



### NTC Thermistors, Standard Lug Sensors



#### LINKS TO ADDITIONAL RESOURCES



| QUICK REFERENCE DATA  |                |                 |
|---|----------------|-----------------|
| PARAMETER   | VALUE          | UNIT            |
| Resistance value at 25 °C   | 4.7K to 100K   | Ω               |
| Tolerance on R <sub>25</sub> -value   | ± 1 to ± 5     | %               |
| B <sub>25/85</sub> -value   | 3435 to 4190   | K               |
| Tolerance on B <sub>25/85</sub> -value                                      | ± 0.5 to ± 1.5 | %               |
| Operating temperature range (without connector)                             | -55 to +150    | °C              |
| Storage temperature range   | -55 to +150    | °C              |
| Response time (for info) <sup>(1)</sup>                                     | 4              | s               |
| Thermal time constant τ <sub>c</sub> <sup>(2)</sup>                         | 5              | s               |
| Dissipation factor δ <sup>(2)</sup>   | 13             | mW/K            |
| Maximum power dissipation at 55 °C <sup>(3)</sup>                           | 400            | mW              |
| Min. dielectric withstanding voltage between terminals and lug              | 1500           | V <sub>AC</sub> |
| Min. insulation resistance between terminals and lug at 500 V <sub>DC</sub> | 100            | MΩ              |
| Weight  | 1.5 to 2.3     | g               |

#### Notes

- (1) The response time is the time the sensor responds to a 63.2 % step change in temperature, usually set to ΔT = 60 °C (25 to 85) unless mentioned differently. This step is generally conducted by quickly transferring the NTC from one liquid to another (generally water or oil)
- (2) Measured with screw mounted on an aluminum heatsink of 100 cm<sup>2</sup>, thickness 1.5 mm, in still air at T<sub>amb</sub> = +25 °C
- (3) In still air on an aluminum plate

#### AGENCY APPROVALS

- cUL certificate XGPU8.E148885
- ULus certificate XGPU2.E148885

#### Note

- Agency approval documents, please see: [www.vishay.com/ppg?29092&documents](http://www.vishay.com/ppg?29092&documents)

#### DESIGN-IN SUPPORT

- Other resistance curves and tolerances are available on request
- Consult Vishay for other lead length, other connector crimping, or other features  
<https://info.vishay.com/vishay-ntc-modification-request>
- 3D solid models: [www.vishay.com/doc?29144](http://www.vishay.com/doc?29144)
- NTC curve computation:  
[www.vishay.com/thermistors/ntc-rt-calculator/](http://www.vishay.com/thermistors/ntc-rt-calculator/)

#### FEATURES

- Easy mounting using ring tongue terminal
- Rugged construction
- Cable of PTFE insulation according to NEMA HP-3, type E, rated 600 V<sub>RMS</sub> <sup>(1)</sup>, cable test voltage 3.4 kV
- AEC-Q200 qualified (grade 1)
- cULus recognized, file E148885 (UL category XGPU2/XGPU8)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

#### Note

<sup>(1)</sup> Formerly MIL-W-16878/4, type E

#### APPLICATIONS

Suitable for surface sensing applications, especially when a good electrical insulation and a good thermal contact with the chassis is required.

#### DESCRIPTION

A NTC thermistor chip is soldered to AWG#24 stranded silver plated copper leads with PTFE insulation and insulated with epoxy coating. The insulated sensor is attached to a tin plated copper ring lug. The lead wires are stripped, twisted and dipped in a tin-silver solder alloy.

#### PACKAGING

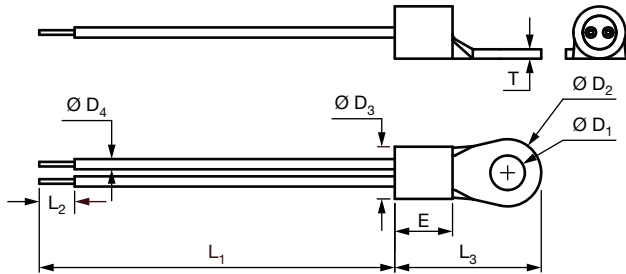
The thermistors are packed in cardboard boxes; the smallest packaging quantity is 500 units.

#### CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions: see [www.vishay.com/doc?29221](http://www.vishay.com/doc?29221).

