Specifications for NTC Thermistor

Part No.	NTCM-10K-B3380

1、Dimensions(mm)

Enamelled cu wire

Φ 0.3±0.05

3 Max

4 Max   25 Min   3 ± 1
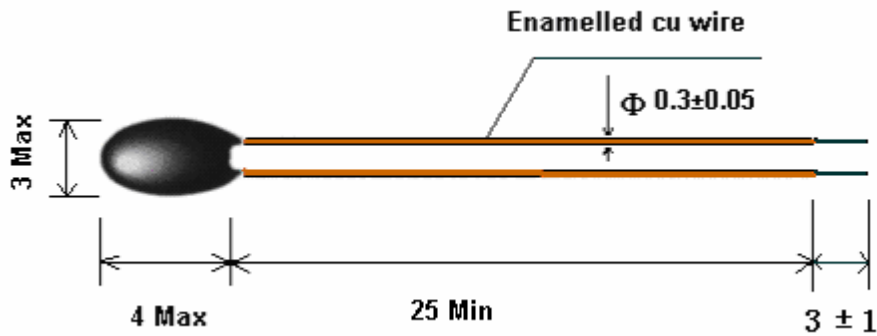
2、Materials

Coating		Lead wire	
Material	Color	Material	Color
Epoxy Resin	Black	Enamelled Cu wire	Yellow

3、Electrical characteristics

	Item	Symbol	Test conditions	Unit	Specification
4.1	Zero Power Resistance at 25℃	R_{25}	Ta=25±0.05℃ Test Power≤0.1mW Test in fluid liquid	KΩ	10±1%
4.2	B-value	$B_{25/50}$	$B=[(T_a \times T_b)/(T_b-T_a)] \times \ln(R_a/R_b)$ $T_b=50℃±0.1℃$	K	3380±1%
4.3	Thermal dissipation Coefficient	δ	In still air	mW/℃	≥2
4.4	Thermal time constant	τ	In still air	sec	≤7

4.5	Insulation resistance	/	100V/DC 1min	MΩ	≥100
4.6	Operating temperature	/	/	℃	-55 ~ 125
4.7	R&T-table	/	/	/	See attached table
4.8	Resistance tolerance	/	/	/	See attached curve

4、Reliability

	Item	Test conditions and methods	Technical requirements
5.1	Solderability	The lead wire shall be dipped into solder bath of 235±5℃ for 2~3sec with 6mm space from the body.	Solder dipped on lead wire should be uniform and smooth; the coverage area should be more than 95%.
5.2	Withstand Soldering heat	The lead wire shall be dipped into solder bath of 265±5℃ for 5±1sec with 6mm space from the body.	No obvious damage, R25 ΔR/R≤±2%
5.3	Terminal strength	Pull strength：5N，time：10sec	No obvious damage, R25 ΔR/R≤±2%
5.4	Temperature cycle	-55℃30min→25℃5min→125℃30min →25℃5min， 5cycles ,recover 4hrs	No obvious damage, R25 ΔR/R≤±2%
5.5	High temperature	Temperature：125℃，time：16hrs	No obvious damage, R25 ΔR/R≤±2%
5.6	Low temperature	Temperature：-55℃，Time：2hrs	No obvious damage, R25 ΔR/R≤±2%
5.7	Low atmospheric pressure	Atmospheric pressure：40±0.1Kpa，time :4hrs	No obvious damage, R25 ΔR/R≤±2%
5.8	Steady humidity and heat	Temp：40℃，humidity：93%，Time ： 500±12hrs	No obvious damage, R25 ΔR/R≤±2%，Withstanding voltage ≥700V/AC 1min Insulating resistance ≥100MΩ
5.9	Damp heat	Temp：25~40℃，humidity：90%，Time：24hrs	No obvious damage, R25 ΔR/R≤±2%，Withstanding voltage ≥700V/AC 1min Insulating resistance ≥100MΩ
5.10	Zero power endurance at upper category temperature	Temp : 125℃±2℃，Time :1000±24hrs	No obvious damage, R25 ΔR/R≤±2%
5.11	Vibrate	Frequency ：10~500HZ，swing ：0.75m or 98m/S², time :2hurs	No obvious damage, R25 ΔR/R≤±2%
5.12	Bump	Acceleration：250m/S²，pulse duration ：6mS，Bump times：4000times	No obvious damage, R25 ΔR/R≤±2%

5、Soldering conditions

When soldering, space between iron tip and thermistor body must be more than 6mm, temperature should be less than 350℃, soldering time should be as short as possible.

