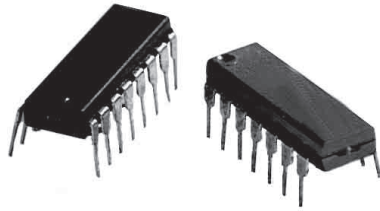


# Molded, Dual-In-Line Thin Film Resistor, Through-Hole Network



Actual Size

Vishay Dale Thin Film offers two standard circuits in a 14 pins and 16 pins molded dual-in-line over a 100 Ω to 100 kΩ resistance range. The networks feature ratio tolerance to 0.05 % with a TCR tracking of 5 ppm/°C.

## 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 ( $\pm 25$  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.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## Note

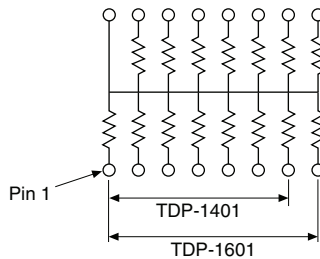
\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

## TYPICAL PERFORMANCE

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

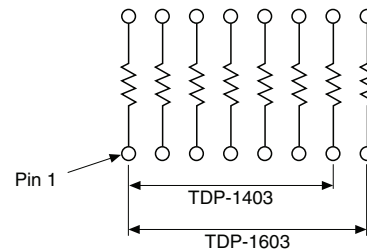
## SCHEMATIC

### Schematic TDP01



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

### 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                  | $\pm 25$ ppm/°C  | -55 °C to +125 °C |
| TCR: Tracking                  | $\pm 5$ ppm/°C   | -55 °C to +125 °C |
| Tolerance: Absolute            | $\pm 0.1$ %  | +25 °C            |
| Tolerance: Ratio               | $\pm 0.05$ % to $\pm 0.5$ %                                  | +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            | $\Delta R \pm 0.05$ %  | 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 | $\Delta R \pm 0.01$ %  | 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         | 0.755  | 19.18       |
|   | B         | 0.250  | 6.35        |
|   | C         | 0.075  | 1.91        |
|   | D         | 0.100  | 2.54        |
|   | E         | 0.018  | 0.46        |
|   | F         | 0.060  | 1.52        |
|   | G         | 0.025  | 0.64        |
|   | H         | 0.190  | 4.83        |
|   | J         | 0.130  | 3.30        |
|   | K         | 0.320  | 8.13        |
|   | L         | 0.310  | 7.87        |
|   | M         | 0.010  | 0.25        |
|   |           | A      | 0.755       |
| B |           | 0.250  | 6.35        |
| C |           | 0.025  | 0.64        |
| D |           | 0.100  | 2.54        |
| E |           | 0.018  | 0.46        |
| F |           | 0.060  | 1.52        |
| G |           | 0.025  | 0.64        |
| H |           | 0.190  | 4.83        |
| J |           | 0.130  | 3.30        |
| K |           | 0.320  | 8.13        |
| L |           | 0.310  | 7.87        |
| M |           | 0.010  | 0.25        |



| 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

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T | D | P | 1 | 4 | 0 | 3 | 1 | 0 | 0 | 2 | B | U | F |   |
| T | D | P | T | 1 | 6 | 0 | 3 | 1 | 0 | 0 | 3 | A | U | F |

| GLOBAL MODEL<br>(3 or 4 digits)   | PINS                       | SCHEMATICS  | RESISTANCE   | TOLERANCE AND<br>RATIO TOLERANCE   | PACKAGING |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |
|---|----------------------------|---|--|--|-----------|-------|-----------------------------------|----------|--------------------|---------|---------------------|---------|--------------------|---------|--------------------|---------|-------------------|
| <b>TDP</b><br>(Tin lead)<br><br><b>TDPT</b><br>(Lead (Pb)-free)<br>(e3) | <b>14</b><br><br><b>16</b> | <b>01</b> = 13 or 15 resistors with 1 common pin<br><br><b>03</b> = 7 or 8 isolated resistors | First 3 digits are significant figures and the last digit specifies the number of zeroes to follow.<br><br>e.g.: 1001 = 1K<br>1002 = 10K | <table border="1"> <thead> <tr> <th>Absolute</th> <th>Ratio</th> </tr> </thead> <tbody> <tr> <td><b>A</b> = ± 0.1 % <sup>(1)</sup></td> <td>± 0.05 %</td> </tr> <tr> <td><b>B</b> = ± 0.1 %</td> <td>± 0.1 %</td> </tr> <tr> <td><b>C</b> = ± 0.25 %</td> <td>± 0.1 %</td> </tr> <tr> <td><b>D</b> = ± 0.5 %</td> <td>± 0.1 %</td> </tr> <tr> <td><b>F</b> = ± 1.0 %</td> <td>± 0.5 %</td> </tr> </tbody> </table> | Absolute  | Ratio | <b>A</b> = ± 0.1 % <sup>(1)</sup> | ± 0.05 % | <b>B</b> = ± 0.1 % | ± 0.1 % | <b>C</b> = ± 0.25 % | ± 0.1 % | <b>D</b> = ± 0.5 % | ± 0.1 % | <b>F</b> = ± 1.0 % | ± 0.5 % | <b>UF</b> = Tubed |
| Absolute  | Ratio                      |   |  |  |           |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |
| <b>A</b> = ± 0.1 % <sup>(1)</sup>                                       | ± 0.05 %                   |   |  |  |           |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |
| <b>B</b> = ± 0.1 %  | ± 0.1 %                    |   |  |  |           |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |
| <b>C</b> = ± 0.25 %   | ± 0.1 %                    |   |  |  |           |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |
| <b>D</b> = ± 0.5 %  | ± 0.1 %                    |   |  |  |           |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |
| <b>F</b> = ± 1.0 %  | ± 0.5 %                    |   |  |  |           |       |                                   |          |                    |         |                     |         |                    |         |                    |         |                   |

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

|        |      |           |            |                               |
|--------|------|-----------|------------|-------------------------------|
| TDP    | 14   | 03        | 1001       | F                             |
| SERIES | PINS | SCHEMATIC | RESISTANCE | TOLERANCE AND RATIO TOLERANCE |

**Note**

<sup>(1)</sup> A tolerance on 250 Ω up



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