- By means of M3 (stud #3, #4) or M3,5 (stud #5, #6) screw. Leads to be soldered or crimped
- The device is suitable for screwing e.g. on metal surface
- The leads are suitable for soldering e.g. on PCB

### DIMENSIONS in millimeters



| L <sub>1</sub>              | L <sub>2</sub> | Ø D <sub>1</sub> | Ø D <sub>2</sub> | Ø D <sub>3</sub>  | T   | L <sub>3</sub> | E         | D <sub>4</sub> |
|-----------------------------|----------------|------------------|------------------|-------------------|-----|----------------|-----------|----------------|
| Refer to the ordering table | 3.8 ± 1        | 3.7 + 0.2 / - 0  | 7.2 ± 0.2        | 5.6 + 0.3 / - 0.2 | 1.0 | 15.70 ± 0.3    | 6.2 ± 0.2 | 1.12 ± 0.1     |

### ELECTRICAL DATA AND ORDERING INFORMATION

| R <sub>25</sub><br>(Ω) | R <sub>25</sub> <sup>-</sup><br>TOL.<br>(± %) | B <sub>25/85</sub><br>(K) | B <sub>25/85</sub> <sup>-</sup><br>TOL.<br>(± %) | L <sub>1</sub><br>(mm) | DESCRIPTION                                   | UL<br>RECOG.<br>US | SAP MATERIAL AND ORDERING NUMBER     |                    |
|------------------------|---|---------------------------|--|------------------------|---|--------------------|--------------------------------------|--------------------|
|                        |   |                           |  |                        |   |                    | RoHS-COMPLIANT<br>WITH EXEMPTION (1) | RoHS-COMPLIANT     |
| 4700                   | 3   | 3984                      | 0.5  | 38.1<br>± 3.8          | NTC Lug01 4.7K 3 % 3984K<br>PTFE AWG#24 38 mm |                    | NTCALUG01A472H                       | NTCALUG01A472HA    |
| 10 000                 | 1   | 3435                      | 1  | 38.1<br>± 3.8          | NTC Lug01 10K 1 % 3435K<br>PTFE AWG#24 38 mm  | ✓                  | NTCALUG01A103FL                      | NTCALUG01A103FLA   |
| 10 000                 | 1   | 3984                      | 0.5  | 38.1<br>± 3.8          | NTC Lug01 10K 1 % 3984K<br>PTFE AWG#24 38 mm  | ✓                  | NTCALUG01A103F                       | NTCALUG01A103FA    |
| 10 000                 | 1   | 3984                      | 0.5  | 80<br>± 5              | NTC Lug01 10K 1 % 3984K<br>PTFE AWG#24 80 mm  | ✓                  | NTCALUG01A103F800                    | NTCALUG01A103F800A |
| 10 000                 | 1   | 3435                      | 1  | 80<br>± 5              | NTC Lug01 10K 1 % 3435K<br>PTFE AWG#24 80 mm  | ✓                  | NTCALUG01A103F800L                   | NTCALUG01A103F804A |
| 10 000                 | 1   | 3984                      | 0.5  | 160<br>+ 10 / - 5      | NTC Lug01 10K 1 % 3984K<br>PTFE AWG#24 160 mm | ✓                  | NTCALUG01A103F161                    | NTCALUG01A103F161A |
| 10 000                 | 1   | 3435                      | 1  | 160<br>+ 10 / - 5      | NTC Lug01 10K 1 % 3435K<br>PTFE AWG#24 160 mm | ✓                  | NTCALUG01A103F161L                   | NTCALUG01A103F165A |
| 10 000                 | 2   | 3984                      | 0.5  | 38.1<br>± 3.8          | NTC Lug01 10K 2 % 3984K<br>PTFE AWG#24 38 mm  | ✓                  | NTCALUG01A103G                       | NTCALUG01A103GA    |
| 10 000                 | 3   | 3984                      | 0.5  | 38.1<br>± 3.8          | NTC Lug01 10K 3 % 3984K<br>PTFE AWG#24 38 mm  | ✓                  | NTCALUG01A103H                       | NTCALUG01A103HA    |
| 10 000                 | 5   | 3984                      | 0.5  | 38.1<br>± 3.8          | NTC Lug01 10K 5 % 3984K<br>PTFE AWG#24 38 mm  | ✓                  | NTCALUG01A103J                       | NTCALUG01A103JA    |
| 47 000                 | 3   | 4090                      | 1.5  | 38.1<br>± 3.8          | NTC Lug01 47K 3 % 4090K<br>PTFE AWG#24 38 mm  |                    | NTCALUG01A473H                       | NTCALUG01A473HA    |
| 100 000                | 1   | 4190                      | 1.5  | 38.1<br>± 3.8          | NTC Lug01 100K 1 % 4190K<br>PTFE AWG#24 38 mm |                    | NTCALUG01A104F                       | NTCALUG01A104FA    |
| 100 000                | 2   | 4190                      | 1.5  | 38.1<br>± 3.8          | NTC Lug01 100K 2 % 4190K<br>PTFE AWG#24 38 mm |                    | NTCALUG01A104G                       | NTCALUG01A104GA    |

#### Notes

Preferred versions for new designs

(1) RoHS exemption 7(c)-I: electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezo-electronic devices, or in a glass or ceramic matrix compound



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