

NDBG

Glass-sealed axial lead NTC thermistor



Product features

- Highly heat-resistant
- Glass-sealed, high-reliability, axial lead thermistor
- Faster thermal response
- Non-linear change in resistance vs temperature

Packaging information

- Bulk: 500 parts per poly bag

Applications

- Industrial process control
- Commercial appliances
- Battery, supercapacitor and energy storage systems
- Uninterruptible power supplies
- Consumer appliances
- Medical devices
- Heating, ventilation and air conditioning, refrigeration (HVACR)
- Food service equipment
- IoT

Environmental compliance and general specifications

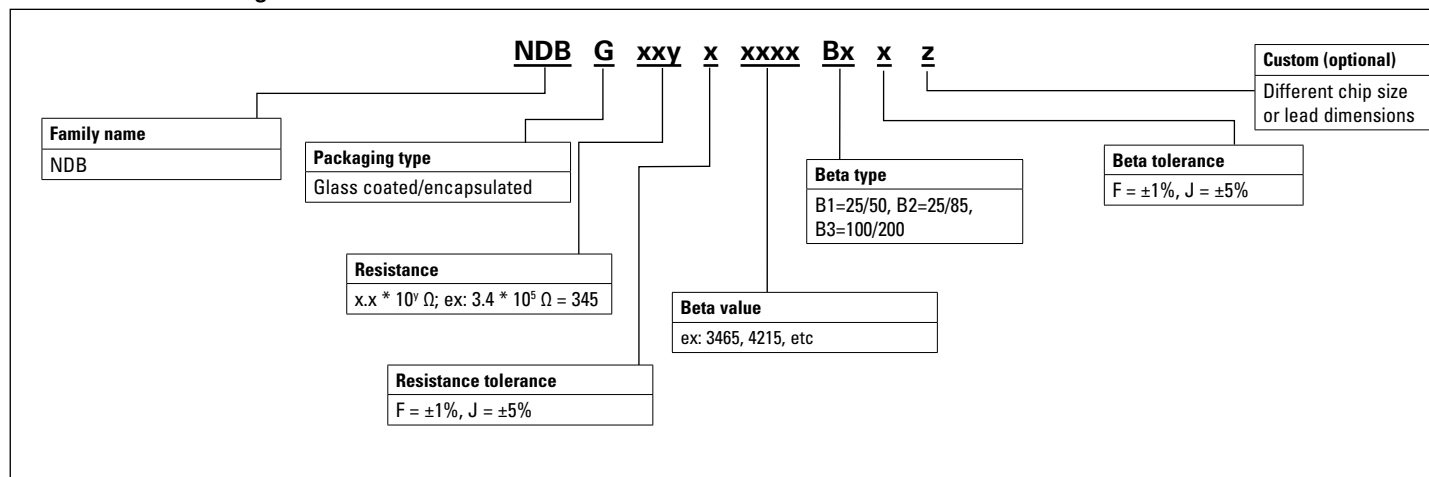


Agency information

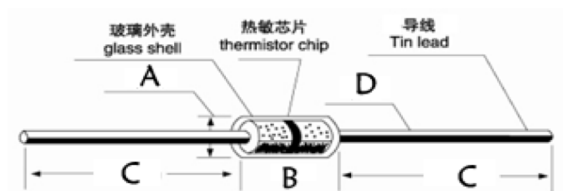
- cURus recognition file: E343021



Table 1. Part numbering



Mechanical parameters- mm/inches



Dimension	Millimeters		Inches	
	Minimum	Maximum	Minimum	Maximum
A	1.6	2.0	0.063	0.079
B	3.3	4.3	0.130	0.169
C	26	30	1.024	1.181
D	0.45	0.55	0.018	0.022

Electrical specifications

Part number	Rated temperature	Resistance (kΩ)	Beta value (K)	Beta type	UL
NDBG503?3440B1*	+25°C	5	3440	B25/50	
NDBG104?3380B1*	+25°C	10	3380	B25/50	
NDBG104?3435B2*	+25°C	10	3435	B25/85	
NDBG104?3470B1*	+25°C	10	3470	B25/50	
NDBG104?3950B1*	+25°C	10	3950	B25/50	
NDBG504?3820B2*	+25°C	50	3820	B25/85	
NDBG504?3950B1*	+25°C	50	3950	B25/50	
NDBG105?3950B1*	+25°C	100	3950	B25/50	x
NDBG105?3990B1*	+25°C	100	3990	B25/50	x
NDBG105?4150B1*	+25°C	100	4150	B25/50	x
NDBG105?4200B1*	+25°C	100	4200	B25/50	x
NDBG205?4325B2*	+25°C	200	4325	B25/85	
NDBG265?4250B1*	+25°C	260	4250	B25/50	
NDBG593?3820B2*	+85°C	5.91	3820	B25/85	
NDBG663?4025B2*	+100°C	6.6	4025	B25/85	
NDBG553?3950B1*	+106°C	5.49	3950	B25/50	
NDBG353?4300B2*	+114°C	3.4513	4300	B25/85	
NDBG103?4595B3*	+200°C	1	4595	B100/200	

?= Enter resistance tolerance codes (F = ±1%, J = ±5%)

*= Enter Beta tolerance codes (F = ±1%, J = ±5%)

Dissipation coefficient: ≈0.9 mW/ °C

Thermal time constant: ≤10 s

Withstand voltage: 300 Vac/1 mA/60 s

Operation temperature: -40 °C to +250 °C

Temperature characteristics

Part number	NDBG503?3440B1*	NDBG104?3380B1 NDBG104?3435B2*	NDBG104?3470B1*	NDBG104?3950B1*	NDBG504?3820B2*
Resistance	5K(25 °C)	10K(25 °C)	10K(25 °C)	10K(25 °C)	50K(25 °C)
Beta Value	B25/50=3440	B25/50=3380 B25/85=3435	B25/50=3470	B25/50=3950	B25/85=3820
Temperature (°C)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)
-40	83.93	206.24	222.88	308.14	1368.58
-39	79.7	194.75	210.15	289.29	1286.81
-38	75.71	183.98	198.23	271.7	1210.44
-37	71.95	173.88	187.06	255.29	1139.08
-36	68.39	164.4	176.61	239.97	1072.37
-35	65.03	155.5	166.8	225.65	1009.98
-34	61.86	147.15	157.61	212.27	951.6
-33	58.85	139.3	148.98	199.76	896.95
-32	56.01	131.92	140.89	188.07	845.77
-31	53.33	124.98	133.28	177.12	797.82
-30	50.78	118.45	126.14	166.87	752.88
-29	48.41	112.3	119.44	157.36	710.73
-28	46.16	106.52	113.14	148.44	671.2
-27	44.03	101.07	107.21	140.07	634.1
-26	42	95.93	101.63	132.22	599.27
-25	40.08	91.09	96.37	124.85	566.56
-24	38.25	86.52	91.42	117.92	535.82
-23	36.52	82.21	86.76	111.42	506.93
-22	34.87	78.14	82.36	105.31	479.76
-21	33.31	74.3	78.21	99.56	454.2
-20	31.82	70.68	74.3	94.16	430.16
-19	30.46	67.26	70.61	89.12	407.45
-18	29.16	64.04	67.12	84.36	386.07
-17	27.92	60.98	63.82	79.89	365.93
-16	26.74	58.1	60.71	75.67	346.97
-15	25.61	55.36	57.77	71.69	329.09
-14	24.53	52.77	54.99	67.94	312.23
-13	23.5	50.32	52.36	64.41	296.34
-12	22.51	47.99	49.87	61.07	281.34
-11	21.57	45.79	47.51	57.92	267.19
-10	20.67	43.7	45.28	54.95	253.82
-9	19.82	41.71	43.17	52.11	241.12
-8	19.01	39.82	41.16	49.43	229.13
-7	18.23	38.03	39.26	46.9	217.81
-6	17.48	36.33	37.46	44.52	207.11
-5	16.77	34.71	35.75	42.27	197
-4	16.09	33.18	34.13	40.14	187.44
-3	15.43	31.72	32.59	38.13	178.4
-2	14.81	30.34	31.13	36.23	169.85
-1	14.21	29.02	29.75	34.43	161.76
0	13.64	27.77	28.43	32.74	154.09
1	13.07	26.58	27.18	31.11	146.82
2	12.53	25.44	25.99	29.57	139.93
3	12.01	24.36	24.86	28.11	133.41
4	11.51	23.33	23.79	26.74	127.22
5	11.04	22.35	22.77	25.44	121.36
6	10.59	21.41	21.79	24.21	115.8
7	10.17	20.52	20.87	23.05	110.53
8	9.76	19.68	19.99	21.95	105.53
9	9.37	18.87	19.15	20.91	100.78
10	8.99	18.1	18.36	19.93	96.27
11	8.63	17.37	17.6	18.99	91.99
12	8.29	16.67	16.87	18.11	87.93
13	7.97	16.01	16.18	17.27	84.06
14	7.66	15.37	15.53	16.48	80.39
15	7.36	14.76	14.9	15.73	76.9
16	7.07	14.18	14.3	15.01	73.57
17	6.8	13.63	13.73	14.33	70.41
18	6.54	13.1	13.19	13.69	67.4
19	6.29	12.6	12.67	13.08	64.54

Temperature characteristics, cont.

