



NTC Thermistors, Screw Threaded Insulated Leads Sensors



LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools

For complete RT curve computation, visit:
www.vishay.com/thermistors/ntc-curve-list/

QUICK REFERENCE DATA

| PARAMETER | VALUE | UNIT |
|--|-------------|-----------------|
| Resistance value at 25 °C | 10K | Ω |
| Tolerance on R_{25} -value | ± 2 | % |
| $B_{25/85}$ -value | 3984 | K |
| Tolerance on $B_{25/85}$ -value | ± 0.5 | % |
| Operating temperature range at: Zero dissipation | -40 to +125 | °C |
| Maximum power dissipation | 0 to +55 | |
| Dissipation factor (still air 25 °C) | ≈ 5 | mW/K |
| Maximum power dissipation | 50 | mW |
| Min. dielectric withstanding voltage between terminals and brass case | 500 | V _{AC} |
| Insulation resistance between terminals and brass case | Min. 100 | M Ω |
| Weight | 2.1 | g |

FEATURES

- Easy mounting with thread
- Rugged construction
- Mounting: assembly threaded screw mounting
- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912

**RoHS**
COMPLIANT

APPLICATIONS

- Temperature measurement, sensing, and control
- Suitable for surface temperature applications, especially when a good electrical insulation and a good thermal contact with the chassis is required
- Industrial
- Consumer appliances

DESCRIPTION

The thermistor is made of NTC ceramic material soldered to the cable conductors and potted in the head of the brass screw.

The screw thread is of the tap size no. 6, with 32 thread-per-inch, under the Unified National Coarse definition (6-32 UNC ISO68-2 ISO263).

The cables are multi-stranded copper AWG#28, UL 3656 certified, with XLPE insulation, and a rating of 125 °C and 300 V.

MOUNTING

Inserted in a threaded hole (for example tapping #36 / 2.85 mm) or in a clearance hole (for example clearance drill #25 / 3.80 mm).

The product is not intended to be mounted in direct contact with water or liquids.

The recommended torque is 0.89 N · m / 7.9 inch-pounds.
Leads conductors can be soldered or crimped.

DIMENSIONS in millimeters

| L1 | L2 | B | C | D |
|---------------|---------|-----------|----------|----------|
| 200 +10 / -15 | 2.5 ± 1 | 12.70 ± 1 | 6.35 ± 1 | 6.35 ± 1 |

Notes

1. NTC chip with epoxy coating and potting
2. Insulated leads: UL 3656 style, XLPE insulated, rating 125 °C, rating 300 V, AWG#28
3. 6-32 UNC threaded brass hex housing
4. Lead wire end is stripped

ELECTRICAL DATA AND ORDERING INFORMATION

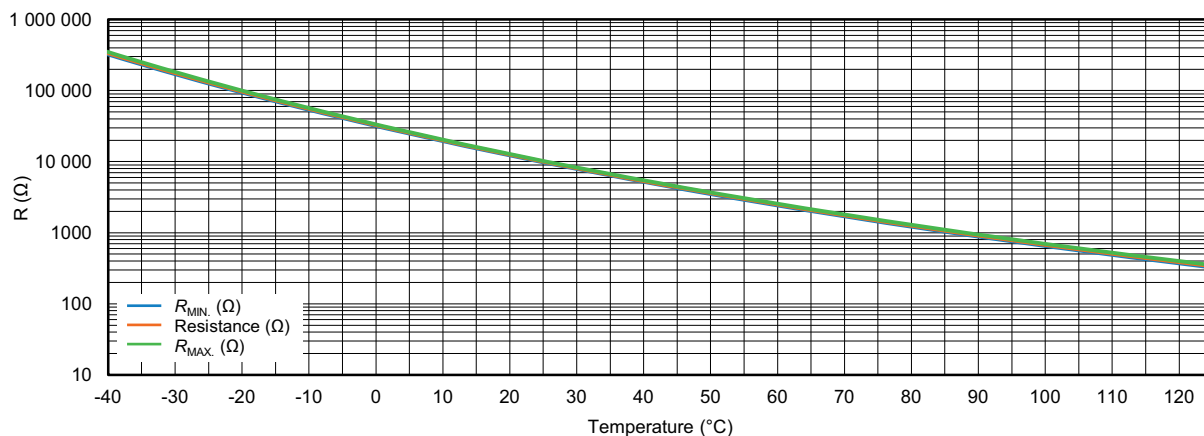
| R_{25} (Ω) | R_{25} -TOL. (\pm %) | $B_{25/85}$ (K) | $B_{25/85}$ -TOL. (\pm %) | SAP MATERIAL AND ORDERING NUMBER | DESCRIPTION |
|--------------------------|------------------------------|--------------------|---------------------------------|-------------------------------------|--|
| 10 000 | 2 | 3984 | 0.5 | NTCASCWE3C70001 | NTC screw 10K 2 % 3984K AWG28 6-32 UNC |

