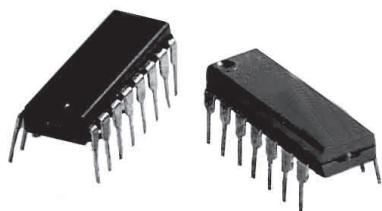


# Molded, Dual-In-Line Thin Film Resistor, Through-Hole Network



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/ $^{\circ}$ C.

## FEATURES

- Standard rugged, molded case construction (14 pins and 16 pins)
- Highly stable thin film (500 ppm at +70  $^{\circ}$ C at 2000 h)
- Low temperature coefficient ( $\pm 25$  ppm/ $^{\circ}$ 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)



**RoHS\***  
Available  
**HALOGEN FREE**

## Note

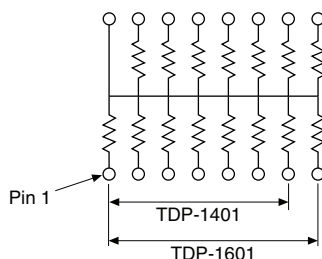
\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

## TYPICAL PERFORMANCE

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

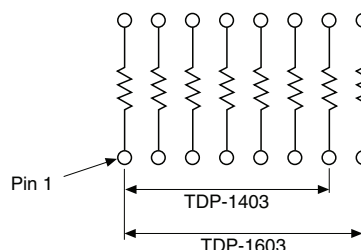
## SCHEMATIC

### Schematic TDP01



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

### Schematic TDP03

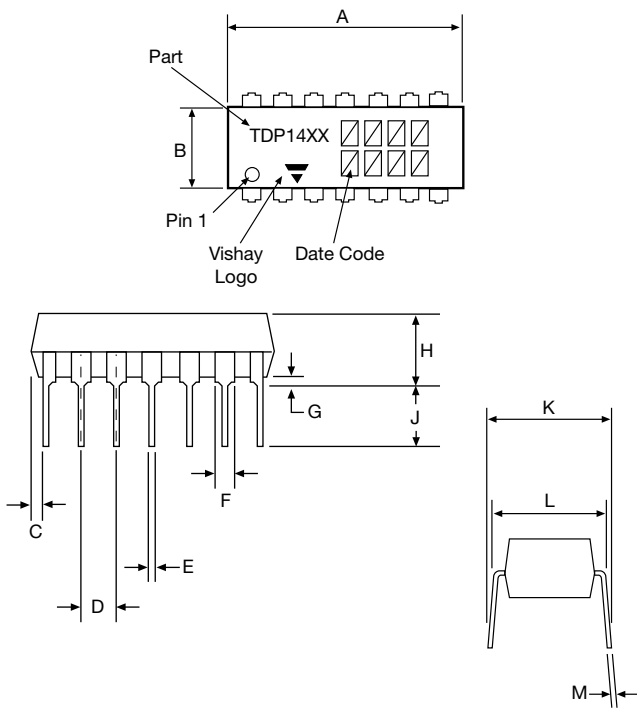
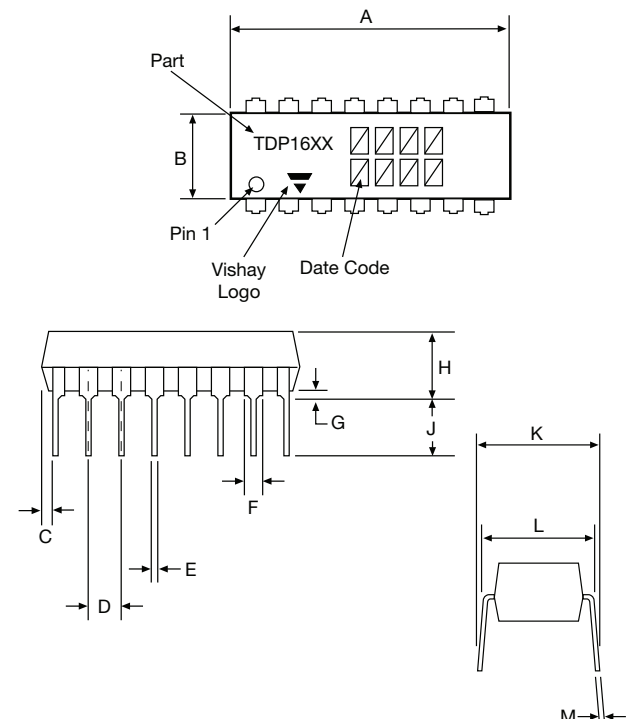


