

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



## ADDITIONAL RESOURCES



| QUICK REFERENCE DATA                                        |                                      |          |
|-------------------------------------------------------------|--------------------------------------|----------|
| PARAMETER                                                   | VALUE                                | UNIT     |
| Resistance value at 25 °C                                   | 4.7K to 350K                         | $\Omega$ |
| Tolerance on $R_{25}$ -value                                | $\pm 1, \pm 2, \pm 3, \pm 5, \pm 10$ | %        |
| $B_{25/75}$ -value                                          | 3477 to 4064                         | K        |
| $B_{25/85}$ -value                                          | 3486 to 4073                         | K        |
| Tolerance on $B_{25/85}$ -value,<br>$B_{25/75}$ -value      | $\pm 3$                              | %        |
| Operating temperature range<br>at zero power (intermittent) | -40 to +125 (150)                    | °C       |

## FEATURES

- Extended resistance values available in standard sizes
- Wraparound Ni barrier terminations with 100 % Sn
- NTHS1206 curve 1 is AEC-Q200 qualified
- 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/ntc-curve-list/](http://www.vishay.com/thermistors/ntc-curve-list/) or send your part number to [thermistor1@vishay.com](mailto:thermistor1@vishay.com) to obtain a calculation spreadsheet.

| NTHS PRODUCT DATA AND $R_{25}$ RESISTANCE RANGE AVAILABILITY |                 |                 |           |                          |                        |                        |                                       |                                |
|--------------------------------------------------------------|-----------------|-----------------|-----------|--------------------------|------------------------|------------------------|---------------------------------------|--------------------------------|
| CURVE                                                        | $B_{25/75}$ (K) | $B_{25/85}$ (K) | TCR (%/K) | NTHS0402 (k $\Omega$ )   | NTHS0603 (k $\Omega$ ) | NTHS0805 (k $\Omega$ ) | NTHS1206 <sup>(2)</sup> (k $\Omega$ ) | $R_{25} \pm$ 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 <sup>(2)</sup>              | 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                       |
| 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                                    |                                |

### Notes

<sup>(1)</sup> Only  $R_{25}$  tolerance values  $\pm 3$  %,  $\pm 5$  %, and  $\pm 10$  % are available for NTSH0402N01N types

<sup>(2)</sup> NTSH1206 curve 1 parts are AEC-Q200 qualified

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

### Note

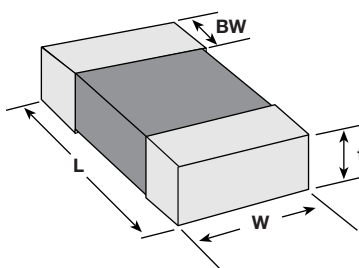
- Most popular and available values

**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                                                                                            |
|--------------------------------------------------------------------------|----------------|---------------------------------------------------------------|----------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>NTHS0402</b><br><b>NTHS0603</b><br><b>NTHS0805</b><br><b>NTHS1206</b> | Nickel barrier | <b>01</b><br><b>02</b><br><b>05</b><br><b>11</b><br><b>17</b> | <b>N</b>       | <b>1002 = 10K</b> | <b>F</b> = $\pm 1\%$<br><b>G</b> = $\pm 2\%$<br><b>H</b> = $\pm 3\%$<br><b>J</b> = $\pm 5\%$<br><b>K</b> = $\pm 10\%$ | <b>E</b> = lead (Pb)-free, T/R (2K pieces, full)<br><b>U</b> = lead (Pb)-free, T/R (5K pieces, full) |

**DIMENSIONS** in inches (millimeters)


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

**Note**

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



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