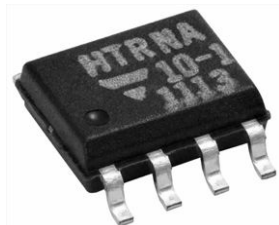
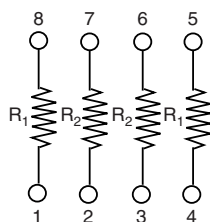


## Molded, 50 mil Pitch, High Temperature (215 °C); Thin Film Surface Mount, Dual-In-Line Resistor Network



HTRN series resistor networks feature four isolated resistors with standard 50 mil pitch lead spacing. HTRN is ideal to be used in oil/gas exploration industry, automotive under the hood applications, and aerospace engine control high temperature applications. The networks feature close TCR tracking and tight ratio tolerance and are ideally suited for unity gain operational amplifier circuitry. The standard resistance offering listed are available for immediate delivery.

### SCHEMATIC



### FEATURES

- Ratio tolerance to  $\pm 0.05\%$
- Ratio stability  $\pm 0.1\%$
- - 55 °C to 215 °C operating temperature range
- 0.068" (1.73 mm) maximum seated height
- Rugged molded case construction with no internal solder
- Low temperature coefficient ( $\pm 25$  ppm/°C)
- JEDEC MS-012 STD variation AA package
- Gold terminations for durable attach bonds
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### TYPICAL PERFORMANCE

|      | ABSOLUTE | TRACKING |
|------|----------|----------|
| TCR  | 25       | 5        |
|      | ABSOLUTE | RATIO    |
| TOL. | 0.1      | 0.05     |

### STANDARD RESISTANCE OFFERING (R<sub>1</sub>/R<sub>2</sub>)

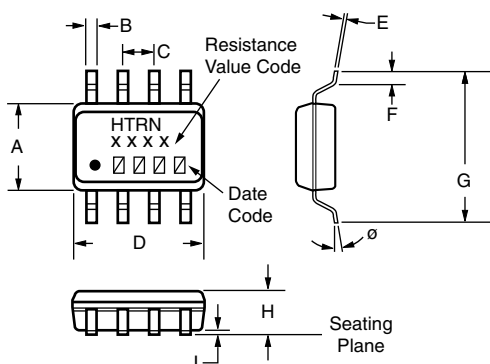
| RATIO | R <sub>1</sub> | R <sub>2</sub> |
|-------|----------------|----------------|
| 100:1 | 100K           | 1K             |
| 50:1  | 50K            | 1K             |
| 25:1  | 25K            | 1K             |
| 20:1  | 20K            | 1K             |
| 10:1  | 10K            | 1K             |
| 5:1   | 10K            | 2K             |
| 2:1   | 10K            | 5K             |
| 4:1   | 4K             | 1K             |

#### Note

- Consult factory for additional values and schematics

### STANDARD ELECTRICAL SPECIFICATIONS

| TEST                           | SPECIFICATIONS                               | CONDITIONS                             |
|--------------------------------|--|--|
| Material                       | Passivated nichrome                          | -                                      |
| Pin/Lead Number                | 8  | -                                      |
| Resistance Range               | 1000 $\Omega$ to 100 k $\Omega$ per resistor | -                                      |
| TCR: Absolute                  | $\pm 25$ ppm/°C                              | - 55 °C to + 125 °C                    |
| TCR: Tracking                  | $\pm 5$ ppm/°C                               | - 55 °C to + 125 °C                    |
| Tolerance: Absolute            | 0.1 %  | + 25 °C                                |
| Tolerance: Ratio               | 0.05 %                                       | + 25 °C                                |
| Power Rating: Resistor         | 100 mW                                       | Maximum at + 70 °C                     |
| Power Rating: Package          | 400 mW                                       | Maximum at + 70 °C                     |
| Stability: Absolute            | $\Delta R \pm 0.5\%$                         | 2000 h at + 215 °C at 25 % rated power |
| Stability: Ratio               | $\Delta R \pm 0.1\%$                         | 2000 h at + 215 °C at 25 % rated power |
| Voltage Coefficient            | 0.1 ppm/V (typical)                          | -                                      |
| Working Voltage                | 100 V max. not to exceed $\sqrt{P \times R}$ | -                                      |
| Operating Temperature Range    | - 55 °C to + 215 °C                          | -                                      |
| Storage Temperature Range      | - 55 °C to + 215 °C                          | -                                      |
| Noise                          | < - 30 dB                                    | -                                      |
| Thermal EMF                    | 0.08 $\mu$ V/°C                              | -                                      |
| Shelf Life Stability: Absolute | $\Delta R \pm 0.01\%$                        | 1 year at + 25 °C                      |
| Shelf Life Stability: Ratio    | $\Delta R \pm 0.002\%$                       | 1 year at + 25 °C                      |

**DIMENSIONS AND IMPRINTING** in inches and millimeters


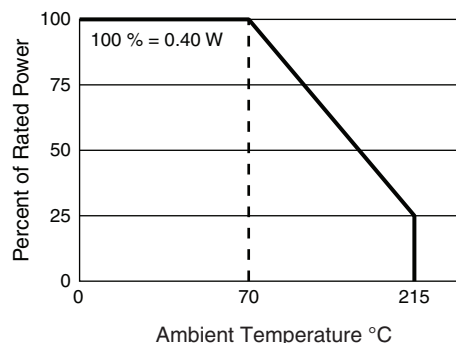
| DIMENSION | INCHES          | MILLIMETERS |
|-----------|-----------------|-------------|
| A         | 0.157           | 3.99        |
| B         | 0.0165 ± 0.0025 | 0.4 ± 0.06  |
| C         | 0.050           | 1.27        |
| D         | 0.195 max.      | 4.93        |
| E         | 0.008 ± 0.001   | 0.20 ± 0.03 |
| F         | 0.028 ± 0.001   | 0.71 ± 0.02 |
| G         | 0.239 ± 0.005   | 6.07 ± 0.13 |
| H         | 0.068 max.      | 1.73        |
| I         | 0.008 ± 0.002   | 0.22 ± 0.06 |
| Ø         | 2° to 6°        | 2° to 6°    |

**Note**

- Marking - Vishay symbol, part number from ordering information

**MECHANICAL SPECIFICATIONS**

|                    |                     |
|--------------------|---------------------|
| Resistive Element  | Passivated nichrome |
| Substrate Material | Silicon             |
| Body               | Molded epoxy        |
| Terminals          | Copper              |
| Termination Finish | Plated Ni/Pd/Au     |

**DERATING CURVE**

**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: HTRN5-1UF

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| H | T | R | N | 5 | - | 1 | U | F |
|---|---|---|---|---|---|---|---|---|

|                            |
|----------------------------|
| GLOBAL MODEL<br>(4 digits) |
| <b>HTRN</b>                |

|                                  |
|----------------------------------|
| RESISTANCE<br>(3, 4 or 5 digits) |
| 2-1                              |
| 4-1                              |
| 5-1                              |
| 10-1                             |
| 20-1                             |
| 25-1                             |
| 50-1                             |
| 100-1                            |

|                                  |
|----------------------------------|
| PACKAGING                        |
| TAPE AND REEL                    |
| <b>T0</b> = 100 min., 100 mult   |
| <b>T1</b> = 1000 min., 1000 mult |
| <b>T3</b> = 300 min., 300 mult   |
| <b>T5</b> = 500 min., 500 mult   |
| <b>TF</b> = Full reel 3000       |
| <b>TS</b> = 100 min., 1 mult     |
| <b>UF</b> = TUBED                |



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