NTC Thermistors, 2-Point Micro Chip Sensor Insulated Leads



LINKS TO ADDITIONAL RESOURCES

3D Models | Design Tools | Related Documents

QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C	2.06K to 10K	Ω
Tolerance on R_{25}-value	± 1.92; ± 2.19	%
$B_{25/85}$-value	3511 to 3984	K
Tolerance on $B_{25/85}$	± 0.5 to ± 1	%
Temperature accuracy between 25 °C and 85 °C	± 0.5	°C
Operating temperature range	-40 to +125	°C
Maximum power dissipation at 55 °C	50	mW
Dissipation factor δ (in still air)	≈ 0.8	mW/K
Response time (in stirred air) (in oil)	≈ 3 ≈ 0.7	s
Minimum dielectric withstanding voltage between leads termination and coated body	100	V_{RMS}
Weight	≈ 0.05	g

FEATURES

- Flexible insulated leads for special mounting or assembly
- Miniature sized very fast reacting
- Accurate over a wide temperature range
- High stability over a long life
- Exceptional withstanding in thermal shocks
- AEC-Q200 qualified
- Fulfills the ELV 2000/53/EC
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS COMPLIANT

APPLICATIONS

Temperature measurement, sensing and control in automotive and industrial applications

DESCRIPTION

These thermistors consist of a micro NTC ceramic chip soldered between two ETFE insulated AWG #32 solid silver plated nickel leads. The thermistor body is coated with a ocher colored insulating lacquer.

PACKAGING

The thermistors are packed in cardboard boxes; the smallest packing quantity is 1000 pieces.

MARKING

The components are not marked.

DESIGN-IN SUPPORT

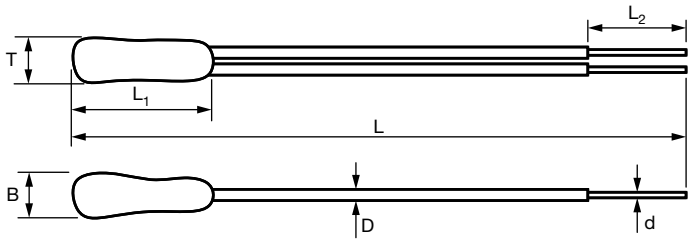
For complete curve computation, please visit: www.vishay.com/thermistors/ntc-curve-list/.

MOUNTING

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

By soldering or welding in any position.
The parts can be potted in suitable resins.

DIMENSIONS in millimeters



$T_{MAX.}$	$B_{MAX.}$	L	L_1	L_2	Ø $D_{MAX.}$	Ø d
1.6	1.6	41.0 ± 1	5.0 ± 1	5.0 ± 1	0.40	0.20 ± 0.01

For technical questions, contact: nlr@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (1) (Ω)	R_{25}-TOL. (± %)	$B_{25/85}$ (1) (K)	$B_{25/85}$-TOL. (± %)	SAP MATERIAL AND ORDERING NUMBER	
				RoHS COMPLIANT WITH EXEMPTION (2)	RoHS COMPLIANT
2060	1.92	3511	1.0	NTCLE305E4202SB	n/a
5000	2.19	3984	0.5	NTCLE305E4502SB	NTCLE305E4502SBA
10 000	2.19	3984	0.5	NTCLE305E4103SB	NTCLE305E4103SBA

Notes

Preferred versions for new designs

(1) Other R_{25} and B-values available on request

(2) 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

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 2060 Ω

SAP PART AND ORDERING NUMBER: NTCLE305E4202SB(A)

