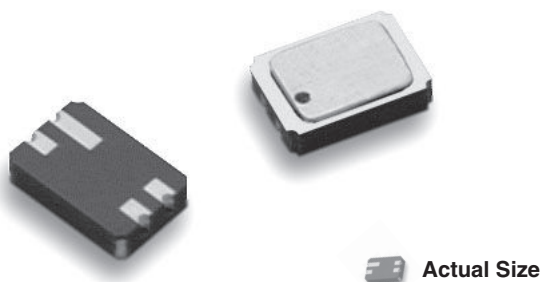


Hermetic, 50 mil Pitch, Leadless Thin Film Chip Resistor, Surface Mount Network



Vishay Dale Thin film offers a four terminal hermetic leadless chip carrier package with precision matched pair elements. The network features tight ratio tolerance and close tracking over a 100 Ω to 100 k Ω resistance range. For custom schematics and values contact applications engineering.

FEATURES

- True hermetic construction
- Exceptional stability and performance characteristics ratio stability ($\Delta R \pm 0.015\%$ at 70 °C for 2000 h)
- Nickel barrier terminations
- Military/aerospace
- Hermetically sealed
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS*
COMPLIANT
HALOGEN
FREE

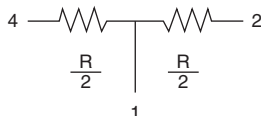
Note

* Pb containing terminations are not RoHS compliant, exemptions may apply

TYPICAL PERFORMANCE

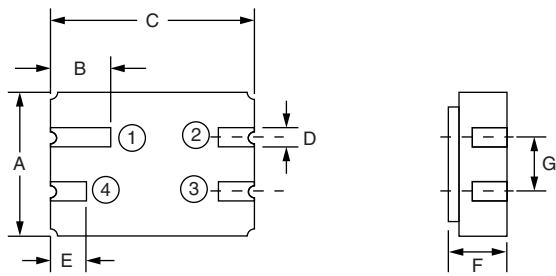
| | ABSOLUTE | TRACKING |
|------|----------|----------|
| TCR | 25 | 5 |
| | ABSOLUTE | RATIO |
| TOL. | 0.1 | 0.05 |

SCHEMATIC



| STANDARD ELECTRICAL SPECIFICATIONS | | |
|------------------------------------|---|---------------------|
| TEST | SPECIFICATIONS | CONDITIONS |
| Material | Passivated nichrome | - |
| Pin/Lead Number | 4 | - |
| Resistance Range | 100 Ω to 100 k Ω | - |
| TCR: Absolute | ± 25 ppm/°C (standard) | - 55 °C to + 125 °C |
| TCR: Tracking | ± 2 ppm/°C (typical < 1 ppm /°C equal values) | - 55 °C to + 125 °C |
| Tolerance: Absolute | $\pm 0.1\%$ to $\pm 1.0\%$ | + 25 °C |
| Tolerance: Ratio | $\pm 0.05\%$ to $\pm 0.1\%$ | + 25 °C |
| Power Rating: Resistor | 250 mW (per element) | Maximum at + 70 °C |
| Power Rating: Package | 1000 mW | Maximum at + 70 °C |
| Stability: Absolute | $\Delta R \pm 0.05\%$ | 2000 h at + 70 °C |
| Stability: Ratio | $\Delta R \pm 0.015\%$ | 2000 h at + 70 °C |
| Voltage Coefficient | < 0.1 ppm/V | - |
| Working Voltage | 100 V max. not to exceed $\sqrt{P \times R}$ | - |
| Operating Temperature Range | - 55 °C to + 125 °C | - |
| Storage Temperature Range | - 55 °C to + 150 °C | - |
| Noise | < - 30 dB | - |
| Thermal EMF | 0.08 μ 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 in inches and millimeters

|  <p>BOTTOM VIEW</p> | DIMENSION | INCHES | MILLIMETERS |
|---|-----------|-----------------|-------------|
| | A | 0.155 | 3.937 |
| | B | 0.080 | 2.032 |
| | C | 0.225 | 5.715 |
| | D | 0.025 (typical) | 0.635 |
| | E | 0.040 | 1.016 |
| | F | 0.070 | 1.778 |
| | G | 0.050 | 1.27 |

MECHANICAL SPECIFICATIONS

| | |
|--------------------------------|-------------------------------|
| Resistive Element | Passivated nichrome |
| Substrate Material | Alumina |
| Body | Ceramic |
| Terminals | Gold over nickel |
| Marking Resistance to Solvents | Per MIL-PRF-83401 |
| Tin Lead Option | Sn63 |
| Lead (Pb)-free Option | 96.5 % Sn, 3.0 % Ag, 0.5 % Cu |
| Tin Lead and Lead (Pb)-free | Hot solder dip |

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: **MPHK1003BUF**

| <div> <div>M</div> <div>P</div> <div>H</div> <div>K</div> <div>1</div> <div>0</div> <div>0</div> <div>3</div> <div>B</div> <div>U</div> <div>F</div> </div> | | | <div> <div>M</div> <div>P</div> <div>H</div> <div>T</div> <div>K</div> <div>1</div> <div>0</div> <div>0</div> <div>3</div> <div>A</div> <div>U</div> <div>F</div> </div> | | |
|---|---|--|--|-------|---|
| GLOBAL MODEL (3 or 4 digits) | TCR CHARACTERISTIC | RESISTANCE | TOLERANCE AND RATIO TOLERANCE | | PACKAGING |
| MPH (Tin lead) MPHT (Lead (Pb)-free) (e1) | E = 25 ppm/°C H = 50 ppm/°C K = 100 ppm/°C | First 3 digits are significant figures and the last digit specifies the number of zeros to follow. Example: 1001 = 1K 1002 = 10K | Abs. Tol. | Ratio | TAPE AND REEL T0 = 100 min., 100 mult T1 = 1000 min., 1000 mult T3 = 300 min., 300 mult T5 = 500 min., 500 mult TF = Full reel 2500 TS = 100 min., 1 mult UF = TUBED |
| A = 0.1 % B = 0.1 % C = 0.25 % D = 0.5 % F = 1 % | 0.05 % 0.1 % 0.1 % 0.1 % 0.5 % | | | | |

Historical Part Number example: **MPHE1001B** (for reference purposes only)

| | | | |
|------------|-----------------------|-------------|----------------------------------|
| MPH | E | 1001 | B |
| SERIES | TCR CHARACTERISTIC | RESISTANCE | TOLERANCE AND RATIO TOLERANCE |



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