

3D Models

NTCALUG03A / LUG39A Mini Lug Series

Vishay BCcomponents

# NTC Thermistors, Mini Lug Sensors



Models

ian Tools

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

### AGENCY APPROVALS

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

#### Note

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

### **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: <u>www.vishay.com/doc?29147</u>
- NTC curve computation: www.vishay.com/thermistors/ntc-rt-calculator/

### 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



**RoHS** COMPLIANT

- 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 <u>www.vishay.com/doc?99912</u>

### 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.

### PACKAGING

Available in plastic bags.

# CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions: see www.vishay.com/doc?29221.

- The sensor NTCALUG03A can be mounted by means of a screw M2 (stud #1, #2), or a screw M3 (stud #3, #4) for NTCALUG39A
- For the type without connector, the electrical connection can be made by soldering, crimping, or welding
- For the type with connector, see section Mounting Connector

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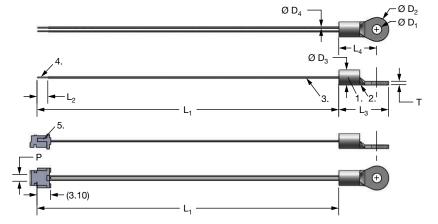
1 For technical questions, contact: <u>nlr@vishay.com</u> Document Number: 29114



# NTCALUG03A / LUG39A Mini Lug Series

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### **DIMENSIONS** in millimeters



MODEL	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>1</sub> + L <sub>3</sub> (item without connector)	Ø D <sub>1</sub>	Ø D <sub>2</sub>	Ø D <sub>3</sub>	Ø D4	т	PITCH P
NTCALUG03A	70 ± 5	4 ± 1	11.5 ± 0.5	$8.8 \pm 0.3$	81.5 ± 5	$2.2 \pm 0.3$	$5.5 \pm 0.3$	$3.4 \pm 0.3$	0.35 ± 0.1	$0.8 \pm 0.1$	$1.5 \pm 0.3$
NTCALUG39A	70 ± 5	4 ± 1	11.5 ± 0.5	8.8 ± 0.3	81.5 ± 5	$3.2 \pm 0.3$	$5.5 \pm 0.3$	$3.4 \pm 0.3$	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
- 5. 2-poles JST ZHR-2 connector crimped

ELECTRICAL DATA AND ORDERING INFORMATION							
R <sub>25</sub> - R	-	B <sub>25/85</sub> -		UL RECOG.	SAP MATERIAL AND ORDERING NUMBER		
<b>R</b> 25 (Ω)	TOL. (± %)	B <sub>25/85</sub> (K)	TOL. (± %)	DESCRIPTION		RoHS-COMPLIANT WITH EXEMPTION <sup>(1)</sup>	<b>RoHS-COMPLIANT</b>
10 000	2	3984	0.5	NTC Mini Lug M2 10K 2 % 3984 K 0.5 %	$\checkmark$	NTCALUG03A103G	NTCALUG03A103GA
10 000	2	3984	0.5	NTC Mini Lug M3 10K 2 % 3984 K 0.5 %	$\checkmark$	NTCALUG39A103G	NTCALUG39A103GA
10 000	2	3984	0.5	NTC Mini Lug M2 10K 2 % 3984 K 0.5 % with connector	$\checkmark$	NTCALUG03A103GC	NTCALUG03A103GCA
10 000	2	3984	0.5	NTC Mini Lug M3 10K 2 % 3984 K 0.5 % with connector	$\checkmark$	NTCALUG39A103GC	NTCALUG39A103GCA
10 000	3	3984	0.5	NTC Mini Lug M2 10K 3 % 3984 K 0.5 %	$\checkmark$	NTCALUG03A103H	NTCALUG03A103HA
10 000	3	3984	0.5	NTC Mini Lug M2 10K 3 % 3984 K 0.5 % with connector	$\checkmark$	NTCALUG03A103HC	NTCALUG03A103HCA
12 000	3	3740	1.5	NTC Mini Lug M2 12K 3 %		NTCALUG03A123H	NTCALUG03A123HA
12 000	3	3740	1.5	NTC Mini Lug M2 12K 3 % with connector		NTCALUG03A123HC	NTCALUG03A123HCA
47 000	3	3740	1.5	NTC Mini Lug M2 47K 3 %		NTCALUG03A473H	NTCALUG03A473HA
47 000	3	3740	1.5	NTC Mini Lug M2 47 kΩ 3 % with connector		NTCALUG03A473HC	NTCALUG03A473HCA

#### 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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### **MOUNTING CONNECTOR**

- Important mounting and handling instructions: see www.vishay.com/doc?29221
- For the type with connector, the JST ZHR-2 connector can mate with following counter-connectors <sup>(1)</sup>:
  - 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

<sup>(1)</sup> Additional details and dimensions can be found in JST ZH and JST ZM datasheets



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