6、Storage conditions

6.1 Storage temp：-10℃ ～ 40℃；
6.2 Storage humidity ：≤75% RH；
6.3 Avoid air corrosion or sunlight
6.4 Remake sealed storage after package opening.

R&T Table

TEMP(℃)	RESISTANCE(KΩ)			RESISST-TOL(%)		TEMP-TOL(℃)	
R25=10KΩ TOLERANCE:±1%			B25/50=3380K TOLERANCE:±1% (P174-9A)				
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	462.895	486.088	510.391	4.999	-4.771	0.753	-0.719
-54	435.427	456.961	479.511	4.934	-4.712	0.749	-0.715
-53	409.746	429.745	450.676	4.870	-4.653	0.745	-0.712
-52	385.727	404.308	423.741	4.806	-4.595	0.742	-0.709
-51	363.255	380.522	398.571	4.743	-4.537	0.738	-0.706
-50	342.223	358.274	375.042	4.679	-4.480	0.734	-0.702
-49	322.531	337.457	353.038	4.617	-4.423	0.730	-0.699
-48	304.087	317.970	332.454	4.555	-4.366	0.725	-0.695
-47	286.806	299.723	313.190	4.493	-4.309	0.721	-0.692
-46	270.608	282.630	295.156	4.431	-4.253	0.717	-0.688
-45	255.421	266.612	278.266	4.371	-4.197	0.713	-0.684
-44	241.176	251.597	262.442	4.310	-4.142	0.708	-0.681
-43	227.809	237.516	247.612	4.250	-4.086	0.704	-0.677
-42	215.263	224.306	233.707	4.190	-4.031	0.699	-0.673
-41	203.482	211.910	220.665	4.131	-3.977	0.695	-0.669
-40	192.415	200.272	208.429	4.072	-3.923	0.690	-0.665
-39	182.017	189.343	196.944	4.014	-3.869	0.686	-0.661
-38	172.242	179.075	186.160	3.956	-3.815	0.681	-0.657
-37	163.051	169.425	176.031	3.898	-3.762	0.676	-0.652