20	6.05	12.11	12.17	12.5	61.82
21	5.82	11.65	11.7	11.95	59.22
22	5.6	11.21	11.24	11.42	56.75
23	5.39	10.79	10.81	10.92	54.39
24	5.19	10.39	10.4	10.45	52.14
25	5	10	10	10	50
26	4.8151	9.63	9.62	9.57	47.96
27	4.6338	9.28	9.26	9.16	45.98
28	4.4605	8.94	8.91	8.77	44.1
29	4.2945	8.62	8.58	8.39	42.31
30	4.136	8.31	8.26	8.04	40.6
31	3.9842	8.01	7.96	7.7	38.97
32	3.839	7.73	7.67	7.38	37.42
33	3.7	7.45	7.39	7.08	35.94
34	3.5668	7.19	7.12	6.78	34.52
35	3.4394	6.94	6.87	6.51	33.18
36	3.3172	6.7	6.62	6.24	31.89
37	3.2002	6.47	6.39	5.99	30.66
38	3.088	6.24	6.16	5.75	29.48
39	2.9804	6.03	5.94	5.52	28.36
40	2.8772	5.82	5.74	5.3	27.28
41	2.7783	5.63	5.54	5.09	26.26
42	2.6833	5.44	5.34	4.894	25.28
43	2.5922	5.26	5.16	4.7037	24.34
44	2.5047	5.08	4.9842	4.522	23.44
45	2.4207	4.9117	4.8145	4.3484	22.58
46	2.34	4.7495	4.6514	4.1825	21.76
47	2.2625	4.5936	4.4947	4.0238	20.97
48	2.1881	4.4436	4.3441	3.8722	20.21
49	2.1165	4.2991	4.1992	3.7271	19.49
50	2.0477	4.1601	4.0599	3.5883	18.79
51	1.9804	4.0263	3.9263	3.4542	18.12
52	1.9157	3.8974	3.7978	3.3257	17.48
53	1.8534	3.7733	3.6741	3.2027	16.86
54	1.7934	3.6537	3.5552	3.0848	16.27
55	1.7356	3.5384	3.4407	2.9718	15.7
56	1.68	3.4274	3.3305	2.8636	15.15
57	1.6264	3.3204	3.2243	2.7598	14.63
58	1.5748	3.2173	3.1222	2.6603	14.12
59	1.525	3.1178	3.0236	2.5649	13.64
60	1.477	3.022	2.9288	2.4733	13.17
61	1.4308	2.9295	2.8374	2.3855	12.73
62	1.3861	2.8403	2.7493	2.3013	12.3
63	1.3431	2.7541	2.6644	2.2203	11.88
64	1.3016	2.6711	2.5825	2.1427	11.49
65	1.2616	2.5908	2.5036	2.0681	11.1
66	1.223	2.5135	2.4275	1.9966	10.74
67	1.1858	2.4387	2.354	1.9277	10.38
68	1.1498	2.3666	2.2832	1.8617	10.04
69	1.1151	2.2968	2.2148	1.7981	9.71
70	1.0816	2.2294	2.1488	1.7371	9.4
71	1.0492	2.1644	2.0851	1.6784	9.1
72	1.0179	2.1016	2.0236	1.622	8.8
73	0.9877	2.0408	1.9642	1.5677	8.52
74	0.9586	1.9821	1.9068	1.5156	8.25
75	0.9304	1.9253	1.8514	1.4653	7.99
76	0.9031	1.8704	1.7979	1.417	7.74
77	0.8768	1.8173	1.7461	1.3705	7.49
78	0.8515	1.766	1.6962	1.3257	7.26
79	0.8268	1.7163	1.6478	1.2826	7.03

Temperature characteristics, cont.

80	0.803	1.6683	1.601	1.2411	6.82
81	0.78	1.6218	1.5559	1.2012	6.61
82	0.7578	1.5768	1.5122	1.1627	6.4
83	0.7362	1.5333	1.4699	1.1256	6.21
84	0.7154	1.4911	1.429	1.0899	6.02
85	0.6953	1.4503	1.3895	1.0555	5.84
86	0.6761	1.4099	1.3495	1.0231	5.66
87	0.6575	1.3708	1.3108	0.9918	5.48
88	0.6396	1.3329	1.2734	0.9617	5.31
89	0.6221	1.2963	1.2371	0.9327	5.15
90	0.6053	1.2607	1.202	0.9047	4.9915
91	0.589	1.2263	1.1679	0.8777	4.8391
92	0.5731	1.1929	1.135	0.8516	4.6918
93	0.5579	1.1606	1.1032	0.8265	4.5495
94	0.543	1.1291	1.0722	0.8022	4.4119
95	0.5287	1.0988	1.0422	0.7787	4.2791
96	0.5148	1.0693	1.0133	0.756	4.1506
97	0.5012	1.0407	0.9851	0.7342	4.0265
98	0.4881	1.0131	0.9579	0.7131	3.9064
99	0.4754	0.9861	0.9315	0.6927	3.7903
100	0.4632	0.9601	0.9059	0.6729	3.678
101	0.4509	0.9348	0.8814	0.6536	3.5695
102	0.439	0.9102	0.8576	0.635	3.4645
103	0.4276	0.8864	0.8346	0.6169	3.3629
104	0.4164	0.8633	0.8122	0.5995	3.2646
105	0.4056	0.8408	0.7906	0.5826	3.1695
106	0.3951	0.8191	0.7695	0.5663	3.0775
107	0.3853	0.7989	0.7491	0.5505	2.9903
108	0.3757	0.7794	0.7293	0.5352	2.9058
109	0.3664	0.7604	0.7101	0.5204	2.824
110	0.3574	0.742	0.6914	0.5062	2.7448
111	0.3487	0.7241	0.6733	0.4923	2.6682
112	0.3402	0.7067	0.6558	0.4789	2.5939
113	0.332	0.6898	0.6387	0.4659	2.522
114	0.3239	0.6733	0.6223	0.4533	2.4523
115	0.3161	0.6556	0.6062	0.4412	2.3855
116	0.3084	0.6384	0.5906	0.4294	2.3209
117	0.301	0.6217	0.5754	0.4179	2.2583
118	0.2938	0.6053	0.5607	0.4069	2.1976
119	0.2868	0.5895	0.5465	0.3962	2.1387
120	0.28	0.5742	0.5326	0.3858	2.0817
121	0.2734	0.5593	0.519	0.3756	2.0263
122	0.267	0.5447	0.5059	0.3659	1.9727
123	0.2607	0.5307	0.4932	0.3564	1.9205
124	0.2546	0.5169	0.4808	0.3472	1.8701
125	0.2487	0.5036	0.4688	0.3383	1.8212
126	0.2429	0.4913	0.4572	0.3297	1.7736
127	0.2374	0.4795	0.4458	0.3213	1.7274
128	0.2319	0.4679	0.4347	0.3131	1.6827
129	0.2266	0.4566	0.424	0.3052	1.6393
130	0.2215	0.4457	0.4135	0.2976	1.5972
131	0.2164	0.4351	0.4035	0.2901	1.5562
132	0.2115	0.4248	0.3937	0.2829	1.5165
133	0.2067	0.4149	0.3842	0.276	1.4779
134	0.2021	0.4052	0.3749	0.2692	1.4405
135	0.1976	0.3958	0.3659	0.2625	1.4041
136	0.1932	0.3865	0.3571	0.2561	1.3688
137	0.189	0.3775	0.3486	0.2498	1.3345
138	0.1848	0.3688	0.3403	0.2438	1.3012
139	0.1807	0.3603	0.3323	0.2379	1.2687

Temperature characteristics, cont.

