## Molded, Dual-In-Line Thin Film Resistor, Through-Hole Network



Actual Size

Vishay Dale Thin Film offers two standard circuits in a 14 pins and 16 pins molded dual-in-line over a $100 \Omega$ to $100 \mathrm{k} \Omega$ resistance range. The networks feature ratio tolerance to $0.05 \%$ with a TCR tracking of $5 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$.

## FEATURES

- Standard rugged, molded case construction (14 pins and 16 pins)


Available

- Highly stable thin film ( 500 ppm at $+70^{\circ} \mathrm{C}$ at 2000 h )
- Low temperature coefficient ( $\pm 25 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ )
- Compatible with automatic insertion equipment
- Standard isolated pin one common schematic
- Isolated and bussed schematics
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


## Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details


## TYPICAL PERFORMANCE

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

## Schematic TDP03



Models: TDP1403 and TDP1603
7 or 8 isolated resistors

Models: TDP1401 and TDP1601
13 or 15 resistors with one pin common

## STANDARD ELECTRICAL SPECIFICATIONS

| TEST | SPECIFICATIONS | CONDITIONS |
| :---: | :---: | :---: |
| Material | Passivated nichrome | - |
| Pin/Lead Number | 14, 16 | - |
| Resistance Range | $100 \Omega$ to $100 \mathrm{k} \Omega$ | - |
| TCR: Absolute | $\pm 25 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ | $-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$ |
| TCR: Tracking | $\pm 5 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ | $-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$ |
| Tolerance: Absolute | $\pm 0.1$ \% | $+25^{\circ} \mathrm{C}$ |
| Tolerance: Ratio | $\pm 0.05$ \% to $\pm 0.5$ \% | $+25^{\circ} \mathrm{C}$ |
| Power Rating: Resistor | $\begin{aligned} & 0.05 \mathrm{~W} / \text { resistor }=01 \text { circuit } \\ & 0.10 \mathrm{~W} / \text { resistor }=03 \text { circuit } \end{aligned}$ | at $+25^{\circ} \mathrm{C}$ |
| Power Rating: Package | 0.8 W/package | Maximum at $+70^{\circ} \mathrm{C}$ |
| Stability: Absolute | $\Delta R \pm 0.05$ \% | 2000 h at $+70^{\circ} \mathrm{C}$ |
| Stability: Ratio | $\Delta R \pm 0.015$ \% | 2000 h at $+70^{\circ} \mathrm{C}$ |
| Voltage Coefficient | < 1 ppm/V (typical) | - |
| Working Voltage | 100 V | - |
| Operating Temperature Range | $-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$ | - |
| Storage Temperature Range | $-55^{\circ} \mathrm{C}$ to $+150^{\circ} \mathrm{C}$ | - |
| Noise | $<-30 \mathrm{~dB}$ | - |
| Thermal EMF | $0.08 \mu \mathrm{~V} /{ }^{\circ} \mathrm{C}$ | - |
| Shelf Life Stability: Absolute | $\Delta R \pm 0.01$ \% | 1 year at $+25^{\circ} \mathrm{C}$ |
| Shelf Life Stability: Ratio | $\Delta R \pm 0.002$ \% | 1 year at $+25^{\circ} \mathrm{C}$ |

Vishay Dale Thin Film

| DIMENSIONS AND IMPRINTING in inches and millimeters |  |
| :---: | :---: | :---: | :---: | :---: |


| MECHANICAL SPECIFICATIONS |  |
| :--- | :---: |
| Resistive Element | Passivated nichrome |
| Substrate Material | Silicon |
| Body | Conformal coated |
| Terminals | Copper alloy |
| Tin/Lead Option | Sn90 |
| Lead (Pb)-free Option | $100 \%$ matte tin |
| Tin/Lead and Lead (Pb)-free Finish | Hot solder dip |

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TDP14031002BUF


Historical Part Number example: TDP14031001F (for reference purposes only)


## Note

(1) A tolerance on $250 \Omega$ up

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