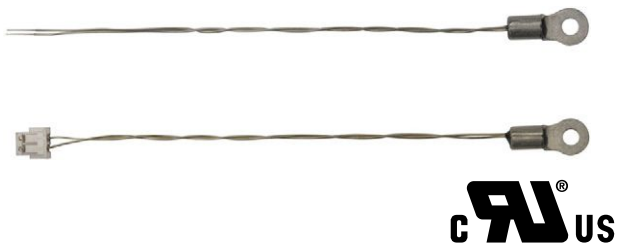
NTC Thermistors, Mini Lug Sensors



ADDITIONAL RESOURCES

3D Models | Design Tools | SPICE Models

FEATURES

- Fast time response for surface applications compared to industry standard NTC lug sensors
- Reduced thermal gradient, due to the use of small dimensions and nickel conductor, allowing for an accurate surface temperature measurement
- The sensor is not suitable for being permanently in contact with water or liquids
- Small size connector and small lug ring tongue terminal, allowing for temperature sensing at locations where only limited space is available
- Optional connector, rated +85 °C, tin plated (e3)
- AEC-Q200 qualified available (grade 1)
- cULus recognized, file E148885 (UL category XGPU2/XGPU8)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS COMPLIANT

QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Resistance value at 25 °C	10K to 47K	Ω
Tolerance on R_{25}-value	± 2 to ± 3	%
$B_{25/85}$-value	3740 to 3984	K
Tolerance on $B_{25/85}$-value	± 0.5 to ± 1.5	%
Operating temperature range: At zero dissipation	 -40 to +125	°C
Response time	3.5	s
Thermal time constant τ	≈ 5	s
Dissipation factor δ	10	mW/K
Min. dielectric withstanding voltage between terminals and lug	1000	V_{AC}
Climatic category (LCT / UCT / days)	40 / 125 / 56	-
Weight without connector with connector	 ~ 0.5 ~ 0.6	 g g

APPLICATIONS

Thermistors used for surface temperature sensing and control in:

- Computer equipment
- MOSFETS, IC's, power electronics, heatsink temperature control, LED emitter heat-sink control
- Consumer appliances
- Industrial equipment
- Automotive equipment

DESCRIPTION

Miniature insulated chip thermistor with a negative temperature coefficient soldered to AWG#32 silver plated nickel and insulated cables, and mounted inside a mini lug tin plated copper barrel.

MOUNTING

- The sensor NTCALUG03A can be mounted by means of a screw M2 (stud #1, #2), or a screw M3 (stud #3, #4) for NTCALUG39A
- The end wire can be soldered, welded or crimped to a connector
- Optional connector for wire-to-wire or wire-to-board connections

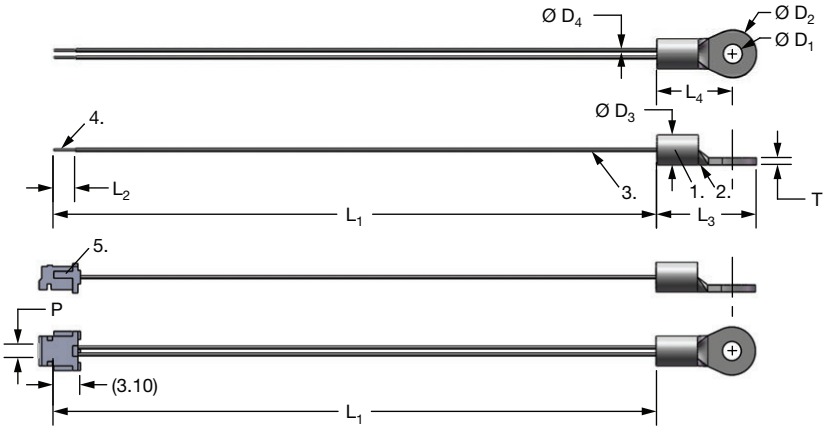
ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (Ω)	R_{25}-TOL. (± %)	$B_{25/85}$ (K)	$B_{25/85}$-TOL. (± %)	DESCRIPTION	UL RECOGNIZED (Y / N)	SAP MATERIAL AND ORDERING NUMBER	
						RoHS COMPLIANT WITH EXEMPTION (1)	RoHS COMPLIANT
10 000	2	3984	0.5	NTC Mini Lug M2 10K 2 % 3984 K 0.5 %	Y	NTCALUG03A103G	NTCALUG03A103GA
10 000	2	3984	0.5	NTC Mini Lug M3 10K 2 % 3984 K 0.5 %	Y	NTCALUG39A103G	NTCALUG39A103GA
10 000	2	3984	0.5	NTC Mini Lug M2 10K 2 % 3984 K 0.5 % with connector	N	NTCALUG03A103GC	NTCALUG03A103GCA
10 000	2	3984	0.5	NTC Mini Lug M3 10K 2 % 3984 K 0.5 % with connector	N	NTCALUG39A103GC	NTCALUG39A103GCA
10 000	3	3984	0.5	NTC Mini Lug M2 10K 3 % 3984 K 0.5 %	Y	NTCALUG03A103H	NTCALUG03A103HA
10 000	3	3984	0.5	NTC Mini Lug M2 10K 3 % 3984 K 0.5 % with connector	N	NTCALUG03A103HC	NTCALUG03A103HCA
12 000	3	3740	1.5	NTC Mini Lug M2 12K 3 %	N	NTCALUG03A123H	NTCALUG03A123HA
12 000	3	3740	1.5	NTC Mini Lug M2 12K 3 % with connector	N	NTCALUG03A123HC	NTCALUG03A123HCA
47 000	3	3740	1.5	NTC Mini Lug M2 47K 3 %	N	NTCALUG03A473H	NTCALUG03A473HA
47 000	3	3740	1.5	NTC Mini Lug M2 47 kΩ 3 % with connector	N	NTCALUG03A473HC	NTCALUG03A473HCA

