

NTC Thermistors With Solder-In Board Terminals



LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools



Related Documents

QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C	10 000	Ω
Tolerance on R_{25} -value	± 1	%
$B_{25/85}$ -value	3435	K
Tolerance on $B_{25/85}$ -value	± 1	%
Operating temperature range at zero dissipation	-40 to +125 (85 °C for connector)	°C
Maximum power dissipation at 55 °C	100	mW
Minimum dielectric withstanding voltage (RMS) between leads and coating	500	V
Dissipation factor δ (for information only)	1.35	mW/K
Response time ⁽¹⁾	2.5	s
Weight	≈ 0.05	g

Note

- (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 °C to 85 °C) unless mentioned differently. This step is generally conducted by quickly transferring the NTC from one liquid to another (generally water or oil)

FEATURES

- Primarily designed for fire detectors modules
- NTC thermistor with solder-in board terminals
- Long-term safe operation with minimal maintenance
- For outdoor or industrial installations
- Small head diameter with fast response time of 2.5 s
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

- Temperature measurement, sensing and control in consumer and industrial applications such as fire detectors or air flux systems

DESCRIPTION

These negative temperature coefficient thermistors consist of a mini-chip soldered between two AWG #30 PEEK insulated nickel leads and coated with epoxy lacquer. High adhesive strength between the PEEK wire and the encapsulating lacquer. The matching connector has a pitch of 2.00 mm.

PACKAGING

The thermistors are packed in cardboard boxes; the smallest packing quantity is 500 units.

MOUNTING

Important mounting and handling instructions: see www.vishay.com/doc?29222

By soldering the connector terminals to the circuit board. Not intended for reflow soldering. The terminals are best soldered by wave soldering or selective cup soldering.

Not intended for fluid immersed applications or continuous contact with water or conducting liquids.

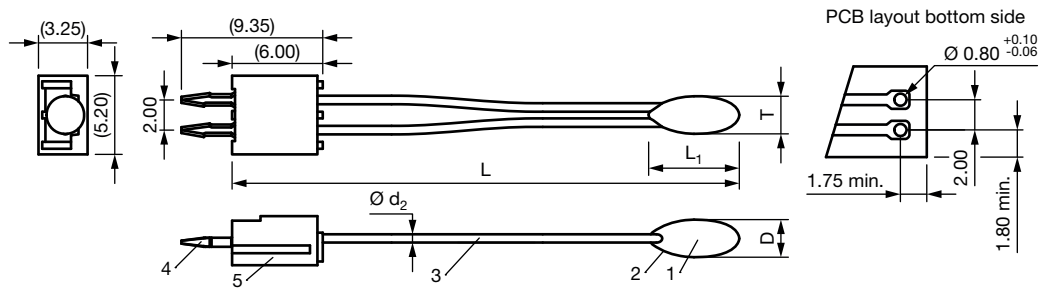
DESIGN-IN SUPPORT

NTC curve computation:

www.vishay.com/thermistors/ntc-rt-calculator/

Consult Vishay for specific applications, mounting, alternative RT curves, or wire length.

DIMENSIONS in millimeters

				
T max.	D max.	L	L ₁	Ø d ₂ max.
2.5	2.5	25 ± 1	6 ± 1	0.58

Notes

- Applicable PCB thickness = 1.2 mm or 1.6 mm
- 1 = thermistor chip, 2 = epoxy coating, 3 = PEEK insulated nickel cable, 4 = Connector terminal SAN-002T-0.8A type A, 5 = connector housing 2P-SAN

**ELECTRICAL DATA AND ORDERING INFORMATION**

R_{25} (Ω)	R_{25} -TOL. ($\pm$ %)	$B_{25/85}$ (K)	$B_{25/85}$ -TOL. ($\pm$ %)	ORDERING NUMBER
10 000	1	3435	1	NTCLE331E3103FLA

QUALIFICATION FOR THERMISTORS NTC

STRESS	REFERENCE	ADDITIONAL REQUIREMENTS
High temperature exposure (storage)	MIL-STD-202 Method 108	- Unpowered and no connector - Tested at 125 °C 1000 h $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Temperature cycling	JESD22-A104	- Unpowered and no connector 1000 cycles - Lower temperature of the chamber: -55 °C - Upper temperature of the chamber: maximum specified operating temperature and shall not exceed 125 °C - Dwell time: 15 minutes - Transition time: 1 minute maximum $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Damp heat	IEC 60068-2-78	40 °C / 93 % RH and no connector - After 56 days $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Cold storage	IEC 60068-2-1	1000 h and no connector - Temperature: -40 °C $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
High temperature operating life	MIL-STD-202 Method 108	1000 h and no connector 5 V_{DC}, R_S = 1 kΩ - Temperature of the chamber: maximum specified operating temperature up to 125 °C $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Terminal strength (pull test)	MIL-STD-202 Method 211	- Test THT component lead integrity only - Test condition A (pull test): 2.27 kg $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Mechanical shock	MIL-STD-202 Method 213	- Figure 1 of Method 213 - THT: condition C $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Vibration	MIL-STD-202 Method 204	5 g's for 20 minutes and no connector 12 cycles each of 3 orientations - Test from 10 Hz to 2000 Hz $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Resistance to soldering heat	MIL-STD-202 Method 210	After 10 s at 260 °C $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
ESD	AEC-Q200-002	25 kV air discharge 2 pulses 1+ / 1- $\Delta R_{25}/R_{25} \leq \pm 3 \text{ \%} $ after test
Solderability	J-STD-002	95 % of surface of the terminal end is covered with solder
Flammability	UL 94 or IEC 60695-11-5 fixed	UL 94 V-0 or UL 94 V-1; within specification of the flammability norm



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