Rev Date: 16/11/2017

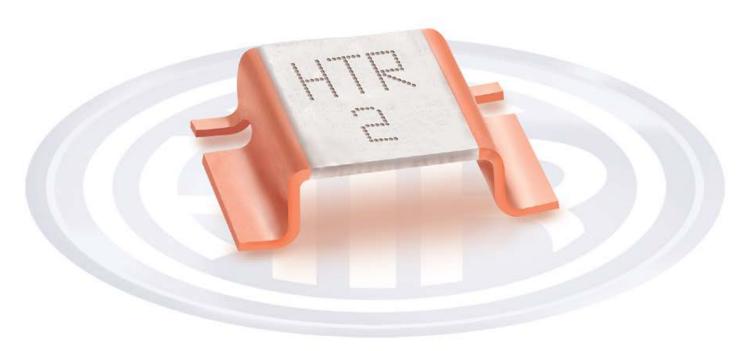


LOW OHM POWER RESISTORS

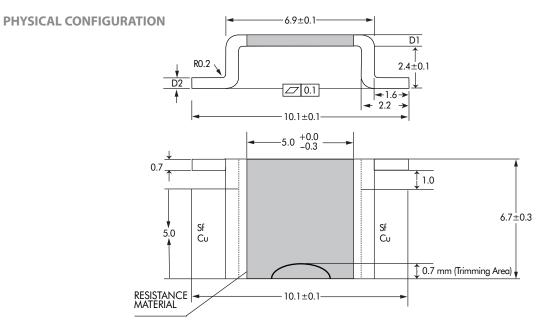
HRE SERIES Size 4026

• Open frame electron beam welded punched out type •Power Rating at 100°C - upto 5W •Power Rating at 70°C - upto 10W R0002 to R003









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 | 1.20 ± 0.10 | 0.40 ± 0.10 | 4° K/W | < 20 | 1.30 |
| 2 | HRE5W* R0003 F | 5W | 9W | 0.80 ± 0.10 | 0.40 ± 0.10 | 5° K/W | < 20 | 0.91 |
| 3 | HRE5W* R0005 F | 5W | 8W | 0.42 ± 0.10 | 0.40 ± 0.10 | 8° K/W | < 20 | 0.45 |
| 4 | HRE5W* R001 F | 5W | 7W | 1.13 ± 0.10 | 0.60 ± 0.10 | 9° K/W | < 50 | 0.81 |
| 5 | HRE4W* R0007 F | 4W | 6W | 0.46 ± 0.10 | 0.40 ± 0.10 | 12° K/W | < 20 | 0.33 |
| 6 | HRE4W* R001 F | 4W | 6W | 0.34 ± 0.10 | 0.40 ± 0.10 | 14° K/W | < 50 | 0.27 |
| 7 | HRE4W* R002 F | 4W | 5W | 0.57 ± 0.10 | 0.40 ± 0.10 | 14° K/W | < 50 | 0.40 |
| 8 | HRE3W* R003 F | 3W | 4W | 0.38 ± 0.10 | 0.40 ± 0.10 | 21° 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.

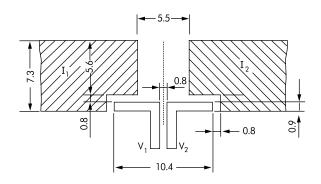
ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS

| PARAMETER / PERFORMANCE TEST & TEST METHOD | PERFORMANCE REQUIREMENTS | | |
|--|---|--|--|
| Power Rating | For FeCrAI - 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) | √P×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 | ΔR ± 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 | | |

LOW OHM POWER RESISTORS

www.htr-india.com

RECOMMENDED PCB - LAYOUT



RECOMMENDED SOLDER PROFILE

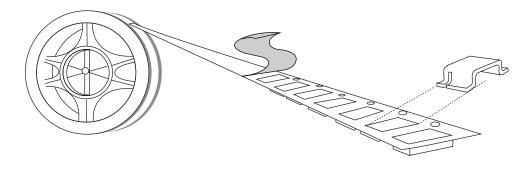
| Reflow, IR - Soldering | | | | |
|------------------------|------|-----|-----|--|
| Temperature (°C) | 260 | 255 | 217 | |
| Time (Sec) | Peak | 40 | 90 | |

PACKING

A. BULK

Resistors shall be packed in 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.

B. TAPE & REEL PACKING



| SPECIFICATION | TAPEWIDTH | PARTS PER REEL |
|---------------|-----------|----------------|
| EIA-481-D | 24mm | 1400 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

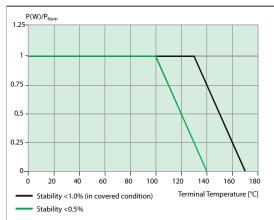
MARKING

| HTR PART NO | PRINTING |
|----------------|-----------------------------|
| HRE5W* ROOO2 F | HTR ROOO2 1% DATECODE |

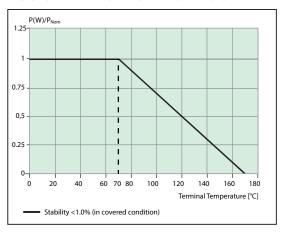
ORDERING INFORMATION

| SERIES | TYPE | PACKING | RESISTANCE VALUE | TOLERANCE |
|--------|----------------|---|------------------|-----------|
| HRE | HRE4W / HRE4W* | Bulk - HRE4W / HRE4W* Tape & Reel - HRE4WTR / HRE4W*TR | R002 | F |

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

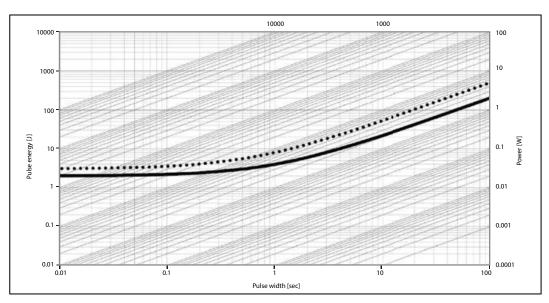


TYPICAL POWER DERATING CURVE FOR RESISTOR WHEN FULL POWER IS AT 70°C



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 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 ELECTRICAL RESISTANCE

