

NTC Thermistors, Ice Cube Sensors



QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C ⁽¹⁾	9.965K	Ω
Tolerance on R_{25} -value	± 1.92	%
$B_{25/85}$ -value ⁽¹⁾	3984	K
Tolerance on $B_{25/85}$ -value	± 0.5	%
Operating temperature range at zero power	-55 to +50	°C
Resistance value at 0 °C	32.51K	Ω
Tolerance on R_0 -value	± 1.3	%
Min. dielectric withstanding voltage (immersed in water)	3750	V _{AC}
Maximum power dissipation at 25 °C	150	mW
Climatic category (LCT / UCT / days)	55 / 50 / 56	
Weight	10	g

Note

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

PACKAGING

The thermistors are packed in plastic bags containing 1000 units.

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 silicone cable and encapsulating lacquer
- Specifically developed design allows for a very good water, moisture and ice resistance (min. 1000 h water immersion)
- Suitable for evaporator temperature measurement. Very high number of thermal cycles resistant (min. 100 000 cycles)
- The cables jackets are suitable for back-panel polyurethane foaming process (max. 100 °C, 5 min)
- Surface temperature sensors
- The housing and cable are cold flexible at -60 °C
- The housing plastic is FDA grade
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

Temperature measurement, sensing and control:

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

DESIGN-IN SUPPORT

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

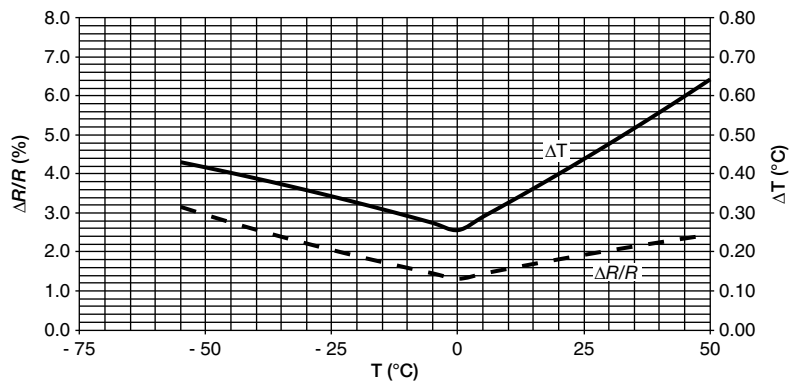
ELECTRICAL DATA AND ORDERING INFORMATION					
R_{25} (Ω)	R_{25} -TOL. (± %)	$B_{25/85}$ (K)	$B_{25/85}$ -TOL. (± %)	DESCRIPTION	SAP MATERIAL AND ORDERING NUMBER
10 000	1.92	3984	0.5	NTC ice cube 10K 380 mm	NTCASRFE3C90406

DIMENSIONS in millimeters	
	∅ D 4 mm
	L1 380 mm + 20 / - 10
	L2 35 mm ± 10 mm
	L4 25 mm ± 0.3 mm
	L5 11.5 mm ± 0.2 mm
	L6 4.5 mm ± 0.2 mm
	L7 8 mm ± 0.2 mm



RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES							
TEMPERATURE (°C)	R_T/R_{25}	RESISTANCE (Ω)	R-TOL. (\pm %)	α (%/K)	$\Delta T_{max.}$ (\pm °C)	$R_{min.}$ (Ω)	$R_{max.}$ (Ω)
-55	95.377	950 434	3.16	-7.37	0.43	920 376	980 492
-50	66.417	661 844	2.96	-7.11	0.42	642 284	681 403
-45	46.836	466 723	2.76	-6.86	0.40	453 855	479 591
-40	33.427	333 104	2.57	-6.63	0.39	324 552	341 656
-35	24.132	240 478	2.39	-6.41	0.37	234 741	246 215
-30	17.613	175 516	2.21	-6.19	0.36	171 634	179 397
-25	12.990	129 445	2.04	-5.99	0.34	126 799	132 091
-20	9.676	96 422	1.88	-5.79	0.33	94 606	98 239
-15	7.276	72 510	1.73	-5.61	0.31	71 256	73 764
-10	5.522	55 025	1.58	-5.43	0.29	54 155	55 895
-5	4.227	42 120	1.44	-5.26	0.27	41 514	42 725
0	3.262	32 510	1.30	-5.10	0.25	32 087	32 933
5	2.538	25 292	1.43	-4.94	0.29	24 930	25 655
10	1.990	19 827	1.56	-4.80	0.33	19 518	20 137
15	1.571	15 656	1.68	-4.65	0.36	15 393	15 920
20	1.249	12 449	1.80	-4.52	0.40	12 224	12 674
25	1.000	9965	1.92	-4.39	0.44	9774	10 156
30	0.806	8028	2.03	-4.26	0.48	7865	8191
35	0.653	6507	2.14	-4.14	0.52	6368	6646
40	0.532	5305	2.24	-4.03	0.56	5186	5424
45	0.437	4350	2.34	-3.92	0.60	4248	4452
50	0.360	3586	2.44	-3.81	0.64	3499	3674

RESISTANCE AND TEMPERATURE TOLERANCE





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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.