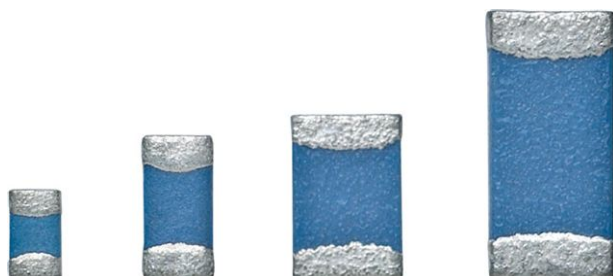


# NTC Thermistors, SMD 0402, 0603, 0805, 1206 Chip



## FEATURES

- Extended resistance values available in standard sizes
- Wraparound Ni barrier terminations with 100 % Sn
- Allows design flexibility for use with hybrid circuitry
- High-density monolithic construction with glass overcoat
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## APPLICATIONS

Temperature sensing, protection and compensation in industrial, telecom and consumer applications.

Examples are:

- Battery chargers
- Power suppliers
- Office equipment
- LCD compensation
- In-car entertainment

## DESIGN-IN SUPPORT

For complete curve computation please visit the “My Vishay NTC curve” at: [www.vishay.com/thermistors/curve-computation-list/](http://www.vishay.com/thermistors/curve-computation-list/) or sent your part number to [thermistor1@vishay.com](mailto:thermistor1@vishay.com) to obtain a calculation spreadsheet.

| QUICK REFERENCE DATA                                     |                          |      |
|----------------------------------------------------------|--------------------------|------|
| PARAMETER                                                | VALUE                    | UNIT |
| Resistance value at 25 °C                                | 4.7K to 350K             | Ω    |
| Tolerance on $R_{25}$ -value                             | ± 1, ± 2, ± 3, ± 5, ± 10 | %    |
| $B_{25/75}$ -value                                       | 3477 to 4247             | K    |
| $B_{25/85}$ -value                                       | 3486 to 4261             | K    |
| Tolerance on $B_{25/85}$ - value, $B_{25/75}$ -value     | ± 3                      | %    |
| Operating temperature range at zero power (intermittent) | -40 to +125 (150)        | °C   |

| NTHS PRODUCT DATA AND $R_{25}$ RESISTANCE RANGE AVAILABILITY |                 |                 |           |                          |               |               |               |                                |
|--------------------------------------------------------------|-----------------|-----------------|-----------|--------------------------|---------------|---------------|---------------|--------------------------------|
| CURVE                                                        | $B_{25/75}$ (K) | $B_{25/85}$ (K) | TCR (%/K) | NTHS0402 (kΩ)            | NTHS0603 (kΩ) | NTHS0805 (kΩ) | NTHS1206 (kΩ) | $R_{25} \pm$ TOL. AVAILABILITY |
| 2                                                            | 3477            | 3486            | -3.84     | 10 to 12                 | 6.8 to 12     | 4.7 to 10     | 6 to 10       | 3, 5, 10                       |
| 11                                                           | 3691            | 3715            | -4.13     | 30 to 34                 | 22 to 32      | 15 to 30      | 20 to 33      | 3, 5, 10                       |
| 1                                                            | 3964            | 3974            | -4.39     | 68 to 100 <sup>(1)</sup> | 50 to 100     | 33 to 78      | 38 to 100     | 1, 2, 3, 5, 10                 |
| 5                                                            | 3964            | 3974            | -4.39     | 47 to 50                 | 40 to 50      | 25 to 47      | 30 to 44      | 3, 5, 10                       |
| 17                                                           | 4064            | 4073            | -4.50     | 250                      | 150 to 220    | 100 to 200    | 100 to 220    | 3, 5, 10                       |
| 4                                                            | 4247            | 4262            | -4.67     | 350                      | 250 to 350    | 200 to 300    | 200 to 330    | 3, 5, 10                       |
| Maximum dissipation at 25 °C in mW                           |                 |                 |           | 80                       | 125           | 210           | 280           |                                |
| Dissipation factor in mW/K                                   |                 |                 |           | 2.0                      | 3.0           | 3.5           | 4.0           |                                |
| Thermal time constant in s                                   |                 |                 |           | 5                        | 8             | 10            | 13            |                                |