−36	154.405	160.353	166.513	3.841	−3.709	0.671	−0.648
−35	146.269	151.820	157.567	3.785	−3.656	0.666	−0.644
−34	138.610	143.793	149.155	3.728	−3.604	0.661	−0.639
−33	131.398	136.238	141.242	3.672	−3.552	0.656	−0.635
−32	124.605	129.125	133.796	3.617	−3.500	0.651	−0.630
−31	118.203	122.426	126.787	3.561	−3.449	0.646	−0.626
−30	112.169	116.115	120.187	3.507	−3.397	0.641	−0.621
−29	106.479	110.166	113.970	3.452	−3.347	0.636	−0.616
−28	101.111	104.558	108.112	3.398	−3.296	0.631	−0.612
−27	96.046	99.269	102.590	3.345	−3.246	0.625	−0.607
−26	91.265	94.279	97.382	3.291	−3.196	0.620	−0.602
−25	86.751	89.570	92.471	3.238	−3.146	0.614	−0.597
−24	82.487	85.123	87.836	3.186	−3.097	0.609	−0.592
−23	78.457	80.925	83.461	3.134	−3.048	0.603	−0.587
−22	74.649	76.958	79.330	3.082	−2.999	0.597	−0.581
−21	71.048	73.209	75.428	3.030	−2.951	0.592	−0.576
−20	67.643	69.665	71.741	2.979	−2.903	0.586	−0.571
−19	64.420	66.314	68.256	2.928	−2.855	0.580	−0.566
−18	61.371	63.144	64.961	2.878	−2.807	0.574	−0.560
−17	58.484	60.144	61.845	2.828	−2.760	0.568	−0.555
−16	55.749	57.304	58.897	2.778	−2.713	0.562	−0.549
−15	53.159	54.615	56.106	2.729	−2.666	0.556	−0.543
−14	50.704	52.069	53.464	2.680	−2.620	0.550	−0.538
−13	48.378	49.656	50.962	2.631	−2.573	0.544	−0.532
−12	46.171	47.369	48.592	2.583	−2.527	0.538	−0.526
−11	44.079	45.201	46.346	2.535	−2.482	0.531	−0.520
−10	42.093	43.144	44.218	2.487	−2.436	0.525	−0.514
−9	40.208	41.194	42.199	2.440	−2.391	0.519	−0.508
−8	38.419	39.343	40.284	2.392	−2.346	0.512	−0.502
−7	36.720	37.586	38.467	2.346	−2.302	0.506	−0.496
−6	35.106	35.917	36.743	2.299	−2.257	0.499	−0.490
−5	33.572	34.333	35.106	2.253	−2.213	0.492	−0.484
−4	32.115	32.827	33.552	2.207	−2.169	0.486	−0.477
−3	30.729	31.396	32.075	2.162	−2.126	0.479	−0.471
−2	29.410	30.036	30.672	2.116	−2.082	0.472	−0.465
−1	28.156	28.743	29.338	2.072	−2.039	0.465	−0.458
0	26.963	27.513	28.070	2.027	−1.996	0.458	−0.451
1	25.827	26.342	26.864	1.983	−1.954	0.451	−0.445
2	24.746	25.228	25.717	1.938	−1.911	0.444	−0.438
3	23.716	24.167	24.626	1.895	−1.869	0.437	−0.431
4	22.734	23.158	23.586	1.851	−1.827	0.430	−0.424
5	21.799	22.196	22.597	1.808	−1.786	0.423	−0.417
6	20.908	21.279	21.655	1.765	−1.744	0.415	−0.411
7	20.058	20.406	20.757	1.722	−1.703	0.408	−0.403
8	19.248	19.573	19.902	1.680	−1.662	0.401	−0.396

9	18.475	18.779	19.087	1.638	−1.621	0.393	−0.389
10	17.731	18.016	18.303	1.596	−1.581	0.386	−0.382
11	17.033	17.299	17.568	1.555	−1.541	0.378	−0.375
12	16.361	16.610	16.861	1.513	−1.501	0.370	−0.367
13	15.719	15.952	16.187	1.472	−1.461	0.363	−0.360
14	15.105	15.323	15.543	1.432	−1.421	0.355	−0.352
15	14.520	14.723	14.928	1.391	−1.382	0.347	−0.345
16	13.960	14.150	14.341	1.351	−1.343	0.339	−0.337
17	13.425	13.602	13.780	1.311	−1.304	0.331	−0.329
18	12.913	13.079	13.245	1.271	−1.265	0.323	−0.322
19	12.424	12.578	12.733	1.231	−1.226	0.315	−0.314
20	11.956	12.099	12.244	1.192	−1.188	0.307	−0.306
21	11.508	11.642	11.776	1.153	−1.150	0.299	−0.298
22	11.079	11.204	11.329	1.114	−1.112	0.291	−0.290
23	10.669	10.785	10.901	1.076	−1.074	0.282	−0.282
24	10.276	10.384	10.491	1.038	−1.037	0.274	−0.274
25	9.900	10.000	10.100	1.000	−1.000	0.266	−0.266
26	9.532	9.632	9.732	1.037	−1.037	0.277	−0.277
27	9.180	9.280	9.379	1.075	−1.073	0.289	−0.289
28	8.843	8.942	9.042	1.112	−1.110	0.301	−0.301
29	8.520	8.619	8.718	1.150	−1.146	0.313	−0.312
30	8.210	8.309	8.407	1.187	−1.183	0.325	−0.324
31	7.914	8.012	8.110	1.224	−1.219	0.338	−0.336
32	7.630	7.727	7.824	1.260	−1.254	0.350	−0.348
33	7.357	7.453	7.550	1.297	−1.290	0.362	−0.360
34	7.096	7.191	7.287	1.333	−1.325	0.375	−0.372
35	6.845	6.940	7.035	1.369	−1.360	0.387	−0.385
36	6.605	6.698	6.793	1.405	−1.395	0.400	−0.397
37	6.374	6.467	6.560	1.441	−1.430	0.412	−0.409
38	6.153	6.244	6.336	1.476	−1.465	0.425	−0.422
39	5.940	6.030	6.122	1.512	−1.499	0.438	−0.434
40	5.736	5.825	5.915	1.547	−1.533	0.451	−0.447
41	5.540	5.628	5.717	1.582	−1.567	0.464	−0.459
42	5.351	5.438	5.526	1.616	−1.601	0.477	−0.472
43	5.170	5.256	5.343	1.651	−1.634	0.490	−0.485
44	4.996	5.081	5.167	1.686	−1.667	0.503	−0.497
45	4.829	4.913	4.997	1.720	−1.701	0.516	−0.510
46	4.669	4.751	4.834	1.754	−1.733	0.529	−0.523
47	4.514	4.595	4.677	1.788	−1.766	0.543	−0.536
48	4.365	4.445	4.526	1.822	−1.799	0.556	−0.549
49	4.222	4.301	4.381	1.855	−1.831	0.570	−0.563
50	4.090	4.168	4.246	1.887	−1.862	0.584	−0.576
51	3.952	4.029	4.106	1.922	−1.895	0.597	−0.589
52	3.825	3.900	3.976	1.955	−1.927	0.611	−0.602
53	3.702	3.776	3.851	1.988	−1.959	0.625	−0.616