140	0.1768	0.3521	0.3245	0.2322	1.2373
141	0.1729	0.344	0.3167	0.2267	1.2067
142	0.1692	0.3361	0.3093	0.2213	1.177
143	0.1655	0.3285	0.302	0.216	1.1481
144	0.162	0.321	0.295	0.2109	1.12
145	0.1584	0.3138	0.2882	0.2059	1.0927
146	0.155	0.3067	0.2814	0.2012	1.0661
147	0.1517	0.2998	0.2749	0.1965	1.0403
148	0.1485	0.2931	0.2686	0.1919	1.0152
149	0.1455	0.2865	0.2624	0.1875	0.9908
150	0.1424	0.2802	0.2564	0.1832	0.967
151	0.1394	0.274	0.2507	0.1789	0.9439
152	0.1365	0.268	0.245	0.1749	0.9215
153	0.1337	0.2623	0.2396	0.1709	0.8996
154	0.131	0.2566	0.2343	0.167	0.8783
155	0.1283	0.2511	0.229	0.1632	0.8576
156	0.1256	0.2457	0.224	0.1596	0.8375
157	0.1232	0.2405	0.2191	0.1559	0.8178
158	0.1207	0.2353	0.2143	0.1525	0.7987
159	0.1182	0.2303	0.2096	0.1491	0.7802
160	0.1158	0.2254	0.205	0.1458	0.7621
161	0.1136	0.2207	0.2006	0.1426	0.7445
162	0.1113	0.216	0.1963	0.1394	0.7273
163	0.109	0.2115	0.192	0.1364	0.7106
164	0.1069	0.2071	0.1879	0.1334	0.6943
165	0.1048	0.2027	0.1838	0.1305	0.6785
166	0.1027	0.1985	0.1799	0.1277	0.6631
167	0.1008	0.1943	0.1761	0.125	0.6481
168	0.0988	0.1903	0.1723	0.1222	0.6334
169	0.0969	0.1865	0.1687	0.1196	0.6192
170	0.095	0.1826	0.1651	0.1171	0.6052
171	0.0932	0.1789	0.1617	0.1147	0.5917
172	0.0914	0.1753	0.1583	0.1122	0.5785
173	0.0896	0.1716	0.1549	0.1098	0.5657
174	0.088	0.1682	0.1517	0.1076	0.5531
175	0.0862	0.1648	0.1485	0.1053	0.5408
176	0.0847	0.1615	0.1455	0.1031	0.5289
177	0.083	0.1582	0.1425	0.101	0.5173
178	0.0815	0.155	0.1395	0.0989	0.506
179	0.0799	0.152	0.1366	0.0968	0.495
180	0.0785	0.1489	0.1338	0.0949	0.4842
181	0.0771	0.1461	0.1311	0.0929	0.4736
182	0.0756	0.1433	0.1284	0.0911	0.4635
183	0.0743	0.1404	0.1258	0.0893	0.4534
184	0.0728	0.1377	0.1233	0.0874	0.4437
185	0.0715	0.1351	0.1208	0.0856	0.4341
186	0.0702	0.1325	0.1183	0.084	0.4248
187	0.069	0.1301	0.1159	0.0823	0.4158
188	0.0677	0.1276	0.1136	0.0807	0.407
189	0.0665	0.1251	0.1113	0.079	0.3983
190	0.0653	0.1229	0.1091	0.0775	0.3899
191	0.0642	0.1205	0.107	0.076	0.3817
192	0.063	0.1183	0.1049	0.0745	0.3737
193	0.0619	0.1161	0.1028	0.0731	0.3659
194	0.0608	0.1139	0.1007	0.0716	0.3582
195	0.0597	0.1118	0.0987	0.0702	0.3508
196	0.0587	0.1097	0.0968	0.0689	0.3435
197	0.0577	0.1077	0.0949	0.0675	0.3363
198	0.0566	0.1057	0.0931	0.0663	0.3294
199	0.0556	0.1038	0.0913	0.065	0.3226

Temperature characteristics, cont.

200	0.0547	0.1019	0.0895	0.0638	0.316
201	0.0537	0.1001	0.088	0.0625	0.3095
202	0.0528	0.0983	0.0864	0.0613	0.3032
203	0.0519	0.0965	0.085	0.0602	0.2971
204	0.0511	0.0948	0.0835	0.0591	0.291
205	0.0501	0.0931	0.082	0.058	0.2851
206	0.0493	0.0913	0.0806	0.0569	0.2794
207	0.0485	0.0898	0.0793	0.0559	0.2737
208	0.0477	0.0882	0.0779	0.0548	0.2683
209	0.0468	0.0866	0.0766	0.0538	0.2629
210	0.0461	0.0851	0.0753	0.0528	0.2577
211	0.0453	0.0836	0.0741	0.0518	0.2526
212	0.0446	0.082	0.0729	0.0509	0.2475
213	0.0438	0.0806	0.0717	0.05	0.2426
214	0.0431	0.0792	0.0705	0.0491	0.2378
215	0.0424	0.0778	0.0693	0.0482	0.2332
216	0.0417	0.0765	0.0682	0.0474	0.2286
217	0.041	0.0752	0.0671	0.0464	0.2241
218	0.0403	0.0739	0.066	0.0456	0.2197
219	0.0397	0.0726	0.0649	0.0448	0.2154
220	0.039	0.0713	0.0638	0.044	0.2112
221	0.0384	0.0702	0.0628	0.0433	0.2071
222	0.0378	0.069	0.0618	0.0425	0.2031
223	0.0371	0.0678	0.0608	0.0418	0.1993
224	0.0366	0.0666	0.0598	0.0411	0.1954
225	0.036	0.0655	0.0589	0.0404	0.1916
226	0.0354	0.0644	0.058	0.0397	0.188
227	0.0349	0.0633	0.0571	0.039	0.1844
228	0.0344	0.0623	0.0562	0.0383	0.1809
229	0.0337	0.0612	0.0553	0.0376	0.1775
230	0.0332	0.0602	0.0544	0.0369	0.1741
231	0.0327	0.0592	0.0536	0.0363	0.1708
232	0.0322	0.0582	0.0528	0.0357	0.1676
233	0.0317	0.0572	0.052	0.0351	0.1645
234	0.0313	0.0563	0.0512	0.0345	0.1614
235	0.0307	0.0553	0.0504	0.0339	0.1583
236	0.0302	0.0544	0.0496	0.0334	0.1554
237	0.0298	0.0536	0.0489	0.0328	0.1526
238	0.0294	0.0526	0.0481	0.0323	0.1496
239	0.0289	0.0518	0.0474	0.0318	0.1469
240	0.0285	0.051	0.0467	0.0312	0.1442
241	0.0281	0.0501	0.0459	0.0307	0.1416
242	0.0276	0.0493	0.0452	0.0302	0.139
243	0.0272	0.0485	0.0446	0.0296	0.1364
244	0.0268	0.0478	0.0439	0.0292	0.1339
245	0.0264	0.047	0.0433	0.0287	0.1315
246	0.026	0.0463	0.0426	0.0282	0.1291
247	0.0256	0.0454	0.042	0.0278	0.1267
248	0.0253	0.0447	0.0414	0.0273	0.1244
249	0.0249	0.044	0.0408	0.0269	0.1222
250	0.0244	0.0433	0.0402	0.0265	0.12

Temperature characteristics

Part number	NDBG504?3950B1*	NDBG105?3950B1*	NDBG105?3990B1*	NDBG105?4150B1*	NDBG105?4200B1*
Resistance	50K(25 °C)	100K(25 °C)	100K(25 °C)	100K(25 °C)	100K(25 °C)
Beta Value	B25/50=3950	B25/50=3950	B25/50=3990	B25/50=4150	B25/50=4200
Temperature (°C)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)
-40	1538.63	3208.26	3331.43	3530.37	3674.54
-39	1444.17	3006.06	3121	3303.46	3435.11
-38	1356.08	2817.91	2925.17	3092.56	3212.81
-37	1273.9	2642.75	2742.85	2896.44	3006.29
-36	1197.19	2479.61	2573.01	2713.97	2814.35
-35	1125.55	2327.57	2414.72	2544.13	2635.86
-34	1058.63	2185.83	2267.15	2385.95	2469.8
-33	996.07	2053.61	2129.48	2238.57	2315.22
-32	937.58	1930.22	2001.01	2101.19	2171.28
-31	882.87	1815.02	1881.06	1973.08	2037.16
-30	831.66	1707.42	1769.01	1853.54	1912.15
-29	777.19	1607.01	1663.38	1741.36	1795.86
-28	726.84	1513.12	1564.71	1636.66	1687.33
-27	680.24	1425.29	1472.5	1538.9	1586
-26	637.1	1343.09	1386.3	1447.56	1491.35
-25	597.13	1266.12	1305.67	1362.21	1402.91
-24	560.06	1194.03	1230.22	1282.39	1320.22
-23	525.67	1126.47	1159.6	1207.74	1242.89
-22	493.73	1063.14	1093.45	1137.87	1170.54
-21	464.05	1003.74	1031.48	1072.46	1102.81
-20	436.45	948.01	973.39	1011.2	1039.38
-19	416.1	895.47	918.95	953.76	980.18
-18	396.7	846.16	867.87	899.92	924.67
-17	378.19	799.86	819.93	849.43	872.61
-16	360.53	756.37	774.93	802.08	823.77
-15	343.7	715.5	732.65	757.63	777.92
-14	327.64	677.09	692.93	715.9	734.87
-13	312.33	640.96	655.59	676.72	694.43
-12	297.72	606.96	620.48	639.9	656.43
-11	283.8	574.97	587.44	605.29	620.72
-10	270.52	544.86	556.36	572.75	587.13
-9	255.52	516.59	527.05	542.21	555.5
-8	241.5	489.94	499.45	513.46	525.73
-7	228.38	464.82	473.46	486.4	497.72
-6	216.09	441.12	448.97	460.91	471.35
-5	204.58	418.76	425.88	436.89	446.51
-4	193.79	397.66	404.11	414.25	423.11
-3	183.67	377.73	383.57	392.91	401.06
-2	174.17	358.91	364.19	372.78	380.27
-1	165.26	341.13	345.9	353.79	360.66
0	156.88	324.32	328.63	335.87	342.16
1	149.48	308.34	312.28	319	324.71
2	142.46	293.24	296.84	303.06	308.24
3	135.8	278.96	282.25	288	292.68
4	129.49	265.47	268.46	273.76	277.99
5	123.49	252.7	255.42	260.29	264.11
6	117.8	240.61	243.09	247.56	250.99
7	112.4	229.18	231.41	235.5	238.58
8	107.26	218.35	220.37	224.1	226.85
9	102.39	208.09	209.91	213.3	215.75
10	97.76	198.37	200	203.07	205.25
11	93.35	189.16	190.61	193.38	195.31
12	89.16	180.43	181.72	184.2	185.9
13	85.18	172.15	173.28	175.5	176.98
14	81.4	164.29	165.29	167.25	168.54
15	77.79	156.84	157.7	159.42	160.54
16	74.36	149.76	150.51	152	152.95
17	71.1	143.04	143.68	144.96	145.76
18	67.99	136.66	137.19	138.28	138.94
19	65.04	130.6	131.03	131.93	132.47
20	62.22	124.83	125.18	125.91	126.34

