

## NTC Thermistors, Standard Lug Sensors



### LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools



SPICE Models



Related Documents

| QUICK REFERENCE DATA                                                           |              |                 |
|--------------------------------------------------------------------------------|--------------|-----------------|
| PARAMETER                                                                      | VALUE        | UNIT            |
| Resistance value at 25 °C                                                      | 10K          | Ω               |
| Tolerance on $R_{25}$ -value                                                   | ± 2 to ± 3   | %               |
| $B_{25/85}$ -value                                                             | 3435; 3984   | K               |
| Tolerance on $B_{25/85}$ -value                                                | ± 0.5 to ± 1 | %               |
| 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            |
| Max. power dissipation at 55 °C <sup>(3)</sup>                                 | 400          | mW              |
| Minimum dielectric withstanding voltage between terminals and lug              | 1500         | V <sub>AC</sub> |
| Minimum insulation resistance between terminals and lug at 500 V <sub>DC</sub> | 100          | MΩ              |
| Weight                                                                         | 1.6 to 4.3   | g               |

#### Notes

- <sup>(1)</sup> 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)
- <sup>(2)</sup> 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
- <sup>(3)</sup> 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?29194&documents](http://www.vishay.com/ppg?29194&documents)

### 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>
- 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, cable test voltage 3.4 kV

### 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.

### PACKAGING

The thermistors are packed in cardboard boxes.

### CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

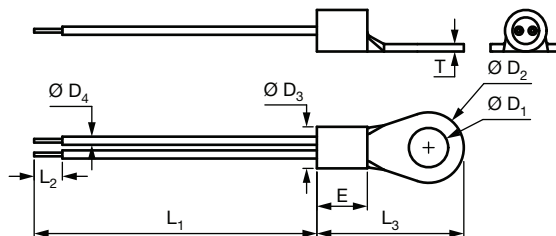
Please read the special instructions:

see [www.vishay.com/doc?29221](http://www.vishay.com/doc?29221)

- By means of M5 (stud #10) 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

### 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?29199](http://www.vishay.com/doc?29199)
- NTC curve computation: [www.vishay.com/thermistors/ntc-rt-calculator/](http://www.vishay.com/thermistors/ntc-rt-calculator/)

**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 | 2.5 ± 1        | 5.3 +0.2 / -0    | 9.5 ± 0.2        | 5.6 +0.3 / -0.2  | 1.0 | 19.8 ± 0.4     | 6.8 ± 0.3 | 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> -TOL.<br>(± %) | L <sub>1</sub><br>(mm) | DESCRIPTION                                          | UL<br>RECOG.<br> | SAP MATERIAL AND ORDERING NUMBER                |                    |
|------------------------|-----------------------------------------------|---------------------------|-----------------------------------|------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------|
|                        |                                               |                           |                                   |                        |                                                      |                                                                                                   | RoHS-COMPLIANT<br>WITH EXEMPTION <sup>(1)</sup> | RoHS-COMPLIANT     |
| 10 000                 | 1                                             | 3984                      | 0.5                               | 64 ± 6                 | NTC Lug M5 10K<br>1 % 3984 K PTFE<br>AWG#24 64 mm    | ✓                                                                                                 | -                                               | NTCALUG54A103F640A |
| 10 000                 | 2                                             | 3984                      | 0.5                               | 38.1 ± 3.8             | NTC Lug54 M5 10K<br>2 % 3984 K PTFE<br>AWG#24 38 mm  | ✓                                                                                                 | NTCALUG54A103G                                  | NTCALUG54A103GA    |
| 10 000                 | 2                                             | 3984                      | 0.5                               | 64 ± 6                 | NTC Lug M5 10K<br>2 % 3984 K PTFE<br>AWG#24 64 mm    | ✓                                                                                                 | -                                               | NTCALUG54A103G640A |
| 10 000                 | 2                                             | 3435                      | 1                                 | 38.1 ± 3.8             | NTC Lug54 M5 10K<br>2 % 3435 K PTFE<br>AWG#24 38 mm  | ✓                                                                                                 | NTCALUG54A103GL                                 | NTCALUG54A103GLA   |
| 10 000                 | 2                                             | 3984                      | 0.5                               | 350 +10 / -5           | NTC Lug54 M5 10K<br>2 % 3984 K PTFE<br>AWG#24 350 mm | ✓                                                                                                 | NTCALUG54A103G351                               | NTCALUG54A103G351A |
| 10 000                 | 3                                             | 3984                      | 0.5                               | 150 +10 / -5           | NTC Lug54 M5 10K<br>3 % 3984 K PTFE<br>AWG#24 150 mm | ✓                                                                                                 | NTCALUG54A103H151                               | NTCALUG54A103H151A |

**Notes**

  Preferred versions for new designs

<sup>(1)</sup> 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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