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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

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

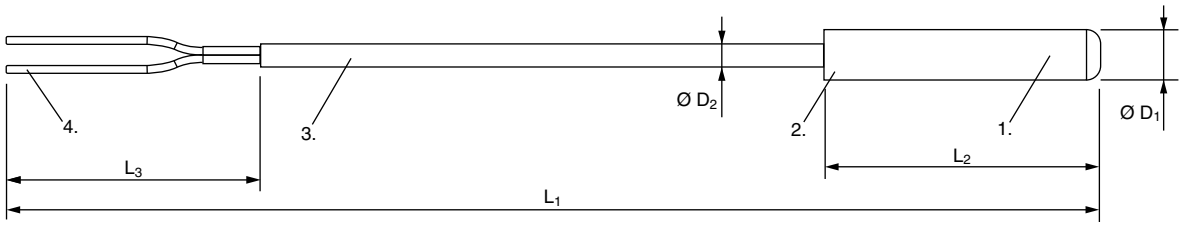
QUICK REFERENCE DATA		
PARAMETER	**VALUE**	**UNIT**
Resistance value at 25 °C (1)	2.7K to 10K	Ω
Tolerance on R_{25}-value (1)	± 1 to ± 2	%
$B_{25/85}$-value (1)	3984	K
Tolerance on $B_{25/85}$-value	± 0.5	%
Operating temperature range at zero power	- 55 to + 60	°C
Min. dielectric withstanding voltage (immersed in water)	3750	V_{AC}
Maximum power dissipation at 25 °C	150	mW
R/T values	Refer to table	
Climatic category (LCT/UCT/days)	55/60/56	
Weight	16	g

Note

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

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

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
(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.

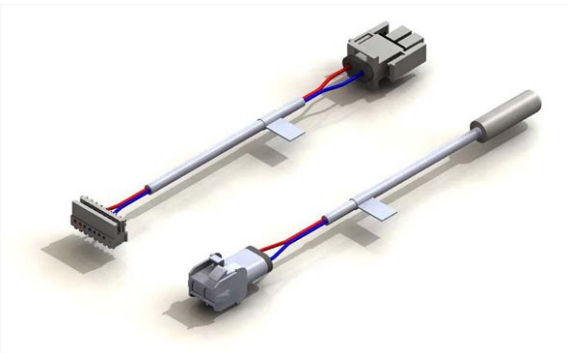
The plastic housing can be inserted on a pipe welded on the evaporator tube.

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.

DESIGNERS CORNER

- Other Resistance-Temperature curves are available, based on Vishay 2381 640 0xxxx 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 (STEP or IGES) or 2D Models (DXF, DWG) are available
- 3D solid models: www.vishay.com/doc?29106
- NTC curve computation: www.vishay.com/resistors-non-linear/curve-computation-list/

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.