**RESISTANCE TEMPERATURE CHARACTERISTICS**

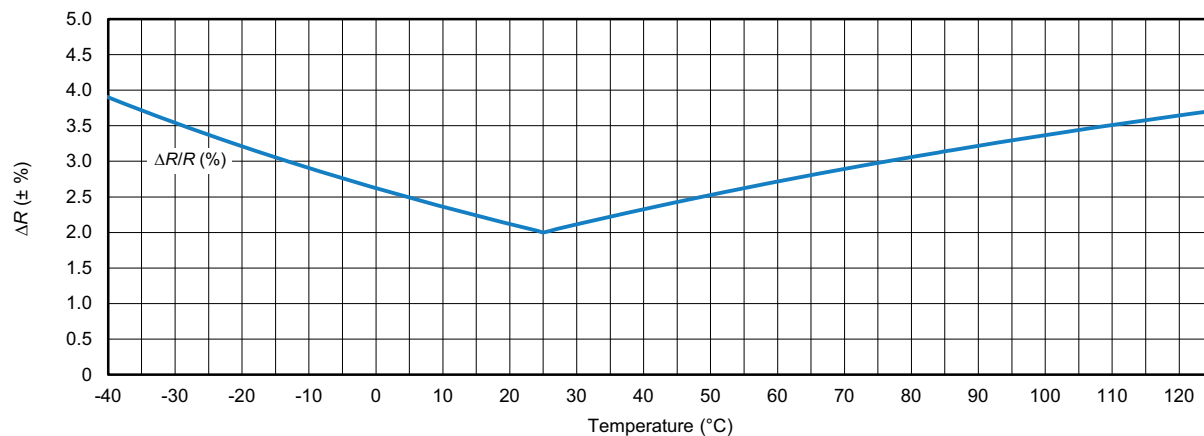
| TEMP. (°C) | $R(T)/R_{25}$ | RESISTANCE (Ω) | $\Delta R/R$ (%) | α (%/K) | ΔT (\pm K) | $R_{MIN.}$ (Ω) | $R_{MAX.}$ (Ω) |
|---------------|---------------|----------------------------|---------------------|-------------------|--------------------------|----------------------------|----------------------------|
| -40 | 33.427 | 334 274.4 | 3.90 | -6.63 | 0.59 | 321 238.0 | 347 310.8 |
| -35 | 24.132 | 241 322.9 | 3.72 | -6.41 | 0.58 | 232 353.0 | 250 292.7 |
| -30 | 17.613 | 176 132.5 | 3.54 | -6.19 | 0.57 | 169 894.8 | 182 370.3 |
| -25 | 12.990 | 129 900.0 | 3.37 | -5.99 | 0.56 | 125 518.3 | 134 281.7 |
| -20 | 9.676 | 96 761.1 | 3.21 | -5.79 | 0.55 | 93 653.8 | 99 868.5 |
| -15 | 7.276 | 72 764.6 | 3.06 | -5.61 | 0.54 | 70 540.9 | 74 988.2 |
| -10 | 5.522 | 55 218.1 | 2.91 | -5.43 | 0.54 | 53 613.2 | 56 823.0 |
| -5 | 4.227 | 42 267.8 | 2.76 | -5.26 | 0.53 | 41 100.2 | 43 435.5 |
| 0 | 3.262 | 32 624.2 | 2.62 | -5.10 | 0.51 | 31 768.3 | 33 480.2 |
| 5 | 2.538 | 25 381.4 | 2.49 | -4.94 | 0.50 | 24 749.4 | 26 013.4 |
| 10 | 1.990 | 19 896.9 | 2.36 | -4.80 | 0.49 | 19 427.1 | 20 366.7 |
| 15 | 1.571 | 15 711.3 | 2.24 | -4.65 | 0.48 | 15 359.9 | 16 062.6 |
| 20 | 1.249 | 12 492.7 | 2.12 | -4.52 | 0.47 | 12 228.4 | 12 757.1 |
| 25 | 1.000 | 10 000.0 | 2.00 | -4.39 | 0.46 | 9800.0 | 10 200.0 |
| 30 | 0.806 | 8056.0 | 2.11 | -4.26 | 0.50 | 7885.8 | 8226.1 |
| 35 | 0.653 | 6529.7 | 2.22 | -4.14 | 0.54 | 6384.7 | 6674.8 |
| 40 | 0.532 | 5323.9 | 2.33 | -4.03 | 0.58 | 5200.0 | 5447.7 |
| 45 | 0.437 | 4365.3 | 2.43 | -3.92 | 0.62 | 4259.3 | 4471.3 |
| 50 | 0.360 | 3598.7 | 2.53 | -3.81 | 0.66 | 3507.8 | 3689.7 |
| 55 | 0.298 | 2982.3 | 2.62 | -3.71 | 0.71 | 2904.0 | 3060.5 |
| 60 | 0.248 | 2483.8 | 2.72 | -3.61 | 0.75 | 2416.4 | 2551.3 |
| 65 | 0.208 | 2078.7 | 2.81 | -3.51 | 0.80 | 2020.3 | 2137.0 |
| 70 | 0.175 | 1747.7 | 2.89 | -3.42 | 0.85 | 1697.1 | 1798.2 |
| 75 | 0.148 | 1475.9 | 2.98 | -3.34 | 0.89 | 1432.0 | 1519.9 |
| 80 | 0.125 | 1251.8 | 3.06 | -3.25 | 0.94 | 1213.5 | 1290.1 |
| 85 | 0.107 | 1066.1 | 3.14 | -3.17 | 0.99 | 1032.6 | 1099.6 |
| 90 | 0.091 | 911.6 | 3.22 | -3.09 | 1.04 | 882.2 | 940.9 |
| 95 | 0.078 | 782.5 | 3.30 | -3.02 | 1.09 | 756.7 | 808.2 |
| 100 | 0.067 | 674.1 | 3.37 | -2.94 | 1.14 | 651.4 | 696.8 |
| 105 | 0.058 | 582.8 | 3.44 | -2.87 | 1.20 | 562.8 | 602.9 |
| 110 | 0.051 | 505.7 | 3.51 | -2.81 | 1.25 | 487.9 | 523.4 |
| 115 | 0.044 | 440.2 | 3.58 | -2.74 | 1.31 | 424.4 | 455.9 |
| 120 | 0.038 | 384.4 | 3.65 | -2.68 | 1.36 | 370.4 | 398.4 |
| 125 | 0.034 | 336.7 | 3.71 | -2.62 | 1.42 | 324.2 | 349.2 |



