

Specifications for NTC Thermistor

1、Dimensions(mm)



2、Materials

Coating		Lead wire
Material	Color	Material
Modified Resin	Black	CP wire

3、Ordering information

MF52	A2	103	F	3380
Pearl-shape temp measurement NTC Thermistor	CP wires	Resistance	Tolerance	B value (25/50)
		$10 \times 10^3 = 10K\Omega$	±1%	3380K

4、Electrical characteristics

	Item	Symbol	Test conditions	Unit	Specification
4.1	Zero Power Resistance at 25℃	R_{25}	$T_a = 25 \pm 0.05^\circ\text{C}$ Test Power $\leq 0.1\text{mW}$ Test in fluid liquid	K Ω	$10 \pm 1\%$
4.2	B-value	$B_{25/50}$	$B = [(T_a \times T_b) / (T_b - T_a)] \times \ln(R_a / R_b)$ $T_b = 50^\circ\text{C} \pm 0.1^\circ\text{C}$	K	$3380 \pm 1\%$
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	M Ω	≥ 100

4.6	Operating temperature	/	/	℃	-55 ~ +125
4.7	R&T-table	/	/	/	See attached table
4.8	Resistance tolerance	/	/	/	See attached curve

5、Reliability

	Item	Test conditions and methods	Technical requirements
5.1	Solderability	The lead wire shall be dipped into solder bath of $235\pm 5^{\circ}\text{C}$ 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 $265\pm 5^{\circ}\text{C}$ for 5 ± 1 sec with 6mm space from the body.	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.3	Terminal strength	Pull strength: 5N, time: 10sec	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.4	Temperature cycle	$-55^{\circ}\text{C} 30\text{min} \rightarrow 25^{\circ}\text{C} 5\text{min} \rightarrow 125^{\circ}\text{C} 30\text{min} \rightarrow 25^{\circ}\text{C} 5\text{min}$, 5cycles, recover 4hrs	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.5	High temperature	Temperature: 125°C , time: 16hrs	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.6	Low temperature	Temperature: -55°C , Time: 2hrs	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.7	Low atmospheric pressure	Atmospheric pressure: $40\pm 0.1\text{Kpa}$, time :4hrs	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.8	Steady humidity and heat	Temp: 40°C , humidity: 93%, Time : $500\pm 12\text{hrs}$	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$, Withstanding voltage $\geq 700\text{V/AC}$ 1min Insulating resistance $\geq 100\text{M}\Omega$
5.9	Damp heat	Temp: $25\sim 40^{\circ}\text{C}$, humidity: 90%, Time: 24hrs	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$, Withstanding voltage $\geq 700\text{V/AC}$ 1min Insulating resistance $\geq 100\text{M}\Omega$
5.10	Zero power endurance at upper category temperature	Temp : $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$, Time : $1000\pm 24\text{hrs}$	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.11	Vibrate	Frequency : $10\sim 500\text{HZ}$, swing : 0.75m or 98m/S^2 , time :2hurs	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$
5.12	Bump	Acceleration: 250m/S^2 , pulse duration : 6mS, Bump times: 4000times	No obvious damage, $R25 \Delta R/R \leq \pm 2\%$

6、Soldering conditions

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

7、Storage conditions

7.1 Storage temp: -10℃ ~ 40℃;

7.2 Storage humidity : ≤75% RH;

7.3 Avoid air corrosion or sunlight

7.4 Remake sealed storage after package opening.

8. Certificate

8.1 Quality Control System Certification ISO9001: 2000 (01110Q20002R3M)

8.2 Environment Management System Certification ISO14001: 2004 (01110E20031R1M)

8.3 Environment Test Report RoHS (RLSHD000645310001C)

8.4  CQC Certification (CQC07001019009)

8.5  UL Certification (File # E240991)

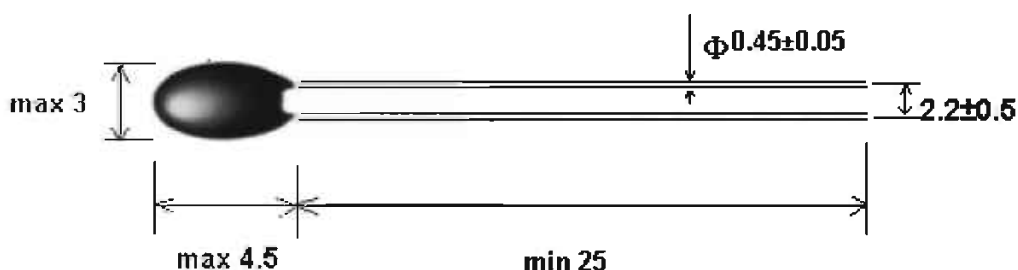
8.6  The Hi&Tech Product of Jiangsu Province (070115G0058N)

R&T Table

R25=10K Ω TOLERANCE: ±1%				B25/50=3380K TOLERANCE: ±1% (P174-9A)			
TEMP (°C)	RESISTANCE (K Ω)			RESISST-TOL (%)		TEMP-TOL (°C)	
	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

Specifications for NTC Thermistor

1、Dimensions(mm)



2、Materials

Coating		Lead wire
Material	Color	Material
Modified Resin	Black	CP wire

3、Ordering information

MF52	A2	103	F	3380
Pearl-shape temp measurement NTC Thermistor	CP wires	Resistance	Tolerance	B value (25/50)
		$10 \times 10^3 = 10K\Omega$	$\pm 1\%$	3380K

4、Electrical characteristics

	Item	Symbol	Test conditions	Unit	Specification
4.1	Zero Power Resistance at 25°C	R_{25}	$T_a = 25 \pm 0.05^\circ\text{C}$ Test Power $\leq 0.1\text{mW}$ Test in fluid liquid	$K\Omega$	$10 \pm 1\%$
4.2	B-value	$B_{25/50}$	$B = [(T_a \times T_b) / (T_b - T_a)] \times \ln(R_a / R_b)$ $T_b = 50^\circ\text{C} \pm 0.1^\circ\text{C}$	K	$3380 \pm 1\%$
4.3	Thermal dissipation Coefficient	δ	In still air	$\text{mW}/^\circ\text{C}$	≥ 2
4.4	Thermal time constant	τ	In still air	sec	≤ 7
4.5	Insulation resistance	/	100V/DC 1min	$M\Omega$	≥ 100

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

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

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

