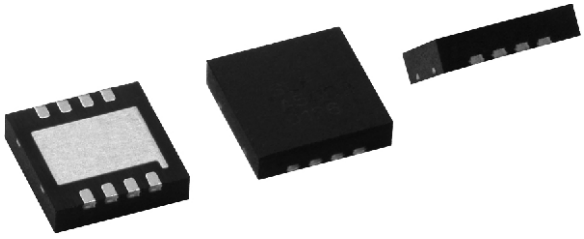
# Dual Flat No Lead Molded Precision Thin Film Resistor Surface Mount Network



The DFN series of precision surface mount resistor networks feature isolated thin film precision resistors mounted in a 0.8 mm pitch 4 mm x 4 mm dual flat no lead package. The networks feature 50 % savings in board space over traditional SOIC packages. They are ideally suited for applications of unity gain operational amplifiers that require close TC tracking and tight ratio tolerances over temperature. Custom configurations are available upon request.

## FEATURES

- 0.8 mm lead pitch
- MSL level 1 per J-STD-020
- Low profile 1 mm seated height
- Small size 4 mm x 4 mm size 50 % board savings over SOIC packages
- Wide resistance range 100 Ω to 100 kΩ available
- Custom configurations available
- Low TCR ± 25 ppm, TCR tracking to ± 3 ppm
- Ratio tolerances to ± 0.025 %
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

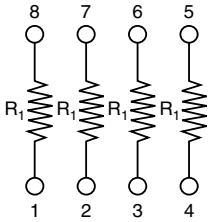
Pb-free

RoHS COMPLIANT

## TYPICAL PERFORMANCE

| ● | ABSOLUTE | TRACKING |
|---|---|---|
| TCR | 25 | 3 |
| | ABSOLUTE | RATIO |
| TOL. | 0.1 | 0.05 |

## SCHEMATIC




| STANDARD RESISTANCE OFFERING ($R_1$ =) | |
|---|---|
| 500 Ω | 10 kΩ |
| 1 kΩ | 20 kΩ |
| 2 kΩ | 50 kΩ |
| 4.99 kΩ | 100 kΩ |
| 5 kΩ | |

**Note**

- Consult factory for additional R values and schematics

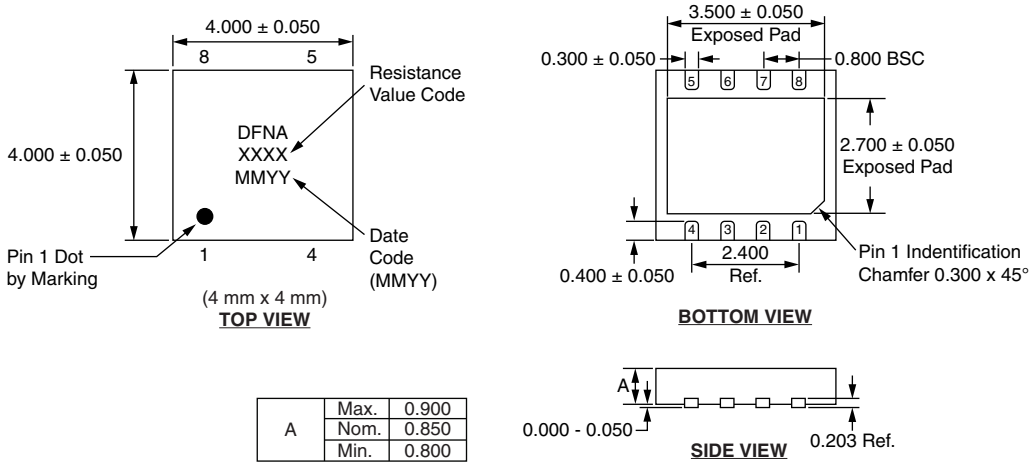
| STANDARD ELECTRICAL SPECIFICATIONS | | |
|---|---|---|
| **TEST** | **SPECIFICATIONS** | **CONDITIONS** |
| **Material** | Passivated nichrome | - |
| **Pin/Lead Number** | 8 | - |
| **Resistance Range** | 100 Ω to 100 kΩ per resistor | - |
| **TCR: Absolute** | ± 25 ppm/°C | -55 °C to +125 °C |
| **TCR: Tracking** | ± 3 ppm/°C | -55 °C to +125 °C |
| **Tolerance: Absolute** | ± 0.05 % to ± 1.0 % | +25 °C |
| **Tolerance: Ratio** | ± 0.025 % to ± 0.5 % | +25 °C |
| **Power Rating: Resistor** | 100 mW | Maximum at +70 °C |
| **Power Rating: Package** | 100 mW x number of resistors | Maximum at +70 °C |
| **Stability: Absolute** | $\Delta R$ ± 0.05 % | 2000 h at +70 °C |
| **Stability: Ratio** | $\Delta R$ ± 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 µV/°C | - |
| **Shelf Life Stability: Absolute** | $\Delta R$ ± 0.01 % | 1 year at +25 °C |
| **Shelf Life Stability: Ratio** | $\Delta R$ ± 0.002 % | 1 year at +25 °C |



For technical questions, contact: thinfilm@vishay.com

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## DIMENSIONS AND IMPRINTING in millimeters




| | | |
|---|---|---|
| A | Max. | 0.900 |
| | Nom. | 0.850 |
| | Min. | 0.800 |

**Note**

- Contact factory for package outlines for higher pin count or custom configurations

## MECHANICAL SPECIFICATIONS

| | |
|---|---|
| **Resistive Element** | Passivated nichrome |
| **Substrate Material** | Ceramic |
| **Body** | Molded epoxy |
| **Terminals** | Copper alloy |
| **Plating** | 100 % matte tin |
| **Marking Resistance to Solvents** | Per MIL-PRF-914 |

## GLOBAL PART NUMBER INFORMATION

**New Global Part Numbering: DFNA1002AT1**

| D | F | N | A | 1 | 0 | 0 | 2 | A | T | 1 |
|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | SCHEMATIC | RESISTANCE | TOLERANCE AND RATIO TOLERANCE | PACKAGING |
|---|---|---|---|---|
| **DFN** (Lead (Pb)-free) (e3) | **A** = Isolated equal value resistors | The first 3 digits are significant figures and the last digit specifies the number of zeros to follow.<br><br>Example:<br>1002 = 10 kΩ<br>1003 = 100 kΩ<br>4991 = 4.99 kΩ | **Z** = ± 0.05 % abs. ± 0.025 ratio (1)<br>**A** = ± 0.1 % abs. ± 0.05 % ratio<br>**B** = ± 0.1 % abs. ± 0.1 % ratio<br>**C** = ± 0.25 % abs. ± 0.1 % ratio<br>**D** = ± 0.5 % abs. ± 0.1 % ratio<br>**F** = ± 1.0 % abs. ± 0.5 % ratio | TAPE AND REEL<br>**T0** = 100 min., 100 mult<br>**T1** = 1000 min., 1000 mult (2)<br>**T3** = 300 min., 300 mult<br>**T5** = 500 min., 500 mult<br>**TF** = Full reel<br>**TS** = 100 min., 1 mult<br><br>**UF** = TUBED |

**Notes**

(1) Tolerance available on 1 kΩ and up

(2) Preferred packaging code



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