NTC Thermistors, Refrigerator Sensors



FEATURES

- Key component for temperature sensing and electronic control
- Accurate Vishay NTC chips, enabling class A to class A+++ refrigerator grades
- Sensor design following class II insulation (principal + supplementary insulation for the sensor head)
- High adhesive strength between PVC wire and encapsulating lacquer
- Specifically developed design allows for a very good water, moisture and ice resistance: 6000 h in water immersion under voltage
- Suitable for evaporator temperature measurement. Very high number of thermal cycles resistant: 100 000 cycles
- The cables jackets are suitable for back-panel polyurethane foaming process (max. 100 °C, 5 min)
- The plastic is not FDA grade
- UL recognized types (file E148885)
- The sensors are also available with single insulated cables, and with PVC-free cable
- Mounting: assembly
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Resistance value at 25 °C (1)	2.7K to 10K	Ω
Tolerance on R_{25}-value (1)	± 1 to ± 2	%
$B_{25/85}$-value (1)	3984	K
Tolerance on $B_{25/85}$-value	± 0.5	%
Operating temperature range at zero power	-55 to +60	°C
Min. dielectric withstanding voltage (immersed in water)	3750	V_{AC}
Maximum power dissipation at 25 °C	150	mW
Weight	16	g

Note

(1) Other resistance, tolerance and B-values available on request

APPLICATIONS

Temperature measurement, sensing and control:

- White goods
- Refrigerators
- Freezers, deep-freezers
- Ice cube makers
- Counter drinks coolers
- Backbar and catering coolers
- Display fridges
- Wine coolers

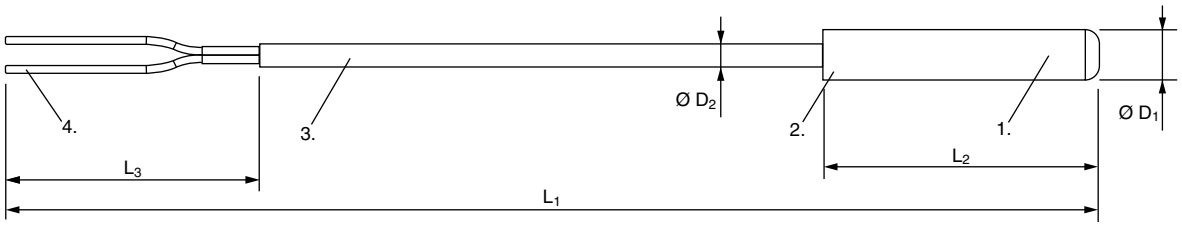
ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (Ω)	R_{25}-TOL. (%)	$B_{25/85}$ (K)	$B_{25/85}$-TOL. (%)	CAP. DIA. Ø D_1 (mm)	CAP. LENGTH L_2 (mm)	CABLE INSULATION	CABLE LENGTH L_1 (mm)	c UL us	CONNECTOR	SAP MATERIAL AND ORDERING NUMBER
10 000	± 2	3984	± 0.5	7	25	Single	300	-	-	NTCACAPE3C90193
10 000	± 2	3984	± 0.5	7	25	Double	500	-	-	NTCACAPE3C90144
2700	± 2	3984	± 0.5	7	25	Double	500	UL	-	NTCACAPE3C90066
5000	± 1	3984	± 0.5	8	30	Double	900	-	-	NTCACAPE3C90191
10 000	± 2	3984	± 0.5	9	49	Double	3000	-	-	NTCACAPE3C90065
10 000	± 2	3984	± 0.5	9	49	Double	1250	UL	Rast 2.5 PCB Edge	NTCACAPE3C90125

For technical questions, contact: nlr@vishay.com

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DIMENSIONS in millimeters



L_1, L_2, D_1: See table Electrical Data
D_2 = 4 mm, L_3 = 50 mm

Notes

(1) Vishay NTC Thermistor chip with epoxy coatings and special potting resins
(2) ABS plastic cap of refrigerator white color
(3) Double insulated cable, cylindrical, PVC/PVC, 2 x 0.35 mm^2 (AWG#22)
(4) Conductors' end insulation non stripped

MOUNTING

The plastic housing can be inserted in a pocket inside the refrigerator cabinet.

The plastic housing can be assembled with the refrigerator cabinet backside, with the help of adhesive tape, then foamed.

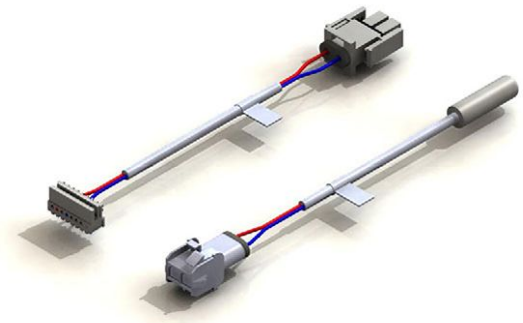
The plastic housing can be inserted on a pipe welded on the evaporator tube.

The plastic housing can be clamped on the evaporator tube with the help of a clip.

Suitable for PCB Edge connection, or plugged in a wire-to-wire connector, or assembled in a terminal block.

DESIGN-IN SUPPORT

- Other Resistance-Temperature curves are available, based on Vishay NTCC100E4 series, or specific customer's curve.
- Other lead length and other standard plastic caps, like Ø 6 mm x 25 mm, Ø 7 mm x 25 mm, Ø 8 mm x 30 mm, Ø 9 mm x 30 mm, Ø 9 mm x 49 mm, 7 mm x 7.5 mm x 25 mm or customer specific sensor shapes, are available on request.
- Single insulated cables and Class I sensors can also be supplied.
- The sensors can be supplied without connector, with end-wire stripped, with crimped connectors, sealed connectors, or insulation displacement connectors (e.g. rast 2.5 mm). Consult Vishay for the list of available connectors.
- Several sensors can be grouped on the same connector, with the same or different shape.
- Additional features, like connection to the door switch, can also be included on the grouping connector.
- Visual aids, like cable jacket colors or position markers can be added to optimize customer's assembling process.
- The cable harness associated with the sensor can be provided as a total solution.



DESIGNERS TOOLS

- 3D solid models: www.vishay.com/doc?29146
- NTC curve computation: www.vishay.com/thermistors/ntc-curve-list/

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