT



RECOMMENDED SOLDER PROFILE

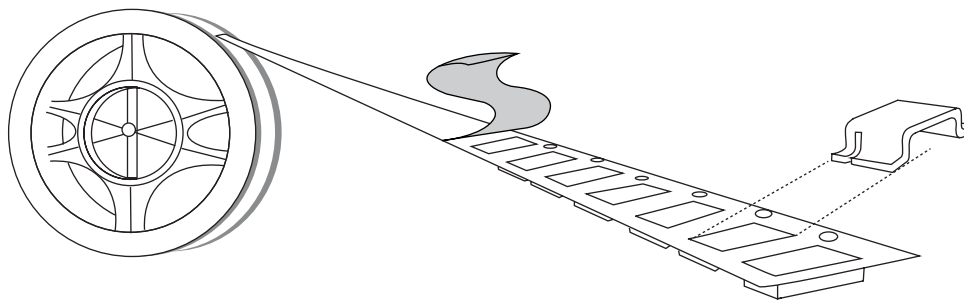
Reflow, IR - Soldering			
Temperature (°C)	260	255	217
Time (Sec)	Peak	40	90

PACKING

A. BULK

Resistors shall be packed in plastic Box-K44 of approximate size 162x104x37 mm-1500 pcs/box & 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	1500 pcs

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

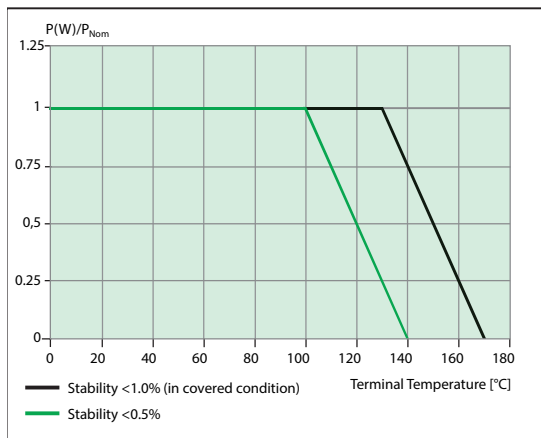
HTR PART NO	PRINTING
HRE5W R0002 F	HTR R0002 1% DATECODE

ORDERING INFORMATION

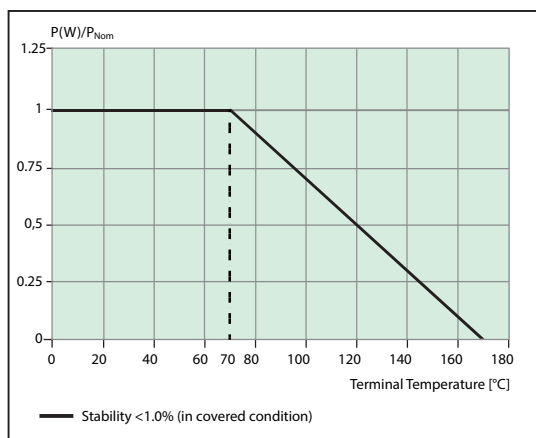
SERIES	TYPE	PACKING	RESISTANCE VALUE	TOLERANCE
HRE	HRE4W	Bulk - HRE4W Tape & Reel - HRE4WTR	R002	1%

Part no of HRE4W, Tape and reel with resistance value R002 and 1% tolerance, HTR part No. will be HRE4WTR R002 ±1%

TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 100°C & 135°C

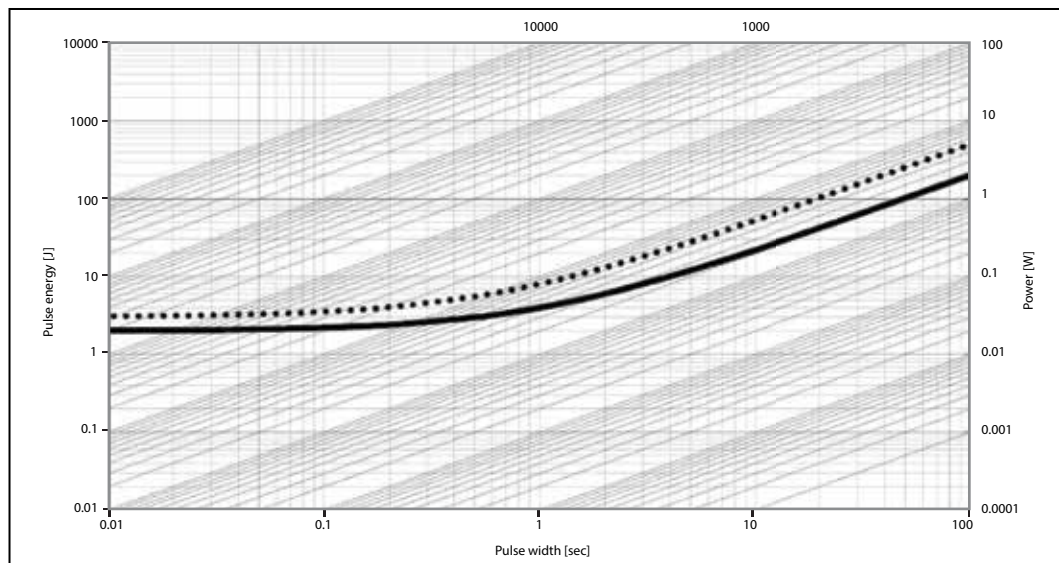


TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 70°C



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 PERMANENT 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 ELECTRICAL RESISTANCE

