NTC Thermistors, Special Accuracy

FEATURES

- Excellent accuracy between 25 °C and 85 °C
- High stability over a long life.

APPLICATIONS

- Temperature sensing and control.

DESCRIPTION

These thermistors have a negative temperature coefficient. The device consists of a chip with two tin-plated copper leads. It is grey lacquered and not insulated. These thermistors are very accurate (±0.5 °C) over a trajectory from 25 °C to 85 °C.

PACKAGING

The thermistors are packed in cardboard boxes, each box contains 500 units.

MARKING

Grey lacquered body.

MOUNTING

By soldering in any position.

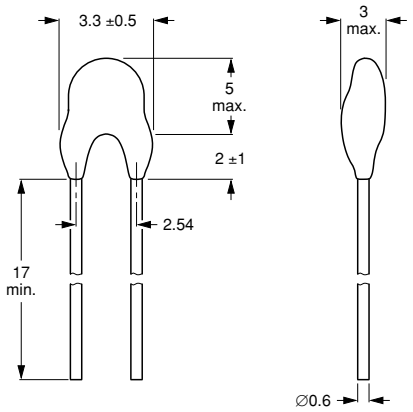
QUICK REFERENCE DATA	
PARAMETER	**VALUE**
Resistance at 25 °C; note 1	4.7 to 100 kΩ
Temperature measurement accuracy (between 25 °C and 85 °C)	±0.5 °C
Climatic category	40/125/56
Maximum dissipation	250 mW
Dissipation factor δ (for information only)	7 mW/K
Response time (for information only); note 2	1.2 s
Thermal time constant τ (for information only)	11 s
Operating temperature range:	
at zero dissipation (continuously)	−40 to +125 °C
at maximum dissipation	0 to +55 °C
Mass	≈0.22 g

Notes

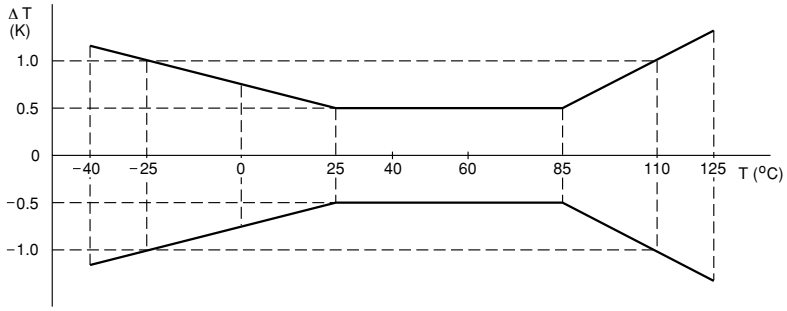
1. For values of nominal resistance value and tolerance at intermediate temperatures; see resistance values tables.
2. Response time in silicone oil MS 200/50. This is the time needed for the sensor to reach 63.2% of the total temperature difference when subjected to a temperature change from 25 °C in air to 85 °C in oil.

ELECTRICAL DATA AND ORDERING INFORMATION						
R_{25} (ohms)	dR_{25}/R_{25} (%)	R_{85} (ohms)	dR_{85}/R_{85} (%)	$B_{25/85}$ (K)	dB/B (%)	CATALOG NUMBER 2322 640 .....
4700	2.19	503.1	1.58	3977	0.75	10472
10000	2.19	1070	1.58	3977	0.75	10103
47000	2.23	4721	1.64	4090	1.5	10473
100000	2.29	9496	1.72	4190	1.5	10104

DIMENSIONS in millimeters



TOLERANCE CURVE



RESISTANCE VALUES AT INTERMEDIATE VALUES (2322 640.....)

T_{oper} (°C)	R_T/R_{25}	TC (%/K)	R_{25} (kΩ)	
			2322 640	
			10472	10103
−40	33.21	6.57	156.1	332.1000
−35	23.99	6.36	112.8	240.0
−30	17.52	6.15	82.35	175.2
−25	12.93	5.95	60.77	129.3
−20	9.636	5.76	45.30	96.36
−15	7.250	5.58	34.08	72.50
−10	5.505	5.40	25.87	55.05
−5	4.216	5.24	19.81	42.16
0	3.255	5.08	15.30	32.56
5	2.534	4.92	11.91	25.34
10	1.987	4.78	9.340	19.87
15	1.570	4.64	7.378	15.70
20	1.249	4.50	5.869	12.49
25	1.000	4.37	4.700	10.00
30	0.8059	4.25	3.788	8.059
35	0.6535	4.13	3.072	6.535
40	0.5330	4.02	2.505	5.330
45	0.4372	3.91	2.055	4.372
50	0.3605	3.80	1.694	3.606
55	0.2989	3.70	1.405	2.989
60	0.2490	3.60	1.170	2.490
65	0.2084	3.51	0.9797	2.084
70	0.1753	3.42	0.8239	1.753
75	0.1481	3.33	0.6960	1.481
80	0.1256	3.25	0.5905	1.256
85	0.1070	3.16	0.5031	1.070
90	0.09154	3.09	0.4303	0.9154