Temperature characteristics, cont.

21	59.53	119.36	119.63	120.18	120.51
22	56.98	114.15	114.34	114.75	114.98
23	54.54	109.2	109.32	109.58	109.73
24	52.22	104.48	104.54	104.67	104.74
25	50	100	100	100	100
26	47.88	95.74	95.67	95.56	95.49
27	45.81	91.69	91.5	91.23	91.11
28	43.84	87.82	87.53	87.14	86.97
29	41.96	84.14	83.76	83.25	83.03
30	40.18	80.63	80.18	79.56	79.3
31	38.49	77.29	76.77	76.05	75.76
32	36.87	74.1	73.52	72.72	72.4
33	35.34	71.06	70.44	69.56	69.21
34	33.88	68.16	67.5	66.56	66.18
35	32.48	65.39	64.7	63.7	63.3
36	31.16	62.75	62.04	60.98	60.56
37	29.89	60.22	59.5	58.4	57.96
38	28.69	57.81	57.08	55.94	55.48
39	27.54	55.51	54.78	53.6	53.13
40	26.44	53.31	52.58	51.37	50.89
41	25.4	51.21	50.48	49.25	48.76
42	24.4	49.2	48.48	47.23	46.73
43	23.44	47.28	46.57	45.3	44.8
44	22.53	45.45	44.75	43.47	42.96
45	21.66	43.69	43.01	41.72	41.2
46	20.83	42.01	41.34	40.05	39.53
47	20.04	40.41	39.76	38.45	37.94
48	19.28	38.87	38.24	36.93	36.42
49	18.56	37.39	36.79	35.48	34.97
50	17.86	35.98	35.4	34.1	33.58
51	17.18	34.63	34.04	32.75	32.24
52	16.53	33.34	32.74	31.46	30.95
53	15.91	32.1	31.49	30.23	29.73
54	15.31	30.91	30.29	29.05	28.55
55	14.74	29.78	29.15	27.92	27.43
56	14.19	28.68	28.05	26.85	26.36
57	13.67	27.64	27	25.82	25.34
58	13.16	26.63	25.99	24.83	24.36
59	12.68	25.67	25.03	23.88	23.42
60	12.21	24.75	24.1	22.98	22.52
61	11.77	23.86	23.21	22.11	21.66
62	11.34	23.01	22.36	21.28	20.84
63	10.93	22.2	21.54	20.48	20.05
64	10.54	21.41	20.76	19.72	19.29
65	10.16	20.66	20	18.99	18.57
66	9.8	19.94	19.28	18.29	17.88
67	9.45	19.24	18.58	17.62	17.21
68	9.11	18.57	17.92	16.97	16.58
69	8.79	17.93	17.28	16.36	15.97
70	8.48	17.32	16.66	15.76	15.38
71	8.18	16.72	16.07	15.19	14.82
72	7.9	16.15	15.5	14.65	14.28
73	7.62	15.6	14.96	14.12	13.76
74	7.36	15.08	14.43	13.62	13.27
75	7.11	14.57	13.93	13.14	12.79
76	6.86	14.08	13.44	12.67	12.33
77	6.63	13.61	12.98	12.23	11.9
78	6.4	13.16	12.53	11.8	11.47
79	6.18	12.72	12.1	11.39	11.07
80	5.97	12.31	11.68	10.99	10.68
81	5.77	11.9	11.28	10.61	10.31

Temperature characteristics, cont.

82	5.58	11.51	10.9	10.24	9.95
83	5.39	11.14	10.53	9.89	9.6
84	5.21	10.78	10.17	9.55	9.27
85	5.04	10.43	9.83	9.23	8.95
86	4.8731	10.09	9.5	8.92	8.65
87	4.7131	9.77	9.19	8.62	8.36
88	4.559	9.45	8.89	8.34	8.08
89	4.4104	9.15	8.6	8.06	7.81
90	4.2672	8.86	8.32	7.8	7.55
91	4.1292	8.58	8.05	7.54	7.31
92	3.9961	8.31	7.79	7.3	7.07
93	3.8678	8.05	7.54	7.06	6.83
94	3.744	7.79	7.3	6.83	6.61
95	3.6247	7.55	7.06	6.61	6.4
96	3.5096	7.31	6.84	6.4	6.19
97	3.3985	7.09	6.62	6.2	5.99
98	3.2913	6.87	6.41	6	5.8
99	3.1879	6.66	6.21	5.81	5.62
100	3.0881	6.45	6.02	5.63	5.44
101	2.9918	6.25	5.83	5.45	5.27
102	2.8988	6.06	5.65	5.28	5.1
103	2.809	5.88	5.47	5.12	4.9439
104	2.7223	5.7	5.3	4.959	4.79
105	2.6385	5.53	5.14	4.8063	4.6418
106	2.5576	5.36	4.9841	4.6589	4.4987
107	2.4824	5.2	4.8341	4.5167	4.3606
108	2.4098	5.05	4.689	4.3793	4.2273
109	2.3396	4.8963	4.5489	4.2467	4.0987
110	2.2717	4.751	4.4135	4.1187	3.9745
111	2.206	4.6105	4.2826	3.995	3.8545
112	2.1426	4.4747	4.1561	3.8755	3.7388
113	2.0812	4.3433	4.0338	3.7601	3.6269
114	2.0218	4.2161	3.9156	3.6485	3.5188
115	1.9648	4.0931	3.801	3.5407	3.4139
116	1.9096	3.974	3.6902	3.4365	3.3125
117	1.8562	3.8587	3.583	3.3358	3.2145
118	1.8045	3.7472	3.4793	3.2384	3.1199
119	1.7545	3.6393	3.379	3.1443	3.0284
120	1.7061	3.5348	3.2819	3.0532	2.9399
121	1.6592	3.4337	3.188	2.966	2.8543
122	1.6138	3.3357	3.0971	2.8817	2.7716
123	1.5698	3.2409	3.0091	2.8	2.6916
124	1.5272	3.1491	2.9239	2.721	2.6142
125	1.4859	3.0602	2.8415	2.6446	2.5393
126	1.4459	2.974	2.7616	2.5706	2.4669
127	1.4072	2.8905	2.6843	2.499	2.3968
128	1.3696	2.8097	2.6094	2.4296	2.329
129	1.3333	2.7314	2.5369	2.3625	2.2633
130	1.298	2.6554	2.4666	2.2975	2.1997
131	1.2638	2.5819	2.3986	2.2345	2.1382
132	1.2306	2.5105	2.3327	2.1735	2.0785
133	1.1985	2.4414	2.2687	2.1143	2.0209
134	1.1673	2.3744	2.2068	2.0571	1.965
135	1.137	2.3095	2.1467	2.0016	1.9108
136	1.1077	2.2465	2.0885	1.9478	1.8584
137	1.0792	2.1854	2.0321	1.8956	1.8076
138	1.0516	2.1261	1.9774	1.8451	1.7583
139	1.0247	2.0687	1.9244	1.7961	1.7106
140	0.9987	2.013	1.8729	1.7486	1.6644
141	0.9735	1.9589	1.823	1.7025	1.6196
142	0.9489	1.9064	1.7746	1.6578	1.5761

Temperature characteristics, cont.

