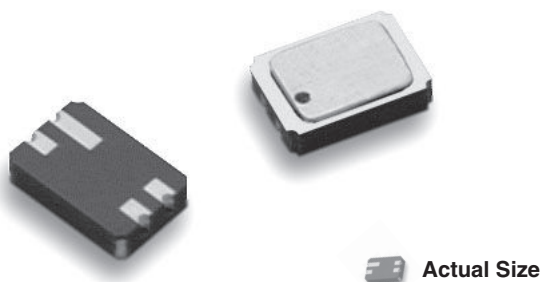


# Hermetic, 50 mil Pitch, Leadless Thin Film Chip Resistor, Surface Mount Network



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  $\Omega$  to 100 k $\Omega$  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**

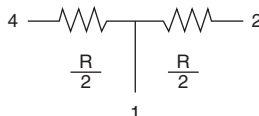
## Note

\* 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 $\Omega$ to 100 k $\Omega$	-
TCR: Absolute	$\pm 25$ ppm/°C (standard)	- 55 °C to + 125 °C
TCR: Tracking	$\pm 2$ 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 $\mu$ 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** in inches and millimeters

<p><b>BOTTOM VIEW</b></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
<b>MPH</b> (Tin lead)  <b>MPHT</b> (Lead (Pb)-free) (e1)	<b>E</b> = 25 ppm/°C <b>H</b> = 50 ppm/°C <b>K</b> = 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. <b>A</b> = 0.1 % <b>B</b> = 0.1 % <b>C</b> = 0.25 % <b>D</b> = 0.5 % <b>F</b> = 1 %	Ratio 0.05 % 0.1 % 0.1 % 0.1 % 0.5 %	<b>TAPE AND REEL</b> <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 2500 <b>TS</b> = 100 min., 1 mult  <b>UF</b> = TUBED

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

<b>MPH</b>	<b>E</b>	<b>1001</b>	<b>B</b>
SERIES	TCR CHARACTERISTIC	RESISTANCE	TOLERANCE AND RATIO TOLERANCE



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