NTHS Series



Vishay Dale

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



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

FEATURES

- Extended resistance values available in standard sizes
- Wraparound Ni barrier terminations with 100 % Sn



FREE

- Allows design flexibility for use with hybrid circuitry
- High-density monolithic construction with glass overcoat
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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: <u>www.vishay.com/thermistors/curve-computation-list/</u> or sent your part number to <u>thermistor1@vishay.com</u> to obtain a calculation spreadsheet.

| NTHS F | PRODUCT | DATA AI | ND <i>R</i> 25 R | ESISTANCE I | RANGE AVAII | LABILITY | | |
|------------------------------------|---------------------------|---------------------------|------------------|--------------------------|------------------|------------------|------------------|----------------------------------------|
| CURVE | B _{25/75} (K) | B _{25/85} (K) | TCR (%/K) | NTHS0402 (kΩ) | NTHS0603 (kΩ) | NTHS0805 (kΩ) | NTHS1206 (kΩ) | R ₂₅ ± 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 ⁽¹⁾ | 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

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

| STANDA | RD RESIS | TANCE VA | LUES at 2 | 5 °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.

Revision: 24-Nov-15

1 For technical questions, contact: <u>thermistor1@vishay.com</u> Document Number: 33008

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DIMENSIONS in inches (millimeters)



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

Note

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



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Vishay:

| NTHS0805N02N4601JP NTHS0805J14N5000JP NTHS0805J08N5003JP NTHS0805N02N6001KP |
|-------------------------------------------------------------------------------------------|
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| NTHS0805N17N1003KP NTHS1206N04N2503JR NTHS1206N01N2002JP NTHS1206N03N2000JP |
| NTHS1206N03N2000KP NTHS1206N02N2201JR NTHS1206N17N2203JP NTHS0603N02N4701JP |
| NTHS0603N03N2001JP NTHS0603N02N1002JR NTHS1206N03N6800JR NTHS0603N01N1003JP |
| NTHS0603N17N2003JP NTHS1012J14N3000JP NTHS1012J14N3000KP NTHS0603N02 5K 5%TR |
| NTHS0603N03N1001JE NTHS0805J08N5003JR NTHS0805N11N1502JE NTHS1006N02N5001JE NTHS1205N01 |
| 100K 5%T NTHS1206J02 4.7K 5% NTHS1206J14 300 10% NTHS1206J14 330 10% NTHS1206N01 100K 5%T |
| NTHS1206N01 50K 5% NTHS1206N02 4.7K 10% NTHS1206N02 5K 10%TR NTHS1206N02N1002JE |
| NTHS1206N02N4701KE NTHS1206N03 220 5%TR NTHS1206N17 220K 5% NTHS0805N01N2202JR |
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| NTHS1206N02N2001JP NTHS1206J02N1002JP NTHS1206J14N1001JP NTHS1006N02N7001JP |
| NTHS0805N17N1503JR NTHS1006N02N6001KP NTHS0603N02N2332JP NTHS0603N01N2332JP |
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| NTHS1206N03N1001JE NTHS0805J02N1002KE NTHS0805J02N1002JE NTHS0805N01N1123JE |
| NTHS1206N01N4702JE NTHS1012N01N3002JE NTHS0805N02N1002KE NTHS0805N01N1002JE |
| NTHS0805N02N1002JE NTHS0805N02N5001JE NTHS1206N02N1501JE NTHS0805J08N5003JE |
| NTHS1206N01N5002JE NTHS1206N01N5002KE NTHS1206N01N1003JE NTHS1206N01N1003KE |
| NTHS1006N02N7001JE NTHS0603N01N1003JE NTHS0805N02N4701JE NTHS1012N01N1002KE |
| NTHS1205N01N1003JE NTHS1206N02N7001KE NTHS1206N02N7001JE NTHS0603J02N1002JE |
| NTHS0603N02N1002JE NTHS1012N04N1003JE NTHS0805N01N1503JE |
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