143	0.9251	1.8555	1.7276	1.6145	1.534
144	0.902	1.8061	1.682	1.5724	1.4931
145	0.8796	1.7582	1.6378	1.5316	1.4534
146	0.8577	1.7116	1.595	1.492	1.4151
147	0.8366	1.6665	1.5533	1.4536	1.3778
148	0.816	1.6227	1.5129	1.4163	1.3416
149	0.796	1.5801	1.4736	1.3801	1.3065
150	0.7766	1.5388	1.4356	1.345	1.2724
151	0.7577	1.5002	1.4	1.3114	1.2401
152	0.7393	1.4628	1.3654	1.2787	1.2088
153	0.7215	1.4264	1.3319	1.247	1.1783
154	0.7042	1.3911	1.2992	1.2162	1.1488
155	0.6873	1.3568	1.2676	1.1862	1.1201
156	0.6709	1.3234	1.2368	1.1571	1.0921
157	0.655	1.2909	1.2068	1.1289	1.0651
158	0.6395	1.2594	1.1777	1.1014	1.0388
159	0.6244	1.2287	1.1494	1.0747	1.0132
160	0.6098	1.1989	1.1219	1.0488	0.9884
161	0.5955	1.1699	1.0951	1.0236	0.9642
162	0.5816	1.1417	1.0692	0.9991	0.9408
163	0.5681	1.1143	1.0438	0.9752	0.918
164	0.555	1.0876	1.0192	0.952	0.8959
165	0.5422	1.0617	0.9953	0.9295	0.8742
166	0.5297	1.0364	0.972	0.9076	0.8533
167	0.5176	1.0118	0.9494	0.8863	0.833
168	0.5058	0.9879	0.9273	0.8655	0.8132
169	0.4943	0.9647	0.9058	0.8453	0.7939
170	0.4832	0.942	0.885	0.8257	0.7752
171	0.4723	0.92	0.8646	0.8066	0.7569
172	0.4617	0.8985	0.8448	0.788	0.7392
173	0.4513	0.8776	0.8255	0.7699	0.7219
174	0.4413	0.8573	0.8068	0.7523	0.7051
175	0.4315	0.8374	0.7885	0.7351	0.6888
176	0.4219	0.8182	0.7707	0.7184	0.6729
177	0.4126	0.7994	0.7534	0.7021	0.6574
178	0.4036	0.7812	0.7365	0.6863	0.6424
179	0.3947	0.7633	0.7201	0.6709	0.6277
180	0.3861	0.7459	0.704	0.6559	0.6134
181	0.3777	0.7291	0.6885	0.6412	0.5995
182	0.3695	0.7126	0.6733	0.627	0.5859
183	0.3616	0.6965	0.6585	0.6131	0.5727
184	0.3538	0.6809	0.644	0.5996	0.56
185	0.3462	0.6657	0.63	0.5864	0.5475
186	0.3388	0.6508	0.6162	0.5736	0.5353
187	0.3316	0.6364	0.6029	0.561	0.5234
188	0.3246	0.6222	0.5898	0.5488	0.5118
189	0.3177	0.6085	0.5771	0.5369	0.5005
190	0.311	0.5951	0.5647	0.5254	0.4895
191	0.3045	0.582	0.5527	0.5141	0.4788
192	0.2981	0.5693	0.5409	0.503	0.4684
193	0.2919	0.5568	0.5294	0.4923	0.4582
194	0.2859	0.5448	0.5182	0.4818	0.4483
195	0.2799	0.5329	0.5073	0.4716	0.4386
196	0.2742	0.5214	0.4966	0.4616	0.4291
197	0.2685	0.5101	0.4861	0.4519	0.42
198	0.263	0.4992	0.476	0.4424	0.411
199	0.2577	0.4885	0.4661	0.4331	0.4023
200	0.2524	0.478	0.4564	0.4241	0.3937
201	0.2473	0.4678	0.447	0.4153	0.3854
202	0.2423	0.4578	0.4378	0.4067	0.3773
203	0.2374	0.4482	0.4287	0.3983	0.3693

Temperature characteristics, cont.

204	0.2327	0.4387	0.42	0.3901	0.3616
205	0.228	0.4294	0.4115	0.3821	0.3541
206	0.2235	0.4204	0.4031	0.3743	0.3467
207	0.219	0.4116	0.3949	0.3667	0.3396
208	0.2147	0.4031	0.387	0.3593	0.3325
209	0.2105	0.3946	0.3791	0.352	0.3257
210	0.2063	0.3864	0.3715	0.3449	0.3191
211	0.2023	0.3784	0.3641	0.338	0.3125
212	0.1983	0.3706	0.3568	0.3312	0.3062
213	0.1945	0.3629	0.3497	0.3246	0.2999
214	0.1907	0.3556	0.3428	0.3181	0.2939
215	0.187	0.3483	0.336	0.3118	0.2879
216	0.1834	0.3411	0.3294	0.3057	0.2822
217	0.1799	0.3342	0.323	0.2997	0.2765
218	0.1764	0.3274	0.3166	0.2938	0.271
219	0.173	0.3207	0.3105	0.288	0.2656
220	0.1698	0.3142	0.3044	0.2824	0.2602
221	0.1665	0.308	0.2985	0.2769	0.2551
222	0.1634	0.3018	0.2928	0.2716	0.2501
223	0.1603	0.2958	0.2871	0.2663	0.2452
224	0.1573	0.2898	0.2816	0.2612	0.2404
225	0.1543	0.284	0.2762	0.2562	0.2356
226	0.1515	0.2784	0.271	0.2513	0.2311
227	0.1486	0.2729	0.2658	0.2465	0.2266
228	0.1459	0.2675	0.2608	0.2418	0.2223
229	0.1432	0.2622	0.2558	0.2372	0.2179
230	0.1405	0.2571	0.251	0.2327	0.2137
231	0.1379	0.2521	0.2463	0.2284	0.2097
232	0.1354	0.2471	0.2417	0.2241	0.2056
233	0.1329	0.2423	0.2371	0.2199	0.2017
234	0.1305	0.2376	0.2327	0.2158	0.1979
235	0.1282	0.233	0.2284	0.2118	0.1942
236	0.1258	0.2285	0.2242	0.2079	0.1905
237	0.1236	0.224	0.22	0.204	0.1868
238	0.1213	0.2197	0.216	0.2003	0.1834
239	0.1192	0.2155	0.2121	0.1966	0.18
240	0.117	0.2115	0.2082	0.193	0.1766
241	0.1149	0.2074	0.2044	0.1895	0.1734
242	0.1129	0.2035	0.2007	0.186	0.1701
243	0.1109	0.1996	0.1971	0.1827	0.167
244	0.1089	0.1958	0.1935	0.1794	0.1639
245	0.107	0.1921	0.19	0.1761	0.1609
246	0.1051	0.1885	0.1866	0.173	0.1579
247	0.1033	0.1849	0.1832	0.1699	0.155
248	0.1015	0.1814	0.18	0.1668	0.1522
249	0.0997	0.178	0.1768	0.1639	0.1495
250	0.098	0.1747	0.1736	0.161	0.1468

Temperature characteristics

Part number	NDBG205?4325B2*	NDBG265?4250B1*	NDBG593?3820B2*	NDBG663?4025B2*	NDBG553?3950B1*
Resistance	200K(25 °C)	260K(25 °C)	5.91K(85 °C)	6.6K(100 °C)	5.49K(106 °C)
Beta Value	B25/85=4325	B25/50=4250	B25/85=3820	B25/85=4025	B25/50=3950
Temperature (°C)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)	Resistance (kΩ)
-40	8018.03	10423.43	1385.32	3281.53	3284.37
-39	7493.28	9741.25	1302.55	3074.71	3077.37
-38	7005.9	9107.66	1225.24	2882.27	2884.76
-37	6553.01	8518.9	1153.01	2703.11	2705.45
-36	6131.97	7971.56	1085.48	2536.24	2538.43
-35	5740.38	7462.49	1022.32	2380.73	2382.79
-34	5376	6988.79	963.23	2235.75	2237.68
-33	5036.79	6547.82	907.91	2100.51	2102.33
-32	4720.87	6137.13	856.11	1974.31	1976.01
-31	4426.52	5754.47	807.57	1856.47	1858.08
-30	4152.14	5397.78	762.08	1746.41	1747.92
-29	3893.33	5061.33	719.42	1643.71	1645.13
-28	3652.17	4747.82	679.41	1547.68	1549.01
-27	3427.36	4455.56	641.85	1457.84	1459.1
-26	3217.68	4182.98	606.6	1373.76	1374.95
-25	3022.04	3928.65	573.48	1295.04	1296.16
-24	2839.42	3691.24	542.37	1221.3	1222.36
-23	2668.87	3469.53	513.12	1152.2	1153.2
-22	2509.54	3262.4	485.62	1087.42	1088.36
-21	2360.62	3068.8	459.76	1026.66	1027.55
-20	2221.37	2887.78	435.42	969.66	970.5
-19	2092.82	2720.66	412.43	915.92	916.71
-18	1972.34	2564.04	390.79	865.49	866.23
-17	1859.4	2417.21	370.41	818.13	818.84
-16	1753.48	2279.52	351.21	773.65	774.31
-15	1654.11	2150.34	333.11	731.84	732.48
-14	1560.85	2029.11	316.05	692.55	693.15
-13	1473.31	1915.3	299.96	655.59	656.16
-12	1391.1	1808.42	284.78	620.83	621.36
-11	1313.86	1708.02	270.45	588.11	588.61
-10	1241.29	1613.67	256.92	557.3	557.78
-9	1172.59	1524.36	244.07	528.38	528.84
-8	1108.04	1440.45	231.94	501.13	501.56
-7	1047.38	1361.59	220.47	475.43	475.84
-6	990.34	1287.44	209.65	451.19	451.58
-5	936.69	1217.7	199.41	428.32	428.69
-4	886.22	1152.08	189.74	406.74	407.09
-3	838.71	1090.33	180.58	386.36	386.69
-2	793.99	1032.19	171.93	367.1	367.42
-1	751.87	977.43	163.73	348.92	349.22
0	712.2	925.85	155.98	331.73	332.01
1	674.37	876.68	148.62	315.37	315.64
2	638.77	830.41	141.64	299.92	300.18
3	605.26	786.84	135.04	285.31	285.56
4	573.69	745.8	128.78	271.5	271.73
5	543.95	707.14	122.85	258.43	258.66
6	515.92	670.7	117.22	246.07	246.29
7	489.5	636.34	111.88	234.37	234.58
8	464.57	603.94	106.82	223.29	223.49
9	441.05	573.37	102.01	212.8	212.99
10	418.86	544.51	97.45	202.86	203.04
11	397.9	517.27	93.12	193.44	193.61
12	378.11	491.54	89	184.51	184.67
13	359.41	467.23	85.09	176.04	176.2
14	341.74	444.26	81.37	168.01	168.15
15	325.03	422.54	77.84	160.39	160.53
16	309.23	402	74.47	153.15	153.28
17	294.28	382.57	71.27	146.28	146.41
18	280.14	364.18	68.23	139.76	139.88
19	266.75	346.78	65.33	133.56	133.67
20	254.08	330.3	62.57	127.67	127.78

