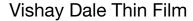
HALOGEN

FREE





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

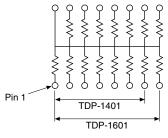


**Actual Size** 

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  $k\Omega$  resistance range. The networks feature ratio tolerance to 0.05 % with a TCR tracking of 5 ppm/°C.

#### **SCHEMATIC**

#### **Schematic TDP01**



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

#### **FEATURES**

- Standard rugged, molded case construction (14 pins and 16 pins)
- Highly stable thin film (500 ppm at +70 °C at 2000 h)
- Low temperature coefficient (± 25 ppm/°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.vishav.com/doc?99912

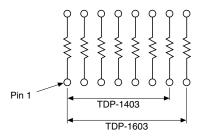
#### Note

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        | TRACKING |  |  |  |
|------|-----------------|----------|--|--|--|
| TCR  | 25              | 5        |  |  |  |
|      | <b>ABSOLUTE</b> | RATIO    |  |  |  |
| TOL. | 0.1             | 0.05     |  |  |  |

#### **Schematic TDP03**



Models: TDP1403 and TDP1603 7 or 8 isolated resistors

| STANDARD ELECTRICAL SPECIFICATIONS |  |                   |  |  |  |  |
|------------------------------------|--|-------------------|--|--|--|--|
| TEST                               | SPECIFICATIONS   | CONDITIONS        |  |  |  |  |
| Material                           | Passivated nichrome  | -                 |  |  |  |  |
| Pin/Lead Number                    | 14, 16   | -                 |  |  |  |  |
| Resistance Range                   | 100 Ω to 100 kΩ  | -                 |  |  |  |  |
| TCR: Absolute                      | ± 25 ppm/°C  | -55 °C to +125 °C |  |  |  |  |
| TCR: Tracking                      | ± 5 ppm/°C   | -55 °C to +125 °C |  |  |  |  |
| Tolerance: Absolute                | ± 0.1 %  | +25 °C            |  |  |  |  |
| Tolerance: Ratio                   | ± 0.05 % to ± 0.5 %  | +25 °C            |  |  |  |  |
| Power Rating: Resistor             | 0.05 W/resistor = 01 circuit<br>0.10 W/resistor = 03 circuit | at +25 °C         |  |  |  |  |
| Power Rating: Package              | 0.8 W/package  | Maximum at +70 °C |  |  |  |  |
| Stability: Absolute                | ΔR ± 0.05 %  | 2000 h at +70 °C  |  |  |  |  |
| Stability: Ratio                   | $\Delta R \pm 0.015$ %                                       | 2000 h at +70 °C  |  |  |  |  |
| Voltage Coefficient                | < 1 ppm/V (typical)  | -                 |  |  |  |  |
| Working Voltage                    | 100 V  | -                 |  |  |  |  |
| Operating Temperature Range        | -55 °C to +125 °C  | -                 |  |  |  |  |
| Storage Temperature Range          | -55 °C to +150 °C  | -                 |  |  |  |  |
| Noise                              | < -30 dB   | -                 |  |  |  |  |
| Thermal EMF                        | 0.08 μV/°C   | -                 |  |  |  |  |
| Shelf Life Stability: Absolute     | ΔR ± 0.01 %  | 1 year at +25 °C  |  |  |  |  |
| Shelf Life Stability: Ratio        | ΔR ± 0.002 %   | 1 year at +25 °C  |  |  |  |  |

Revision: 07-Apr-2021 Document Number: 60045

# Vishay Dale Thin Film

| DIMENSIONS AND IMPRINTING in inches and milling  | meters    |        |             |
|--|-----------|--------|-------------|
|  | DIMENSION | INCHES | MILLIMETERS |
| Part A →   | А         | 0.755  | 19.18       |
|  | В         | 0.250  | 6.35        |
| B TDP14XX MMM  | С         | 0.075  | 1.91        |
| Pin 1 Vishay Date Code   | D         | 0.100  | 2.54        |
| Logo   | E         | 0.018  | 0.46        |
| (TITILE IN THE SECOND IN THE S | F         | 0.060  | 1.52        |
|  | G         | 0.025  | 0.64        |
|  | Н         | 0.190  | 4.83        |
| C → ←E   | J         | 0.130  | 3.30        |
| → D ← "  | К         | 0.320  | 8.13        |
| U U<br>M→ -  | L         | 0.310  | 7.87        |
| "  | М         | 0.010  | 0.25        |
| <u> </u>   | А         | 0.755  | 19.18       |
| Part   | В         | 0.250  | 6.35        |
| TDP16XX \( \begin{align*} ali        | С         | 0.025  | 0.64        |
| Pin 1  | D         | 0.100  | 2.54        |
| Vishay Date Code<br>Logo   | E         | 0.018  | 0.46        |
| <u> </u>   | F         | 0.060  | 1.52        |
| t <sub>G</sub> J , κ   | G         | 0.025  | 0.64        |
|  | Н         | 0.190  | 4.83        |
| →   ←  | J         | 0.130  | 3.30        |
| → D ←  | К         | 0.320  | 8.13        |
|  | L         | 0.310  | 7.87        |
| M→   <del>-</del>  | М         | 0.010  | 0.25        |





# Vishay Dale Thin Film

| 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      |  |  |  |  |

| G  | GLOBAL PART NUMBER INFORMATION   |        |          |               |  |            |  |   |   |                          |                             |
|----|--|--------|----------|---------------|--|------------|--|---|---|--------------------------|-----------------------------|
| Ne | New Global Part Numbering: TDP14031002BUF                                  |        |          |               |  |            |  |   |   |                          |                             |
|    | T D  | D<br>P | Т        | ╡╘            | 6  | 0          | 3 1  | F                                       | 0 0 2 3   | B<br>A                   | U F                         |
|    | GLOBAL MODEL<br>(3 or 4 digits)  |        | SCH      | IEMATICS      |  | RESISTANCE |  | TOLERANCE AND RATIO TOLERANCE PACKAGING |   | PACKAGING                |                             |
|    | TDP<br>(Tin lead)<br>TDPT  |        | 14<br>16 | resis<br>1 co | = 13 or 15<br>stors with<br>mmon pin<br>= 7 or 8 |            | First 3 digits are significant figure and the last digit specifies the number of zeroe | s<br>t                                  | $\mathbf{B} = \pm 0.1 \% \pm 0$<br>$\mathbf{C} = \pm 0.25 \% \pm 0$ | 0.05 %<br>0.1 %<br>0.1 % | <b>UF</b> = Tubed           |
|    | (Lead (Pb)-free)<br>(e3)   |        |          |               | ed resistor                                      | S          | to follow.   | 7                                       |   | ).1 %<br>).5 %           |                             |
|    | e.g.: 1001 = 1K<br>1002 = 10K  |        |          |               |  |            |  |   |   |                          |                             |
| Hi | Historical Part Number example: TDP14031001F (for reference purposes only) |        |          |               |  |            |  |   |   |                          |                             |
|    | TDP 14   |        | 14       | 03            |  |            | 1001   |   | F   |                          |                             |
|    | SERIES   |        |          | PINS          |  |            | SCHEMATIC  |   | RESISTANCE  |                          | OLERANCE AND ATIO TOLERANCE |

#### Note

 $^{(1)}\,$  A tolerance on 250  $\Omega$  up



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Vishay

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