Models: TDP1403 and TDP1603  
7 or 8 isolated resistors

## STANDARD ELECTRICAL SPECIFICATIONS

| TEST                           | SPECIFICATIONS                                               | CONDITIONS                            |
|--------------------------------|--------------------------------------------------------------|---------------------------------------|
| Material                       | Passivated nichrome                                          | -                                     |
| Pin/Lead Number                | 14, 16                                                       | -                                     |
| Resistance Range               | 100 $\Omega$ to 100 k $\Omega$                               | -                                     |
| TCR: Absolute                  | $\pm 25$ ppm/ $^{\circ}$ C                                   | -55 $^{\circ}$ C to +125 $^{\circ}$ C |
| TCR: Tracking                  | $\pm 5$ ppm/ $^{\circ}$ C                                    | -55 $^{\circ}$ C to +125 $^{\circ}$ C |
| Tolerance: Absolute            | $\pm 0.1$ %                                                  | +25 $^{\circ}$ C                      |
| Tolerance: Ratio               | $\pm 0.05$ % to $\pm 0.5$ %                                  | +25 $^{\circ}$ C                      |
| Power Rating: Resistor         | 0.05 W/resistor = 01 circuit<br>0.10 W/resistor = 03 circuit | at +25 $^{\circ}$ C                   |
| Power Rating: Package          | 0.8 W/package                                                | Maximum at +70 $^{\circ}$ C           |
| Stability: Absolute            | $\Delta R \pm 0.05$ %                                        | 2000 h at +70 $^{\circ}$ C            |
| Stability: Ratio               | $\Delta R \pm 0.015$ %                                       | 2000 h at +70 $^{\circ}$ C            |
| Voltage Coefficient            | < 1 ppm/V (typical)                                          | -                                     |
| Working Voltage                | 100 V                                                        | -                                     |
| Operating Temperature Range    | -55 $^{\circ}$ C to +125 $^{\circ}$ C                        | -                                     |
| Storage Temperature Range      | -55 $^{\circ}$ C to +150 $^{\circ}$ C                        | -                                     |
| Noise                          | < -30 dB                                                     | -                                     |
| Thermal EMF                    | 0.08 $\mu$ V/ $^{\circ}$ C                                   | -                                     |
| Shelf Life Stability: Absolute | $\Delta R \pm 0.01$ %                                        | 1 year at +25 $^{\circ}$ C            |
| Shelf Life Stability: Ratio    | $\Delta R \pm 0.002$ %                                       | 1 year at +25 $^{\circ}$ 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  | 19.18       |
|                                                                                     | 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 | T | 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<br>resistors with<br>1 common pin<br><br><b>03</b> = 7 or 8<br>isolated resistors |   | First 3 digits are<br>significant figures<br>and the last digit<br>specifies the<br>number of zeroes<br>to follow.<br><br>e.g.: 1001 = 1K<br>1002 = 10K |   |   | Absolute      Ratio<br><b>A</b> = ± 0.1 % <sup>(1)</sup> ± 0.05 %<br><b>B</b> = ± 0.1 %        ± 0.1 %<br><b>C</b> = ± 0.25 %       ± 0.1 %<br><b>D</b> = ± 0.5 %        ± 0.1 %<br><b>F</b> = ± 1.0 %        ± 0.5 % |   | <b>UF</b> = Tubed |   |

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

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

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



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