TEMPERATURE (°C)	RESISTANCE (Ω)	R_T/R_{25}	R-TOL. (± %)	α (%/K)	T-TOL. (± °C)	$R_{MIN.}$ (Ω)	$R_{MAX.}$ (Ω)
-40.0	47 326	22.974	5.27	- 6.03	0.87	44 832	49 820
-35.0	35 203	17.089	4.95	-5.81	0.85	33 461	36 945
-30.0	26 473	12.851	4.64	-5.60	0.83	25 245	27 700
-25.0	20 115	9.7643	4.34	-5.39	0.81	19 241	20 988
-20.0	15 435	7.4925	4.06	-5.20	0.78	14 808	16 061
-15.0	11 954	5.8031	3.78	-5.02	0.75	11 502	12 407
-10.0	9341.4	4.5347	3.52	-4.85	0.73	9012.6	9670.2
-5.0	7361.4	3.5735	3.27	-4.68	0.70	7120.9	7601.8
0.0	5847.7	2.8387	3.02	-4.53	0.67	5671.0	6024.5
5.0	4680.9	2.2723	2.79	-4.38	0.64	4550.5	4811.4
10.0	3774.3	1.8322	2.56	-4.24	0.60	3677.7	3870.9
15.0	3064.4	1.4876	2.34	-4.10	0.57	2992.7	3136.2
20.0	2504.6	1.2158	2.13	-3.97	0.54	2451.3	2557.9
25.0	2060.0	1.0000	1.92	-3.85	0.50	2020.4	2099.6
30.0	1704.5	0.82744	1.86	-3.73	0.50	1672.7	1736.3
35.0	1418.6	0.68864	1.81	-3.62	0.50	1392.9	1444.3
40.0	1186.9	0.57618	1.76	-3.52	0.50	1166.1	1207.8
45.0	997.97	0.48445	1.71	-3.42	0.50	980.90	1015.0
50.0	842.90	0.40917	1.67	-3.33	0.50	828.85	856.95
55.0	714.92	0.34705	1.63	-3.25	0.50	703.29	726.55
60.0	608.74	0.29550	1.59	-3.18	0.50	599.06	618.41
65.0	520.21	0.25253	1.55	-3.11	0.50	512.13	528.30
70.0	446.08	0.21654	1.52	-3.04	0.50	439.29	452.86
75.0	383.73	0.18628	1.49	-2.98	0.50	378.01	389.45
80.0	331.09	0.16072	1.46	-2.92	0.50	326.25	335.93
85.0	286.48	0.13907	1.43	-2.87	0.50	282.37	290.59
90.0	248.55	0.12065	1.57	-2.81	0.56	244.64	252.45
95.0	216.18	0.10494	1.70	-2.77	0.62	212.50	219.87
100.0	188.49	0.091501	1.83	-2.72	0.67	185.04	191.95
105.0	164.73	0.079964	1.96	-2.67	0.73	161.50	167.95
110.0	144.27	0.070036	2.08	-2.63	0.79	141.27	147.28
115.0	126.63	0.061470	2.20	-2.59	0.85	123.84	129.42
120.0	111.36	0.054061	2.32	-2.55	0.91	108.78	113.95
125.0	98.133	0.047637	2.43	-2.51	0.97	95.746	100.52

For technical questions, contact: nlr@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 5 kΩ							
SAP PART AND ORDERING NUMBER: NTCLE305E4502SB(A)							
TEMPERATURE (°C)	RESISTANCE (Ω)	R_T/R_{25}	R-TOL. (± %)	α (%/K)	T-TOL. (± °C)	$R_{MIN.}$ (Ω)	$R_{MAX.}$ (Ω)
-40	167 137	33.427	4.10	-6.63	0.62	160 290	173 984
-35	120 661	24.132	3.91	-6.41	0.61	115 939	125 383
-30	88 066	17.613	3.74	-6.19	0.60	84 775	91 358
-25	64 950	12.990	3.57	-5.99	0.60	62 632	67 268
-20	48 381	9.6761	3.41	-5.79	0.59	46 732	50 029
-15	36 382	7.2765	3.25	-5.61	0.58	35 199	37 565
-10	27 609	5.5218	3.10	-5.43	0.57	26 753	28 465
-5	21 134	4.2268	2.96	-5.26	0.56	20 509	21 759
0	16 312	3.2624	2.82	-5.10	0.55	15 852	16 772
5	12 691	2.5381	2.68	-4.94	0.54	12 350	13 031
10	9948.4	1.9897	2.55	-4.80	0.53	9694.3	10 203
15	7855.6	1.5711	2.43	-4.65	0.52	7664.7	8046.5
20	6246.4	1.2493	2.31	-4.52	0.51	6102.1	6390.6
25	5000.0	1.0000	2.19	-4.39	0.50	4890.3	5109.7
30	4028.0	0.80560	2.13	-4.26	0.50	3942.2	4113.8
35	3264.9	0.65297	2.07	-4.14	0.50	3197.3	3332.5
40	2661.9	0.53239	2.01	-4.03	0.50	2608.4	2715.5
45	2182.6	0.43653	1.96	-3.92	0.50	2139.9	2225.4
50	1799.4	0.35987	1.90	-3.81	0.50	1765.1	1833.6
55	1491.1	0.29823	1.85	-3.71	0.50	1463.5	1518.8
60	1241.9	0.24838	1.80	-3.61	0.50	1219.5	1264.3
65	1039.3	0.20787	1.76	-3.51	0.50	1021.1	1057.6
70	873.83	0.17477	1.71	-3.42	0.50	858.87	888.79
75	737.96	0.14759	1.67	-3.34	0.50	725.65	750.27
80	625.90	0.12518	1.63	-3.25	0.50	615.72	636.08
85	533.05	0.10661	1.59	-3.17	0.50	524.60	541.51
90	455.79	0.091159	1.66	-3.09	0.54	448.21	463.37
95	391.23	0.078246	1.74	-3.02	0.58	384.43	398.03
100	337.06	0.067411	1.81	-2.94	0.62	330.95	343.16
105	291.42	0.058284	1.88	-2.87	0.66	285.93	296.91
110	252.84	0.050568	1.95	-2.81	0.70	247.90	257.78
115	220.09	0.044019	2.02	-2.74	0.74	215.64	224.54
120	192.21	0.038441	2.09	-2.68	0.78	188.19	196.22
125	168.37	0.033675	2.15	-2.62	0.82	164.75	172.00