54	3.584	3.657	3.731	2.021	−1.990	0.639	−0.629
55	3.470	3.542	3.615	2.053	−2.022	0.653	−0.643
56	3.361	3.431	3.503	2.086	−2.053	0.667	−0.656
57	3.255	3.324	3.395	2.118	−2.084	0.681	−0.670
58	3.153	3.222	3.291	2.150	−2.114	0.695	−0.684
59	3.055	3.122	3.191	2.182	−2.145	0.710	−0.698
60	2.961	3.027	3.094	2.214	−2.175	0.724	−0.712
61	2.870	2.934	3.000	2.245	−2.206	0.739	−0.726
62	2.782	2.845	2.910	2.277	−2.236	0.753	−0.740
63	2.697	2.760	2.823	2.308	−2.266	0.768	−0.754
64	2.615	2.677	2.739	2.339	−2.296	0.783	−0.768
65	2.536	2.597	2.658	2.370	−2.325	0.797	−0.782
66	2.460	2.520	2.580	2.401	−2.355	0.812	−0.796
67	2.387	2.445	2.505	2.432	−2.384	0.827	−0.811
68	2.316	2.373	2.432	2.462	−2.413	0.842	−0.825
69	2.247	2.304	2.361	2.493	−2.442	0.857	−0.840
70	2.181	2.237	2.293	2.523	−2.471	0.872	−0.854
71	2.118	2.172	2.227	2.553	−2.500	0.888	−0.869
72	2.056	2.109	2.164	2.583	−2.528	0.903	−0.884
73	1.996	2.049	2.102	2.613	−2.556	0.918	−0.898
74	1.939	1.990	2.043	2.643	−2.585	0.934	−0.913
75	1.883	1.934	1.985	2.673	−2.613	0.949	−0.928
76	1.829	1.879	1.930	2.702	−2.641	0.965	−0.943
77	1.777	1.826	1.876	2.731	−2.668	0.981	−0.958
78	1.727	1.775	1.824	2.761	−2.696	0.997	−0.973
79	1.678	1.725	1.774	2.790	−2.724	1.012	−0.988
80	1.631	1.678	1.725	2.818	−2.751	1.028	−1.004
81	1.586	1.631	1.678	2.847	−2.778	1.044	−1.019
82	1.542	1.586	1.632	2.876	−2.805	1.060	−1.034
83	1.499	1.543	1.588	2.904	−2.832	1.077	−1.050
84	1.458	1.501	1.545	2.933	−2.859	1.093	−1.065
85	1.418	1.461	1.504	2.961	−2.886	1.109	−1.081
86	1.380	1.421	1.464	2.989	−2.912	1.126	−1.097
87	1.342	1.383	1.425	3.017	−2.938	1.142	−1.112
88	1.306	1.346	1.387	3.045	−2.965	1.159	−1.128
89	1.271	1.310	1.351	3.073	−2.991	1.175	−1.144
90	1.237	1.276	1.315	3.100	−3.017	1.192	−1.160
91	1.204	1.242	1.281	3.128	−3.043	1.209	−1.176
92	1.172	1.210	1.248	3.155	−3.068	1.226	−1.192
93	1.142	1.178	1.216	3.182	−3.094	1.243	−1.208
94	1.112	1.147	1.184	3.210	−3.119	1.260	−1.224
95	1.083	1.118	1.154	3.237	−3.145	1.277	−1.240
96	1.055	1.089	1.125	3.263	−3.170	1.294	−1.257
97	1.027	1.061	1.096	3.290	−3.195	1.311	−1.273
98	1.001	1.034	1.068	3.317	−3.220	1.328	−1.290

