



## NTC Thermistors, Low Thermal Gradient Lug Sensors



### LINKS TO ADDITIONAL RESOURCES



QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C	4.7K to 100K	$\Omega$
Tolerance on $R_{25}$ -value	$\pm 1$ ; $\pm 2$ ; $\pm 3$	%
$B_{25/85}$ value	3435 to 4190	K
Tolerance on $B_{25/85}$ -value	$\pm 0.5$ ; $\pm 1.0$ ; $\pm 1.5$	%
Operating temperature range (without connector)	-55 to +125	°C
Storage temperature range	-55 to +150	°C
Response time (for info) <sup>(1)</sup>	3	s
Thermal time constant $\tau_c$ <sup>(2)</sup>	2.5	s
Dissipation factor $\delta$ <sup>(2)</sup>	5	mW/K
Max. power dissipation at 55 °C <sup>(3)</sup>	175	mW
Thermal gradient <sup>(4)</sup>	0.05	K/K
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	M $\Omega$
Weight	~ 1	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
- (4) The thermal gradient is the difference per °C between the true temperature of the surface to be sensed and the temperature measured by the sensor

### AGENCY APPROVALS

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

#### Note

- Agency approval documents, please see: [www.vishay.com/ppg?29094&documents](http://www.vishay.com/ppg?29094&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?29145](http://www.vishay.com/doc?29145)
- NTC curve computation:  
[www.vishay.com/thermistors/ntc-rt-calculator/](http://www.vishay.com/thermistors/ntc-rt-calculator/)

### FEATURES

- Low thermal gradient due to the use of nickel conductor and low profile closed ring tongue
- AEC-Q200 qualified (grade 1)
- cULus recognized, file E148885 (UL category XGPU2/XGPU8)
- Mounting: assembly screw mounting
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### APPLICATIONS

Thermistors used for accurate surface temperature sensing and control in:

- Computer equipment
- Power electronics, heat-sink temperature control
- Consumer appliances
- Industrial equipment
- Automotive equipment

### DESCRIPTION

Vishay thermistor chip NTC with epoxy coating and middle buffer layer mounted in a tin plated copper ring lug with PEEK insulated leads AWG#30 ( $\varnothing$  0.25 mm), mono-stranded silver-plated nickel.

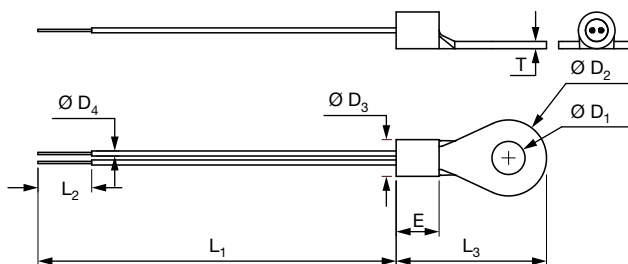
### PACKAGING

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).

- The device is suitable for screwing e.g. on a metal surface through means of an M3 or M3.5 screw
- The connections are suitable for soldering on a PCB or for connector insertion
- The sensor is not suitable for being in permanent contact with water or liquids
- Other applicable screw hole sizes are available, for example M4 or American Stud #8
- AWG#28 or AWG#26 wires available on request

**DIMENSIONS** in millimeters


L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	Ø D <sub>1</sub>	Ø D <sub>2</sub>	Ø D <sub>3</sub>	Ø D <sub>4</sub>	E	T
Refer to the ordering table	6 ± 1	16.8 ± 0.3	3.7 + 0.2 / - 0	8.5 ± 0.2	4.1 + 0.4 / - 0.1	0.56 ± 0.1	4.8 ± 0.2	0.8

**ELECTRICAL DATA AND ORDERING INFORMATION**

R <sub>25</sub> (Ω)	R <sub>25</sub> -TOL. (± %)	B <sub>25/85</sub> (K)	B <sub>25/85</sub> -TOL. (± %)	L <sub>1</sub> (mm)	UL RECOG.  US	SAP MATERIAL AND ORDERING NUMBER	
						RoHS-COMPLIANT WITH EXEMPTION <sup>(1)</sup>	RoHS-COMPLIANT
4700	2	3984	0.5	45 ± 3		NTCALUG02A472G	NTCALUG02A472GA
4700	1	3984	0.5	45 ± 3		NTCALUG02A472F	NTCALUG02A472FA
5000	2	3984	0.5	45 ± 3	✓	<b>NTCALUG02A502G</b>	<b>NTCALUG02A502GA</b>
10 000	2	3984	0.5	45 ± 3	✓	<b>NTCALUG02A103G <sup>(2)</sup></b>	<b>NTCALUG02A103GA</b>
10 000	1	3984	0.5	45 ± 3	✓	NTCALUG02A103F	NTCALUG02A103FA
10 000	1	3984	0.5	80 +5 / -3	✓	NTCALUG02A103F800	NTCALUG02A103F800A
10 000	1	3984	0.5	160 +5 / -3	✓	NTCALUG02A103F161	NTCALUG02A103F161A
10 000	1	3435	1.0	45 ± 3	✓	NTCALUG02A103FL	NTCALUG02A103FLA
10 000	1	3435	1.0	80 +5 / -3	✓	NTCALUG02A103F800L	NTCALUG02A103F804A
10 000	1	3435	1.0	160 +5 / -3	✓	NTCALUG02A103F161L	NTCALUG02A103F165A
100 000	3	4190	1.5	45 ± 3		NTCALUG02A104H	NTCALUG02A104HA

**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

<sup>(2)</sup> Is also known under material number NTCALUGE4C90294



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