For technical questions, contact: nlr@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 10 kΩ							
SAP PART AND ORDERING NUMBER: NTCLE305E4103SB(A)							
TEMPERATURE (°C)	RESISTANCE (Ω)	R/R_{25}	$\Delta R/R$ (%)	α (%/K)	$\Delta T_{MAX.}$ (± °C)	$R_{MIN.}$ (Ω)	$R_{MAX.}$ (Ω)
-40	334 274	33.427	4.10	-6.63	0.62	320 580	347 969
-35	241 323	24.132	3.91	-6.41	0.61	231 879	250 767
-30	176 133	17.613	3.74	-6.19	0.60	169 549	182 716
-25	129 900	12.990	3.57	-5.99	0.60	125 264	134 536
-20	96 761	9.6761	3.41	-5.79	0.59	93 465	100 058
-15	72 765	7.2765	3.25	-5.61	0.58	70 399	75 130
-10	55 218	5.5218	3.10	-5.43	0.57	53 506	56 931
-5	42 268	4.2268	2.96	-5.26	0.56	41 018	43 518
0	32 624	3.2624	2.82	-5.10	0.55	31 705	33 544
5	25 381	2.5381	2.68	-4.94	0.54	24 700	26 063
10	19 897	1.9897	2.55	-4.80	0.53	19 389	20 405
15	15 711	1.5711	2.43	-4.65	0.52	15 329	16 093
20	12 493	1.2493	2.31	-4.52	0.51	12 204	12 781
25	10 000	1.0000	2.19	-4.39	0.50	9780.7	10 219
30	8056.0	0.80560	2.13	-4.26	0.50	7884.3	8227.6
35	6529.7	0.65297	2.07	-4.14	0.50	6394.5	6664.9
40	5323.9	0.53239	2.01	-4.03	0.50	5216.7	5431.1
45	4365.3	0.43653	1.96	-3.92	0.50	4279.8	4450.7
50	3598.7	0.35987	1.90	-3.81	0.50	3530.2	3667.3
55	2982.3	0.29823	1.85	-3.71	0.50	2927.0	3037.6
60	2483.8	0.24838	1.80	-3.61	0.50	2439.0	2528.6
65	2078.7	0.20787	1.76	-3.51	0.50	2042.1	2115.2
70	1747.7	0.17477	1.71	-3.42	0.50	1717.7	1777.6
75	1475.9	0.14759	1.67	-3.34	0.50	1451.3	1500.5
80	1251.8	0.12518	1.63	-3.25	0.50	1231.4	1272.2
85	1066.1	0.10661	1.59	-3.17	0.50	1049.2	1083.0
90	911.59	0.091159	1.66	-3.09	0.54	896.42	926.75
95	782.46	0.078246	1.74	-3.02	0.58	768.85	796.06
100	674.11	0.067411	1.81	-2.94	0.62	661.89	686.33
105	582.84	0.058284	1.88	-2.87	0.66	571.86	593.83
110	505.68	0.050568	1.95	-2.81	0.70	495.79	515.56
115	440.19	0.044019	2.02	-2.74	0.74	431.28	449.09
120	384.41	0.038441	2.09	-2.68	0.78	376.38	392.44
125	336.75	0.033675	2.15	-2.62	0.82	329.50	344.00

For technical questions, contact: nlr@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. 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.

© 2026 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000