Temperature characteristics, cont.

21	242.07	314.69	59.94	122.07	122.18
22	230.69	299.9	57.44	116.75	116.85
23	219.91	285.89	55.05	111.68	111.78
24	209.69	272.6	52.78	106.87	106.96
25	200	260	50.61	102.28	102.37
26	190.8	248.04	48.54	97.92	98
27	181.97	236.56	46.54	93.71	93.79
28	173.6	225.67	44.64	89.71	89.79
29	165.66	215.36	42.83	85.91	85.98
30	158.14	205.58	41.1	82.29	82.36
31	151	196.31	39.45	78.84	78.91
32	144.24	187.51	37.88	75.56	75.63
33	137.81	179.16	36.38	72.44	72.51
34	131.71	171.23	34.95	69.47	69.53
35	125.92	163.7	33.58	66.63	66.69
36	120.42	156.55	32.28	63.93	63.99
37	115.19	149.75	31.03	61.36	61.41
38	110.22	143.29	29.84	58.9	58.95
39	105.5	137.15	28.7	56.56	56.61
40	101.01	131.31	27.62	54.33	54.37
41	96.73	125.75	26.58	52.19	52.24
42	92.66	120.46	25.58	50.16	50.2
43	88.79	115.43	24.63	48.21	48.25
44	85.1	110.63	23.72	46.35	46.39
45	81.59	106.06	22.85	44.58	44.62
46	78.24	101.71	22.02	42.88	42.92
47	75.05	97.57	21.22	41.26	41.3
48	72.01	93.61	20.46	39.71	39.74
49	69.11	89.84	19.73	38.23	38.26
50	66.34	86.25	19.02	36.81	36.84
51	63.67	82.77	18.34	35.43	35.46
52	61.12	79.45	17.69	34.1	34.13
53	58.68	76.28	17.07	32.83	32.86
54	56.35	73.25	16.47	31.62	31.65
55	54.12	70.36	15.89	30.46	30.48
56	52	67.59	15.34	29.34	29.36
57	49.96	64.95	14.81	28.27	28.29
58	48.02	62.42	14.3	27.24	27.27
59	46.16	60.01	13.81	26.26	26.28
60	44.38	57.69	13.33	25.31	25.34
61	42.68	55.48	12.88	24.41	24.43
62	41.05	53.36	12.45	23.54	23.56
63	39.49	51.34	12.03	22.7	22.72
64	38	49.4	11.63	21.9	21.92
65	36.57	47.54	11.24	21.13	21.15
66	35.2	45.76	10.87	20.39	20.41
67	33.89	44.05	10.51	19.68	19.7
68	32.63	42.42	10.16	19	19.01
69	31.43	40.85	9.83	18.34	18.36
70	30.27	39.35	9.51	17.71	17.73
71	29.17	37.91	9.21	17.1	17.12
72	28.1	36.53	8.91	16.52	16.54
73	27.09	35.21	8.63	15.96	15.97
74	26.11	33.94	8.35	15.42	15.43
75	25.17	32.72	8.09	14.9	14.92
76	24.27	31.55	7.83	14.4	14.42
77	23.41	30.43	7.59	13.92	13.94
78	22.58	29.36	7.35	13.46	13.47
79	21.79	28.32	7.12	13.02	13.03
80	21.02	27.33	6.9	12.59	12.6
81	20.29	26.37	6.69	12.17	12.18
82	19.58	25.46	6.48	11.78	11.79

Temperature characteristics, cont.

83	18.9	24.58	6.29	11.39	11.4
84	18.25	23.73	6.09	11.02	11.03
85	17.63	22.91	5.91	10.67	10.68
86	17.03	22.14	5.73	10.32	10.33
87	16.45	21.39	5.55	9.99	10
88	15.9	20.67	5.38	9.67	9.68
89	15.37	19.98	5.21	9.36	9.37
90	14.86	19.31	5.05	9.06	9.07
91	14.36	18.67	4.898	8.78	8.78
92	13.89	18.06	4.749	8.5	8.5
93	13.43	17.46	4.605	8.23	8.24
94	12.99	16.89	4.4657	7.97	7.98
95	12.57	16.34	4.3312	7.72	7.73
96	12.16	15.81	4.2011	7.48	7.49
97	11.77	15.3	4.0755	7.25	7.26
98	11.39	14.81	3.954	7.03	7.03
99	11.03	14.34	3.8364	6.81	6.81
100	10.68	13.88	3.7228	6.6	6.61
101	10.34	13.44	3.613	6.4	6.4
102	10.01	13.01	3.5067	6.2	6.21
103	9.7	12.61	3.4039	6.01	6.02
104	9.39	12.21	3.3043	5.83	5.84
105	9.1	11.83	3.2081	5.66	5.66
106	8.82	11.46	3.1149	5.49	5.49
107	8.54	11.11	3.0267	5.32	5.33
108	8.28	10.77	2.9411	5.16	5.17
109	8.03	10.44	2.8583	5.01	5.01
110	7.78	10.12	2.7782	4.8597	4.8637
111	7.55	9.81	2.7006	4.7161	4.7199
112	7.32	9.51	2.6256	4.5771	4.5808
113	7.1	9.23	2.5528	4.4427	4.4463
114	6.88	8.95	2.4822	4.3127	4.3162
115	6.68	8.68	2.4147	4.1868	4.1902
116	6.48	8.43	2.3493	4.065	4.0683
117	6.3	8.18	2.2859	3.9471	3.9503
118	6.11	7.95	2.2244	3.833	3.8361
119	5.94	7.72	2.1648	3.7226	3.7256
120	5.76	7.49	2.1071	3.6157	3.6187
121	5.6	7.28	2.051	3.5123	3.5151
122	5.44	7.07	1.9967	3.4121	3.4149
123	5.28	6.87	1.944	3.3151	3.3178
124	5.14	6.68	1.8929	3.2212	3.2238
125	4.9907	6.49	1.8434	3.1302	3.1327
126	4.8507	6.31	1.7953	3.0421	3.0445
127	4.7152	6.13	1.7485	2.9567	2.9591
128	4.5841	5.96	1.7033	2.874	2.8763
129	4.4571	5.79	1.6593	2.7939	2.7961
130	4.3342	5.63	1.6167	2.7163	2.7184
131	4.2152	5.48	1.5752	2.641	2.6431
132	4.1	5.33	1.5351	2.5681	2.5701
133	3.9883	5.18	1.4959	2.4974	2.4994
134	3.8803	5.04	1.4581	2.4288	2.4308
135	3.7755	4.9082	1.4212	2.3624	2.3643
136	3.674	4.7762	1.3855	2.2979	2.2998
137	3.5757	4.6484	1.3507	2.2354	2.2372
138	3.4804	4.5245	1.317	2.1748	2.1766
139	3.388	4.4044	1.2842	2.1161	2.1178
140	3.2985	4.288	1.2524	2.0591	2.0607
141	3.2116	4.175	1.2214	2.0038	2.0053
142	3.1274	4.0656	1.1913	1.9501	1.9516
143	3.0457	3.9595	1.1621	1.898	1.8995

Temperature characteristics, cont.