T_{oper} (°C)	R_T/R_{25}	TC (%/K)	R_{25} (kΩ)	
			2322 640	
			10472	10103
95	0.07860	3.01	0.3694	0.7860
100	0.06773	2.94	0.3183	0.6773
105	0.05858	2.87	0.2753	0.5858
110	0.05083	2.80	0.2389	0.5083
115	0.04426	2.73	0.2080	0.4426
120	0.03866	2.67	0.1817	0.3866
125	0.03387	2.61	0.1592	0.3387
130	0.02977	2.55	0.1399	0.2977
135	0.02624	2.49	0.1233	0.2624
140	0.02319	2.43	0.1090	0.2319
145	0.02055	2.38	0.0966	0.2055
150	0.01826	2.33	0.0858	0.1826

RESISTANCE VALUES AT INTERMEDIATE VALUES (2322 640 10473)

T_{oper} (°C)	R_T/R_{25}	TC (%/K)	R_{25} (kΩ)
			2322 640 10473
–40	33.81	6.55	1589
–35	24.50	6.34	1151
–30	17.93	6.15	842.8
–25	13.25	5.96	622.6
–20	9.875	5.78	464.1
–15	7.425	5.61	349.0
–10	5.630	5.45	264.6
–5	4.304	5.29	202.3
0	3.315	5.14	155.8
5	2.573	4.99	120.9
10	2.011	4.85	94.53
15	1.583	4.72	74.40
20	1.254	4.59	58.95
25	1.000	4.46	47.00
30	0.8024	4.34	37.71
35	0.6474	4.23	30.43
40	0.5255	4.12	24.70
45	0.4288	4.01	20.15
50	0.3518	3.91	16.53
55	0.2901	3.81	13.63
60	0.2403	3.71	11.30
65	0.2001	3.62	9.404
70	0.1674	3.53	7.865
75	0.1406	3.44	6.607
80	0.1186	3.36	5.573
85	0.1004	3.28	4.721
90	0.08542	3.20	4.015
95	0.07292	3.13	3.427
100	0.06248	3.06	2.936
105	0.05372	2.98	2.525

T_{oper} (°C)	R_T/R_{25}	TC (%/K)	R_{25} (kΩ)
			2322 640 10473
110	0.04635	2.92	2.179
115	0.04013	2.85	1.886
120	0.03485	2.79	1.638
125	0.03037	2.73	1.427
130	0.02654	2.67	1.247
135	0.02326	2.61	1.093
140	0.02044	2.55	0.9608
145	0.01802	2.50	0.8468
150	0.01592	2.44	0.7483

RESISTANCE VALUES AT INTERMEDIATE VALUES (2322 640 10104)

T_{oper} (°C)	R_T/R_{25}	TC (%/K)	R_{25} (kΩ)
			2322 640 10104
–40	36.66	6.70	3666
–35	26.38	6.49	2638
–30	19.17	6.29	1917
–25	14.06	6.10	1406
–20	10.41	5.92	1041
–15	7.779	5.74	777.9
–10	5.861	5.57	586.1
–5	4.453	5.41	445.3
0	3.409	5.26	340.9
5	2.631	5.11	263.1
10	2.044	4.97	204.4
15	1.600	4.83	160.0
20	1.261	4.70	126.1
25	1.000	4.57	100.0
30	0.7981	4.45	79.81
35	0.6408	4.35	64.08
40	0.5175	4.22	51.74
45	0.4202	4.11	42.02
50	0.3431	4.00	34.31
55	0.2816	3.90	28.16
60	0.2322	3.80	23.22
65	0.1925	3.71	19.25
70	0.1602	3.62	16.03
75	0.1340	3.53	13.40
80	0.1126	3.45	11.26
85	0.09496	3.36	9.496
90	0.08042	3.28	8.042
95	0.06837	3.21	6.837
100	0.05835	3.13	5.835
105	0.04998	3.06	4.998
110	0.04296	2.99	4.296
115	0.03705	2.92	3.705
120	0.03206	2.86	3.206
125	0.02783	2.80	2.783