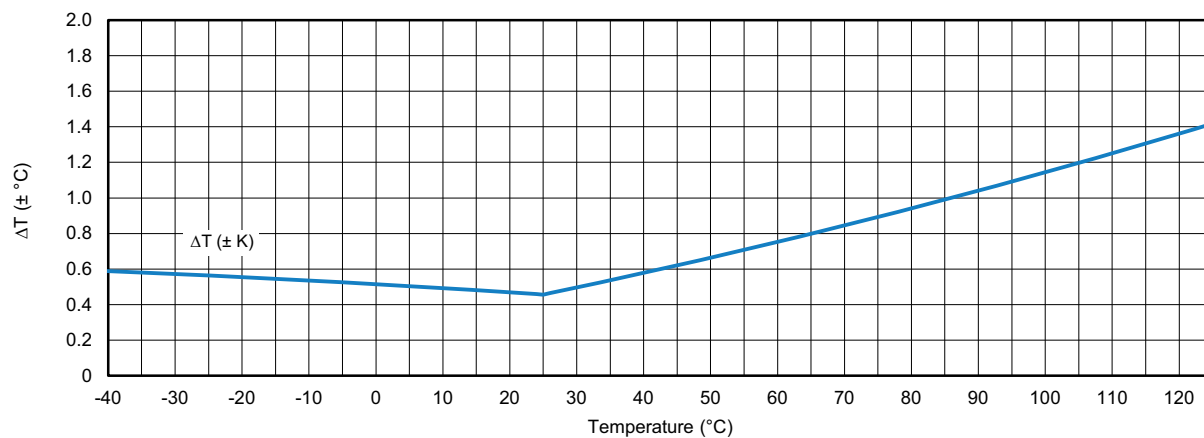
RT CURVE



$\Delta R (\pm \%)$



$\Delta T (\pm ^\circ\text{C})$





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