99	0.975	1.008	1.042	3.343	−3.245	1.346	−1.306
100	0.950	0.983	1.016	3.370	−3.270	1.363	−1.323
101	0.926	0.958	0.990	3.396	−3.294	1.381	−1.339
102	0.903	0.934	0.966	3.422	−3.319	1.398	−1.356
103	0.880	0.911	0.942	3.448	−3.343	1.416	−1.373
104	0.858	0.888	0.919	3.474	−3.367	1.434	−1.390
105	0.837	0.866	0.896	3.500	−3.391	1.452	−1.407
106	0.816	0.845	0.875	3.526	−3.415	1.470	−1.424
107	0.796	0.824	0.853	3.552	−3.439	1.488	−1.441
108	0.776	0.804	0.833	3.577	−3.463	1.506	−1.458
109	0.757	0.785	0.813	3.602	−3.487	1.524	−1.475
110	0.739	0.766	0.793	3.628	−3.510	1.542	−1.492
111	0.721	0.747	0.775	3.653	−3.534	1.561	−1.510
112	0.703	0.729	0.756	3.678	−3.557	1.579	−1.527
113	0.687	0.712	0.738	3.703	−3.580	1.597	−1.545
114	0.670	0.695	0.721	3.728	−3.603	1.616	−1.562
115	0.654	0.679	0.704	3.753	−3.626	1.635	−1.580
116	0.639	0.663	0.688	3.777	−3.649	1.653	−1.597
117	0.624	0.647	0.672	3.802	−3.672	1.672	−1.615
118	0.609	0.632	0.656	3.826	−3.695	1.691	−1.633
119	0.595	0.618	0.641	3.851	−3.717	1.710	−1.651
120	0.581	0.603	0.627	3.875	−3.740	1.729	−1.669
121	0.567	0.589	0.612	3.899	−3.762	1.748	−1.687
122	0.554	0.576	0.599	3.923	−3.785	1.767	−1.705
123	0.541	0.563	0.585	3.947	−3.807	1.786	−1.723
124	0.529	0.550	0.572	3.971	−3.829	1.806	−1.741
125	0.517	0.538	0.559	3.995	−3.851	1.825	−1.759

R-T CHART

RESISTANCE

TEMPERATURE(C)

RESISTANCE TOLERANCE %

Top chart data points (upper curve, descending then ascending):
4.9, 4.3, 3.7, 3.2, 2.7, 2.2, 1.8, 1.3, 1, 1.4, 1.7, 2, 2.4, 2.7, 2.9, 3.2, 3.5, 3.7

X-axis: -55, -45, -35, -25, -15, -5, 5, 15, 25, 35, 45, 55, 65, 75, 85, 95, 105, 115, 125 THE

Lower curve: -1, -1.4, -1.8, -2.3, -2.7, -3.2, -3.7, -4.2, ... -1.4, -1.9, -2.1, -2.4, -2.7, -3, -3.2, -3.5, -3.7

TEMPERATURE TOLERANCE

2, 1, .75, .71, .66, .61, .55, .49, .42, .34, .26, .4, .52, .66, .81, .96, 1.1, 1.2, 1.4, 1.6

X-axis: -55, -45, -35, -25, -15, -5, 5, 15, 25, 35, 45, 55, 65, 75, 85, 95, 105, 115, 125 THE

Lower curve: -.72, -.69, -.65, -.6, -.55, -.49, -.42, -.35, -.27, -.4, -.53, -.66, -.8, -.95, -1.1, -1.3, -1.5, -1.6

-1