Note

(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

DIMENSIONS in millimeters



MODEL	L_1	L_2	L_3	L_4	$L_1 + L_3$ (item without connector)	Ø D_1	Ø D_2	Ø D_3	Ø D_4	T	PITCH P
NTCALUG03A	70 ± 5	4 ± 1	11.5 ± 0.3	8.8 ± 0.3	81.5 ± 5	2.2 ± 0.3	5.5 ± 0.3	3.4 ± 0.3	0.35 ± 0.1	0.8 ± 0.1	1.5 ± 0.3
NTCALUG39A	70 ± 5	4 ± 1	11.5 ± 0.3	8.8 ± 0.3	81.5 ± 5	3.2 ± 0.3	5.5 ± 0.3	3.4 ± 0.3	0.35 ± 0.1	0.8 ± 0.1	1.5 ± 0.3

Notes

1. Vishay thermistor chip NTC, with epoxy coating
2. Metal ring lug, tin plated
3. Insulated leads: AWG#32, monostranded, diam 0.20 mm, silver plated nickel, ETFE insulated, diameter 0.35 mm
4. End wire stripped (optional)
5. 2-poles JST ZHR-2 connector crimped (optional)

MOUNTING

- For the type without connector, the electrical connection can be made by soldering, crimping or welding
- For the type with connector, the JST ZHR-2 connector can mate with following counter-connectors [1]:

A. One of the PCB connector - through hole:
- JST B 2B-ZR (top entry)
- JST S 2B-ZR (side entry)
- JST B 2B-ZR-3.4 (top entry, for 1.6 mm board)
- JST S 2B-ZR-3.4 (side entry, for 1.6 mm board)

B. One of the PCB board connector - SMT surface mount:
- JST S 2B-ZR-SM2-TF (SM2 side entry)
- JST B 2B-ZR-SM3-TF (SM3 top entry)
- JST S 2B-ZR-SM3A-TF (SM3 side entry)
- JST B 2B-ZR-SM4-TF (SM4 top entry)
- JST S 2B-ZR-SM4A-TF (SM4 side entry)

C. The wire-to-wire connector:
- JST ZMR-02 housing (x 1) + JST SMM-003T-P0.5 terminals (x 2)

Note

[1] Additional details and dimensions can be found in JST ZH and JST ZM datasheets

PACKAGING

Available in plastic bags

DESIGN-IN SUPPORT

- Other resistance curves and tolerances are available on request
- Consult Vishay for other lead length, other connector crimping or other features
- 3D solid models: www.vishay.com/doc?29147
- NTC curve computation: www.vishay.com/thermistors/ntc-curve-list/

AGENCY APPROVALS

- cUL certificate
- ULus certificate

Note

- Agency approval documents, please see: www.vishay.com/ppg?29114&documents

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