144	2.9666	3.8565	1.1337	1.8475	1.849
145	2.8898	3.7567	1.106	1.7985	1.7999
146	2.8153	3.6598	1.0791	1.7508	1.7523
147	2.7429	3.5658	1.053	1.7046	1.706
148	2.6728	3.4746	1.0276	1.6598	1.6612
149	2.6047	3.3861	1.0029	1.6162	1.6176
150	2.5386	3.3002	0.9788	1.574	1.5753
151	2.4744	3.2167	0.9554	1.5346	1.5359
152	2.4122	3.1358	0.9327	1.4963	1.4975
153	2.3517	3.0572	0.9106	1.4591	1.4603
154	2.2929	2.9808	0.889	1.4229	1.4241
155	2.2359	2.9067	0.8681	1.3878	1.389
156	2.1805	2.8347	0.8477	1.3537	1.3548
157	2.1267	2.7647	0.8278	1.3205	1.3216
158	2.0744	2.6968	0.8085	1.2882	1.2893
159	2.0237	2.6308	0.7897	1.2568	1.2579
160	1.9743	2.5666	0.7714	1.2263	1.2274
161	1.9264	2.5043	0.7536	1.1967	1.1977
162	1.8797	2.4437	0.7362	1.1678	1.1688
163	1.8345	2.3848	0.7192	1.1398	1.1407
164	1.7904	2.3276	0.7028	1.1125	1.1134
165	1.7476	2.2719	0.6868	1.0859	1.0868
166	1.706	2.2178	0.6712	1.0601	1.061
167	1.6655	2.1652	0.656	1.0349	1.0358
168	1.6262	2.114	0.6411	1.0105	1.0113
169	1.5878	2.0642	0.6267	0.9867	0.9875
170	1.5506	2.0157	0.6126	0.9635	0.9643
171	1.5143	1.9686	0.5989	0.941	0.9418
172	1.4791	1.9228	0.5856	0.919	0.9198
173	1.4448	1.8782	0.5726	0.8977	0.8984
174	1.4114	1.8348	0.5598	0.8769	0.8776
175	1.3789	1.7926	0.5474	0.8566	0.8573
176	1.3473	1.7515	0.5354	0.8369	0.8376
177	1.3165	1.7115	0.5236	0.8177	0.8184
178	1.2866	1.6725	0.5121	0.799	0.7997
179	1.2573	1.6345	0.501	0.7808	0.7814
180	1.2289	1.5976	0.4901	0.763	0.7637
181	1.2013	1.5617	0.4794	0.7457	0.7464
182	1.1743	1.5266	0.4691	0.7289	0.7295
183	1.1481	1.4925	0.4589	0.7125	0.7131
184	1.1225	1.4593	0.4491	0.6965	0.6971
185	1.0976	1.4269	0.4394	0.6809	0.6815
186	1.0734	1.3954	0.43	0.6657	0.6663
187	1.0497	1.3646	0.4209	0.6509	0.6515
188	1.0267	1.3347	0.412	0.6365	0.637
189	1.0042	1.3055	0.4032	0.6224	0.6229
190	0.9823	1.277	0.3947	0.6087	0.6092
191	0.961	1.2493	0.3863	0.5953	0.5958
192	0.9403	1.2223	0.3783	0.5823	0.5828
193	0.92	1.1959	0.3703	0.5696	0.57
194	0.9002	1.1703	0.3626	0.5572	0.5576
195	0.8809	1.1452	0.3551	0.5451	0.5455
196	0.8622	1.1208	0.3476	0.5333	0.5337
197	0.8438	1.097	0.3404	0.5218	0.5222
198	0.826	1.0738	0.3334	0.5106	0.511
199	0.8086	1.0511	0.3266	0.4996	0.5
200	0.7915	1.029	0.3199	0.4889	0.4893
201	0.7749	1.0075	0.3133	0.4785	0.4789
202	0.7587	0.9864	0.3069	0.4683	0.4687
203	0.7429	0.9659	0.3007	0.4584	0.4588
204	0.7274	0.9459	0.2945	0.4487	0.4491

Temperature characteristics, cont.

205	0.7124	0.9263	0.2886	0.4393	0.4396
206	0.6977	0.9072	0.2828	0.43	0.4304
207	0.6833	0.8885	0.2772	0.421	0.4214
208	0.6693	0.8704	0.2715	0.4122	0.4126
209	0.6556	0.8526	0.2661	0.4036	0.404
210	0.6423	0.8354	0.2608	0.3952	0.3956
211	0.6293	0.8185	0.2556	0.387	0.3874
212	0.6166	0.8019	0.2506	0.3791	0.3794
213	0.6042	0.7858	0.2456	0.3712	0.3716
214	0.592	0.77	0.2407	0.3636	0.3639
215	0.5802	0.7547	0.236	0.3562	0.3565
216	0.5686	0.7396	0.2314	0.3489	0.3492
217	0.5572	0.7249	0.2268	0.3418	0.3421
218	0.5462	0.7106	0.2224	0.3348	0.3351
219	0.5355	0.6966	0.218	0.3281	0.3283
220	0.5249	0.683	0.2138	0.3214	0.3217
221	0.5146	0.6695	0.2096	0.3149	0.3152
222	0.5045	0.6565	0.2056	0.3086	0.3089
223	0.4947	0.6437	0.2017	0.3024	0.3027
224	0.4851	0.6312	0.1978	0.2964	0.2967
225	0.4757	0.6191	0.194	0.2905	0.2907
226	0.4665	0.6071	0.1903	0.2847	0.285
227	0.4575	0.5955	0.1866	0.2791	0.2793
228	0.4487	0.5841	0.1832	0.2736	0.2738
229	0.4402	0.5729	0.1797	0.2682	0.2684
230	0.4318	0.562	0.1763	0.2629	0.2631
231	0.4236	0.5514	0.1729	0.2577	0.258
232	0.4156	0.541	0.1697	0.2527	0.2529
233	0.4077	0.5308	0.1665	0.2478	0.248
234	0.4	0.5208	0.1633	0.243	0.2432
235	0.3926	0.5111	0.1603	0.2382	0.2385
236	0.3852	0.5016	0.1573	0.2336	0.2338
237	0.378	0.4922	0.1544	0.2291	0.2293
238	0.371	0.4831	0.1516	0.2247	0.2249
239	0.3641	0.4742	0.1487	0.2204	0.2206
240	0.3574	0.4655	0.1459	0.2162	0.2164
241	0.3508	0.4569	0.1433	0.2121	0.2122
242	0.3444	0.4485	0.1406	0.208	0.2082
243	0.3381	0.4403	0.1381	0.2041	0.2042
244	0.3319	0.4323	0.1356	0.2002	0.2004
245	0.3259	0.4245	0.1331	0.1964	0.1966
246	0.32	0.4168	0.1307	0.1927	0.1929
247	0.3142	0.4092	0.1282	0.1891	0.1893
248	0.3086	0.402	0.1259	0.1855	0.1857
249	0.303	0.3948	0.1237	0.1821	0.1822
250	0.2976	0.3877	0.1215	0.1787	0.1788

Temperature characteristics

Part number	NDBG353?4300B2*	NDBG103?4595B3*
Resistance	3.4513K(114 °C)	1K(200 °C)
Beta Value	B25/85=4300	B100/200=4595
Temperature (°C)	Resistance (kΩ)	Resistance (kΩ)
-40	3603.93	10129.74
-39	3369.11	9466.78
-38	3151.07	8851.04
-37	2948.53	8278.87
-36	2760.27	7746.95
-35	2585.21	7252.22
-34	2422.34	6791.87
-33	2270.74	6363.33
-32	2129.56	5964.21
-31	1998.02	5592.33
-30	1875.41	5245.69
-29	1761.35	4918.72
-28	1654.91	4614.05
-27	1555.53	4330.02
-26	1462.7	4065.12
-25	1375.95	3817.96
-24	1294.86	3587.24
-23	1219.01	3371.77
-22	1148.04	3170.48
-21	1081.62	2982.33
-20	1019.41	2806.41
-19	961.34	2644
-18	906.9	2491.79
-17	855.84	2349.11
-16	807.94	2215.29
-15	762.97	2089.75
-14	720.75	1971.94
-13	681.09	1861.34
-12	643.82	1757.47
-11	608.79	1659.9
-10	575.85	1568.2
-9	544.82	1481.41
-8	515.63	1399.87
-7	488.16	1323.22
-6	462.29	1251.16
-5	437.93	1183.39
-4	414.98	1119.62
-3	393.35	1059.61
-2	372.96	1003.11
-1	353.73	949.89
0	335.59	899.77
1	318.47	851.98
2	302.32	807.01
3	287.06	764.67
4	272.65	724.79
5	259.03	687.22
6	246.16	651.8
7	234	618.41
8	222.49	586.92
9	211.6	557.21
10	201.3	529.17
11	191.56	502.69
12	182.32	477.69
13	173.58	454.07
14	165.3	431.74
15	157.45	410.63
16	150.01	390.67
17	142.96	371.79
18	136.27	353.92
19	129.93	337.01
20	123.91	320.99

Temperature characteristics, cont.

