



## NTC Thermistors, Standard Lug Sensors



### LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools



Models



Related Documents



Capabilities and Custom Options

### QUICK REFERENCE DATA

| PARAMETER                                                                   | VALUE          | UNIT            |
|-----------------------------------------------------------------------------|----------------|-----------------|
| Resistance value at 25 °C                                                   | 4.7K to 100K   | Ω               |
| Tolerance on $R_{25}$ -value                                                | ± 1 to ± 5     | %               |
| $B_{25/85}$ -value                                                          | 3435 to 4190   | K               |
| Tolerance on $B_{25/85}$ -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 $\tau_c$ <sup>(2)</sup>                               | 5              | s               |
| Dissipation factor $\delta$ <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  $\Delta T = 60$  °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  $T_{amb} = +25$  °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

- (1) 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 with (e2) termination logo, or naked stripped wires with (e4) termination logo.

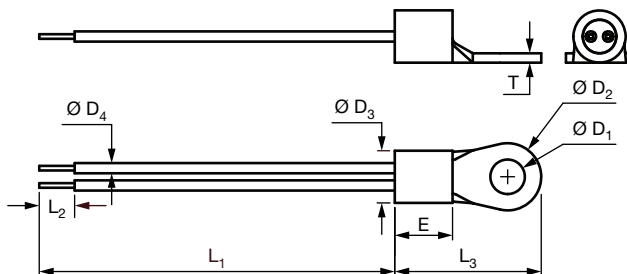
### PACKAGING

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> | SAP MATERIAL AND ORDERING NUMBER             |                            |
|------------------------|-----------------------------------------------|---------------------------|--------------------------------------------------|------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------|
|                        |                                               |                           |                                                  |                        |                                               |                                                                                                   | RoHS-COMPLIANT<br>WITH EXEMPTION (1)<br>(e2) | RoHS-COMPLIANT (2)<br>(e4) |
| 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.  
(e2) The end conductor is dipped in tin-silver alloy solder  
(2) RoHS I, RoHS II, RoHS III, without exemption, and lead (Pb)-free.  
(e4) The end conductor is multistranded silver plated copper



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