

NTC Thermistors, Glass Encapsulated High Temperature Sensors



FEATURES

- Small diameter down to 1.8 mm
- Quick response time down to 0.9 s
- Wide temperature range from -40 °C to +200 °C
- Resistant to corrosive atmospheres and harsh environments
- Available in bulk or on tape
- Mounting: axial
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

| QUICK REFERENCE DATA | | |
|--|----------------------|----------|
| PARAMETER | VALUE | UNIT |
| Resistance value at 25 °C (R_{25}) | 10K to 220K | Ω |
| Tolerance on R_{25} -value | ± 5 | % |
| $B_{25/85}$ -value | 3797 to 3977 | K |
| Tolerance on $B_{25/85}$ -value | ± 1.3 to ± 3 | % |
| Operating temperature range | -40 to +200 | °C |
| Maximum power dissipation at 55 °C | 100 | mW |
| Dissipation factor | 2.5 | mW/K |
| Response time | 0.9 | s |
| Thermal time constant τ | 6 | s |
| Climatic category (LCT / UCT / days) | 40 / 200 / 56 | |
| Weight | ≈ 0.14 | g |

APPLICATIONS

High temperature measurement, sensing and control:

- Domestic appliances
- Industrial process control

DESIGN-IN SUPPORT

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

DESCRIPTION

These thermistors have a negative temperature coefficient and are mounted in a glass envelope:

NTCLG100E2...B (SOD27) with tinned copper-clad steel leads in bulk

NTCLG100E2...T is the taped on bandolier version

MOUNTING

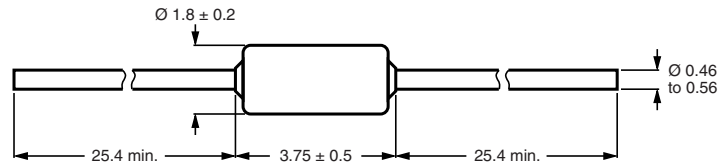
By soldering, clamping or welding. Bending of the leads should be done at least 3 mm from the glass body and without exerting forces on the glass body.

| 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 NTCLG100E2... |
| 10 000 | 5 | 3977 | 1.3 | 103JB |
| 20 000 | 5 | 3977 | 1.3 | 203JB |
| 30 000 | 5 | 3977 | 1.3 | 303JB |
| 100 000 | 5 | 3977 | 1.3 | 104JB |
| 220 000 | 5 | 3797 | 3.0 | 224JB |

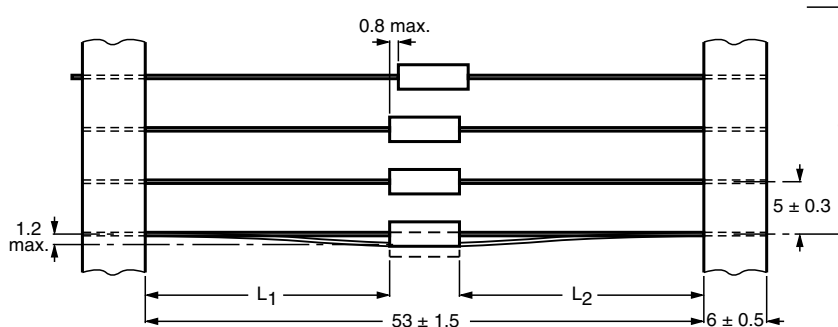
Note

- In SAP part replace last character by B for bulk and by T for taped components

DIMENSIONS in millimeters
Thermistors in bulk (NTCLG100E2...B)



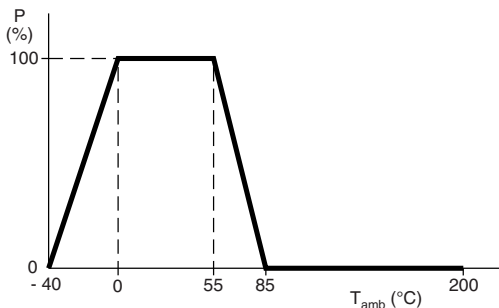
THERMISTORS ON BANDOLIER (NTCLG100E2...T)
Bandolier taped according to IEC 60286-1



The components are centered so that $|L_1 - L_2| = 1.2 \text{ mm max.}$ The cumulative space (S) measured over 10 spacings = $50 \text{ mm} \pm 2 \text{ mm}$

DERATING

Power derating curve

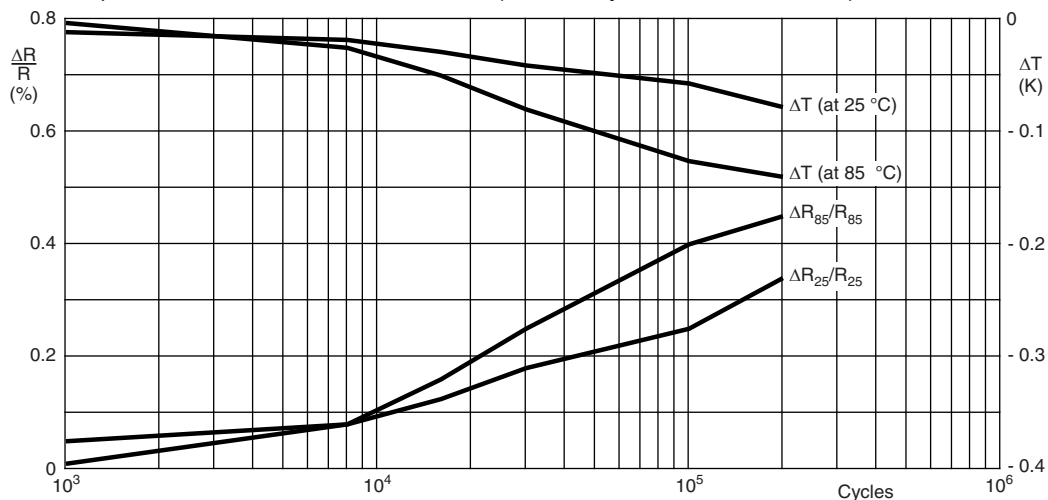


Note

- Zero power is considered as measuring power max. 1 % of rated power

STABILITY CHARACTERISTICS

Stability of glass encapsulated NTCs in thermal shock test (200 000 cycles $-40 \text{ }^\circ\text{C} / +200 \text{ }^\circ\text{C}$)





RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES FOR NTCLG100E2

Table with 9 columns: TEMPERATURE (°C), RT/RT25, RT FOR 10 kΩ, RT FOR 20 kΩ, RT FOR 30 kΩ, RT FOR 100 kΩ, R-TOL. (± %), α (%/K), T-TOL. (± °C). Rows range from -40 to 200 °C.



| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES FOR NTCLG100E2 | | | | | |
|---|--------------|------------------|--------------|----------------|---------------|
| TEMPERATURE (°C) | R_T/R_{25} | R_T FOR 220 kΩ | R-TOL. (± %) | α (%/K) | T-TOL. (± °C) |
| -40 | 25.78 | 5 672 264 | 16.18 | -6.07 | 2.67 |
| -35 | 19.13 | 4 207 576 | 15.11 | -5.88 | 2.57 |
| -30 | 14.32 | 3 150 400 | 14.07 | -5.70 | 2.47 |
| -25 | 10.82 | 2 380 124 | 13.08 | -5.52 | 2.37 |
| -20 | 8.244 | 1 813 764 | 12.13 | -5.35 | 2.27 |
| -15 | 6.335 | 1 393 675 | 11.22 | -5.19 | 2.16 |
| -10 | 4.907 | 1 079 442 | 10.34 | -5.03 | 2.05 |
| -5 | 3.829 | 842 474 | 9.49 | -4.88 | 1.94 |
| 0 | 3.011 | 662 373 | 8.67 | -4.74 | 1.83 |
| 5 | 2.384 | 524 457 | 7.88 | -4.60 | 1.71 |
| 10 | 1.900 | 418 080 | 7.13 | -4.47 | 1.59 |
| 15 | 1.525 | 335 455 | 6.39 | -4.34 | 1.47 |
| 20 | 1.231 | 270 847 | 5.68 | -4.22 | 1.35 |
| 25 | 1.000 | 220 000 | 5.00 | -4.10 | 1.22 |
| 30 | 0.817 | 179 734 | 5.66 | -3.99 | 1.42 |
| 35 | 0.6712 | 147 656 | 6.30 | -3.88 | 1.63 |
| 40 | 0.5543 | 121 952 | 6.92 | -3.77 | 1.83 |
| 45 | 0.4602 | 101 242 | 7.52 | -3.67 | 2.05 |
| 50 | 0.3839 | 84 466 | 8.10 | -3.58 | 2.27 |
| 55 | 0.3218 | 70 806 | 8.67 | -3.48 | 2.49 |
| 60 | 0.2710 | 59 627 | 9.21 | -3.39 | 2.72 |
| 65 | 0.2293 | 50 436 | 9.75 | -3.30 | 2.95 |
| 70 | 0.1947 | 42 844 | 10.26 | -3.22 | 3.19 |
| 75 | 0.1661 | 36 544 | 10.76 | -3.14 | 3.43 |
| 80 | 0.1422 | 31 294 | 11.25 | -3.06 | 3.67 |
| 85 | 0.1223 | 26 901 | 11.72 | -2.99 | 3.92 |
| 90 | 0.1055 | 23 210 | 12.18 | -2.92 | 4.18 |
| 95 | 0.09135 | 20 096 | 12.63 | -2.85 | 4.44 |
| 100 | 0.07936 | 17 460 | 13.06 | -2.78 | 4.70 |
| 105 | 0.06918 | 15 220 | 13.49 | -2.71 | 4.97 |
| 110 | 0.06050 | 13 310 | 13.90 | -2.65 | 5.24 |
| 115 | 0.05307 | 11 676 | 14.30 | -2.59 | 5.52 |
| 120 | 0.04670 | 10 273 | 14.69 | -2.53 | 5.81 |
| 125 | 0.04121 | 9065 | 15.08 | -2.47 | 6.09 |
| 130 | 0.03646 | 8022 | 15.45 | -2.42 | 6.39 |
| 135 | 0.03235 | 7117 | 15.81 | -2.37 | 6.68 |
| 140 | 0.02878 | 6332 | 16.17 | -2.31 | 6.99 |
| 145 | 0.02567 | 5647 | 16.51 | -2.26 | 7.29 |
| 150 | 0.02295 | 5049 | 16.85 | -2.22 | 7.61 |
| 155 | 0.02057 | 4525 | 17.18 | -2.17 | 7.92 |
| 160 | 0.01847 | 4064 | 17.50 | -2.12 | 8.24 |
| 165 | 0.01663 | 3659 | 17.82 | -2.08 | 8.57 |
| 170 | 0.01501 | 3301 | 18.13 | -2.04 | 8.90 |
| 175 | 0.01357 | 2985 | 18.43 | -2.00 | 9.24 |
| 180 | 0.01229 | 2704 | 18.72 | -1.95 | 9.58 |
| 185 | 0.01116 | 2455 | 19.01 | -1.92 | 9.92 |
| 190 | 0.01015 | 2233 | 19.29 | -1.88 | 10.27 |
| 195 | 0.009247 | 2034 | 19.57 | -1.84 | 10.63 |
| 200 | 0.008442 | 1857 | 19.84 | -1.81 | 10.99 |



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