### Note

<sup>(1)</sup> Only  $R_{25}$  tolerance values ± 3 %, ± 5 %, and ± 10 % are available for NTHS0402N01N types.

| STANDARD RESISTANCE VALUES at 25 °C in Ω |      |     |     |     |     |      |      |      |      |
|------------------------------------------|------|-----|-----|-----|-----|------|------|------|------|
| 4.7K                                     | 6.8K | 12K | 20K | 30K | 47K | 68K  | 150K | 220K | 330K |
| 5.0K                                     | 10K  | 15K | 22K | 33K | 50K | 100K | 200K | 250K |      |

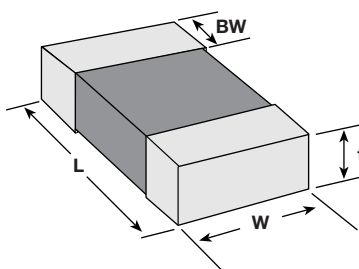
### Note

- Most popular and available values.

**GLOBAL PART NUMBER INFORMATION**

Global Part Numbering: NTHS1206N02N1002JE (preferred part number format)

|                                              |   |   |   |                |   |   |   |                                  |   |   |   |                |   |   |   |                  |   |  |  |                                                                |  |  |  |                                                                                                              |  |  |  |
|----------------------------------------------|---|---|---|----------------|---|---|---|----------------------------------|---|---|---|----------------|---|---|---|------------------|---|--|--|----------------------------------------------------------------|--|--|--|--------------------------------------------------------------------------------------------------------------|--|--|--|
| N                                            | T | H | S | 1              | 2 | 0 | 6 | N                                | 0 | 2 | N | 1              | 0 | 0 | 2 | J                | E |  |  |                                                                |  |  |  |                                                                                                              |  |  |  |
| GLOBAL MODEL                                 |   |   |   | CONDUCTOR TYPE |   |   |   | CURVE                            |   |   |   | CHARACTERISTIC |   |   |   | RESISTANCE VALUE |   |  |  | TOLERANCE CODE                                                 |  |  |  | PACKAGING                                                                                                    |  |  |  |
| NTHS0402<br>NTHS0603<br>NTHS0805<br>NTHS1206 |   |   |   | Nickel barrier |   |   |   | 01<br>02<br>04<br>05<br>11<br>17 |   |   |   | N              |   |   |   | 1002 = 10K       |   |  |  | F = ± 1 %<br>G = ± 2 %<br>H = ± 3 %<br>J = ± 5 %<br>K = ± 10 % |  |  |  | F = Lead (Pb)-free, bulk<br>E = Lead (Pb)-free, T/R (2K pcs, full)<br>U = Lead (Pb)-free, T/R (5K pcs, full) |  |  |  |

**DIMENSIONS** in inches (millimeters)


| PART NUMBER | L                                      | W                                      | BW                                     | t <sub>max.</sub> |
|-------------|----------------------------------------|----------------------------------------|----------------------------------------|-------------------|
| NTHS0402    | 0.040 $\pm$ 0.004<br>(1.02 $\pm$ 0.10) | 0.022 $\pm$ 0.006<br>(0.56 $\pm$ 0.15) | 0.010 $\pm$ 0.004<br>(0.25 $\pm$ 0.10) | 0.028<br>(0.71)   |
| NTHS0603    | 0.063 $\pm$ 0.008<br>(1.60 $\pm$ 0.20) | 0.031 $\pm$ 0.008<br>(0.80 $\pm$ 0.20) | 0.010 $\pm$ 0.006<br>(0.25 $\pm$ 0.15) | 0.039<br>(1.00)   |
| NTHS0805    | 0.079 $\pm$ 0.008<br>(2.01 $\pm$ 0.20) | 0.049 $\pm$ 0.008<br>(1.25 $\pm$ 0.20) | 0.012 $\pm$ 0.006<br>(0.30 $\pm$ 0.15) | 0.057<br>(1.45)   |
| NTHS1206    | 0.126 $\pm$ 0.008<br>(3.20 $\pm$ 0.20) | 0.063 $\pm$ 0.008<br>(1.60 $\pm$ 0.20) | 0.018 $\pm$ 0.008<br>(0.46 $\pm$ 0.20) | 0.071<br>(1.80)   |

**Note**

- Thickness of the part is depending on the resistance value and curve



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