21	118.2	305.82
22	112.77	291.45
23	107.62	277.83
24	102.73	264.92
25	98.08	252.67
26	93.66	241.05
27	89.37	229.89
28	85.3	219.31
29	81.44	209.29
30	77.78	199.79
31	74.3	190.77
32	71.01	182.22
33	67.88	174.11
34	64.91	166.4
35	62.08	159.09
36	59.4	152.14
37	56.85	145.53
38	54.42	139.25
39	52.11	133.29
40	49.91	127.61
41	47.82	122.21
42	45.83	117.07
43	43.94	112.17
44	42.13	107.51
45	40.41	103.08
46	38.77	98.85
47	37.21	94.82
48	35.72	90.97
49	34.29	87.31
50	32.94	83.82
51	31.62	80.44
52	30.36	77.21
53	29.16	74.13
54	28.01	71.19
55	26.91	68.38
56	25.86	65.69
57	24.85	63.12
58	23.89	60.66
59	22.97	58.31
60	22.09	56.07
61	21.24	53.92
62	20.44	51.86
63	19.66	49.89
64	18.92	48
65	18.21	46.2
66	17.53	44.47
67	16.88	42.81
68	16.26	41.22
69	15.66	39.7
70	15.08	38.24
71	14.53	36.85
72	14.01	35.51
73	13.5	34.22
74	13.01	32.99
75	12.55	31.8
76	12.1	30.67
77	11.67	29.58
78	11.25	28.53
79	10.86	27.52
80	10.48	26.56
81	10.11	25.63

Temperature characteristics, cont.

82	9.76	24.74
83	9.42	23.88
84	9.09	23.06
85	8.78	22.27
86	8.49	21.51
87	8.2	20.79
88	7.93	20.09
89	7.66	19.42
90	7.41	18.77
91	7.17	18.15
92	6.93	17.55
93	6.7	16.97
94	6.49	16.42
95	6.28	15.88
96	6.07	15.37
97	5.88	14.87
98	5.69	14.39
99	5.51	13.93
100	5.34	13.49
101	5.17	13.06
102	5.01	12.65
103	4.8489	12.25
104	4.6981	11.87
105	4.5527	11.5
106	4.4123	11.14
107	4.2769	10.8
108	4.1461	10.46
109	4.02	10.14
110	3.8981	9.83
111	3.7805	9.53
112	3.6669	9.24
113	3.5572	8.97
114	3.4513	8.7
115	3.3485	8.44
116	3.2491	8.19
117	3.153	7.95
118	3.0602	7.72
119	2.9704	7.5
120	2.8836	7.28
121	2.7997	7.07
122	2.7186	6.87
123	2.6401	6.68
124	2.5642	6.49
125	2.4907	6.31
126	2.4197	6.13
127	2.3509	5.96
128	2.2844	5.79
129	2.22	5.63
130	2.1576	5.48
131	2.0973	5.33
132	2.0388	5.18
133	1.9821	5.04
134	1.9273	4.9022
135	1.8742	4.7699
136	1.8228	4.6416
137	1.7729	4.5174
138	1.7246	4.397
139	1.6778	4.2803
140	1.6325	4.1671
141	1.5885	4.0574
142	1.5459	3.9511
143	1.5045	3.8479
144	1.4644	3.7479
145	1.4256	3.6508

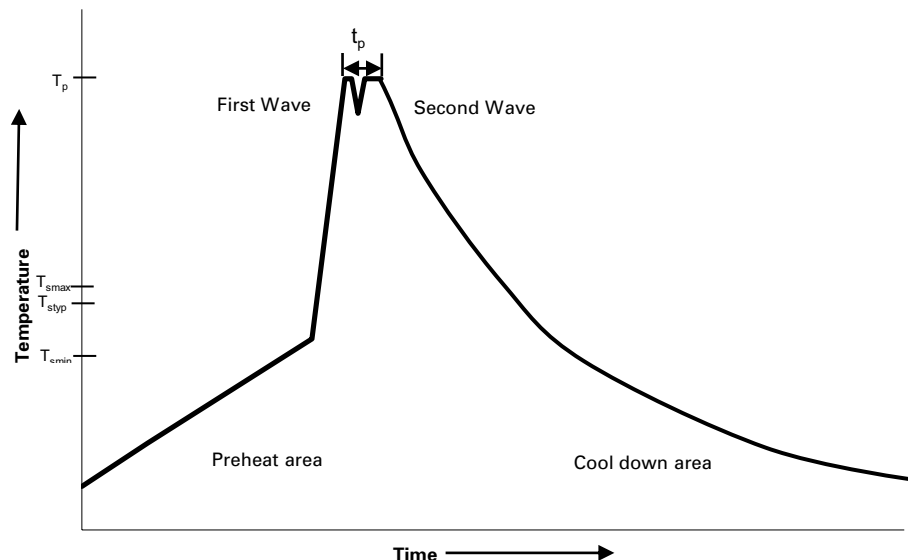
Temperature characteristics, cont.

146	1.3879	3.5567
147	1.3513	3.4653
148	1.3158	3.3767
149	1.2814	3.2906
150	1.248	3.2072
151	1.2164	3.1261
152	1.1856	3.0474
153	1.1557	2.971
154	1.1267	2.8968
155	1.0986	2.8248
156	1.0712	2.7548
157	1.0447	2.6869
158	1.0189	2.6208
159	0.9938	2.5567
160	0.9694	2.4943
161	0.9458	2.4337
162	0.9228	2.3749
163	0.9004	2.3176
164	0.8786	2.262
165	0.8575	2.2079
166	0.837	2.1553
167	0.817	2.1041
168	0.7976	2.0544
169	0.7787	2.006
170	0.7603	1.959
171	0.7424	1.9132
172	0.725	1.8686
173	0.7081	1.8253
174	0.6916	1.7831
175	0.6756	1.7421
176	0.66	1.7021
177	0.6448	1.6632
178	0.6301	1.6254
179	0.6157	1.5885
180	0.6017	1.5526
181	0.588	1.5176
182	0.5747	1.4836
183	0.5618	1.4504
184	0.5492	1.4182
185	0.5369	1.3867
186	0.525	1.356
187	0.5133	1.3262
188	0.502	1.2971
189	0.4909	1.2687
190	0.4801	1.2411
191	0.4696	1.2141
192	0.4594	1.1879
193	0.4494	1.1623
194	0.4397	1.1373
195	0.4302	1.113
196	0.4209	1.0892
197	0.4119	1.0661
198	0.4031	1.0435
199	0.3946	1.0215
200	0.3862	1
201	0.378	0.979
202	0.3701	0.9586
203	0.3623	0.9387
204	0.3547	0.9192
205	0.3473	0.9002
206	0.3401	0.8816

Temperature characteristics, cont.

207	0.3331	0.8635
208	0.3262	0.8459
209	0.3195	0.8286
210	0.3129	0.8118
211	0.3065	0.7954
212	0.3003	0.7793
213	0.2942	0.7636
214	0.2882	0.7483
215	0.2824	0.7334
216	0.2768	0.7188
217	0.2712	0.7045
218	0.2658	0.6906
219	0.2605	0.677
220	0.2553	0.6637
221	0.2503	0.6507
222	0.2454	0.638
223	0.2405	0.6256
224	0.2358	0.6134
225	0.2312	0.6016
226	0.2267	0.59
227	0.2223	0.5787
228	0.218	0.5676
229	0.2138	0.5568
230	0.2097	0.5462
231	0.2057	0.5358
232	0.2018	0.5257
233	0.1979	0.5158
234	0.1942	0.5061
235	0.1905	0.4966
236	0.1869	0.4874
237	0.1834	0.4783
238	0.18	0.4695
239	0.1766	0.4608
240	0.1733	0.4523
241	0.1701	0.444
242	0.1669	0.4359
243	0.1639	0.4279
244	0.1608	0.4201
245	0.1579	0.4125
246	0.155	0.405
247	0.1522	0.3977
248	0.1494	0.3906
249	0.1467	0.3836
250	0.144	0.3767

Wave solder profile



Reference EN 61760-1:2006

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat		
• Temperature min. (T_{smin})	100 °C	100 °C
• Temperature typ. (T_{styp})	120 °C	120 °C
• Temperature max. (T_{smax})	130 °C	130 °C
• Time (T_{smin} to T_{smax}) (t_s)	70 seconds	70 seconds
Δ preheat to max Temperature	150 °C max.	150 °C max.
Peak temperature (T_p)*	235 °C – 260 °C	250 °C – 260 °C
Time at peak temperature (t_p)	10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25 °C to 25 °C	4 minutes	4 minutes

Manual solder

+280 °C $\pm$ 20 °C (less than 2 seconds by soldering iron at $\geq$ 9 mm distance from the thermistor head), generally manual/hand soldering is not recommended

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