NTC Thermistors, Low Thermal Gradient 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	4.7K to 100K	Ω
Tolerance on R_{25}-value	± 1; ± 2; ± 3	%
$B_{25/85}$ value	3435 to 4190	K
Tolerance on $B_{25/85}$-value	± 0.5; ± 1.0; ± 1.5	%
Operating temperature range (without connector)	-55 to +125	°C
Storage temperature range	-55 to +150	°C
Response time (for info) (1)	3	s
Thermal time constant τ_c (2)	2.5	s
Dissipation factor δ (2)	5	mW/K
Max. power dissipation at 55 °C (3)	175	mW
Thermal gradient (4)	0.05	K/K
Min. dielectric withstanding voltage between terminals and lug	1500	V_{AC}
Min. insulation resistance between terminals and lug at 500 V_{DC}	100	MΩ
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 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^2, 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

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
- NTC curve computation: www.vishay.com/thermistors/ntc-rt-calculator/

FEATURES

Pb-free Available

e4

RoHS COMPLIANT

- 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

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 (Ø 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.

- 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

For technical questions, contact: nlr@vishay.com

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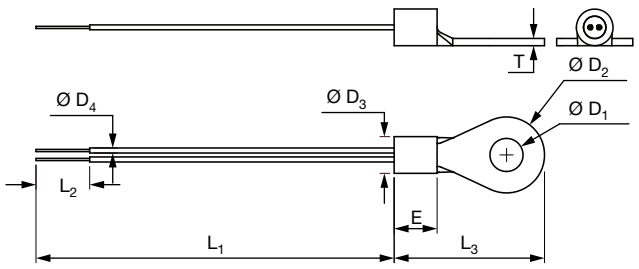
DIMENSIONS in millimeters



L_1	L_2	L_3	Ø D_1	Ø D_2	Ø D_3	Ø D_4	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_{25} (Ω)	R_{25}-TOL. (± %)	$B_{25/85}$ (K)	$B_{25/85}$-TOL. (± %)	L_1 (mm)	UL RECOG. cULus	SAP MATERIAL AND ORDERING NUMBER	
						RoHS-COMPLIANT WITH EXEMPTION (1)	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	✓	**NTCALUG02A502G**	**NTCALUG02A502GA**
10 000	2	3984	0.5	45 ± 3	✓	**NTCALUG02A103G (2)**	**NTCALUG02A103GA**
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

(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

(2) Is also known under material number NTCALUGE4C90294

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