



# Specification For Approval

**Customer name :** \_\_\_\_\_

**Product name :** NTC Thermistor

**Customer PN :** \_\_\_\_\_

**MFG PN :** CWFD0104FC-240CP

MFG			Customer Confirmation		
Make	Check	Approval	Test	Check	Approval

(Company name)

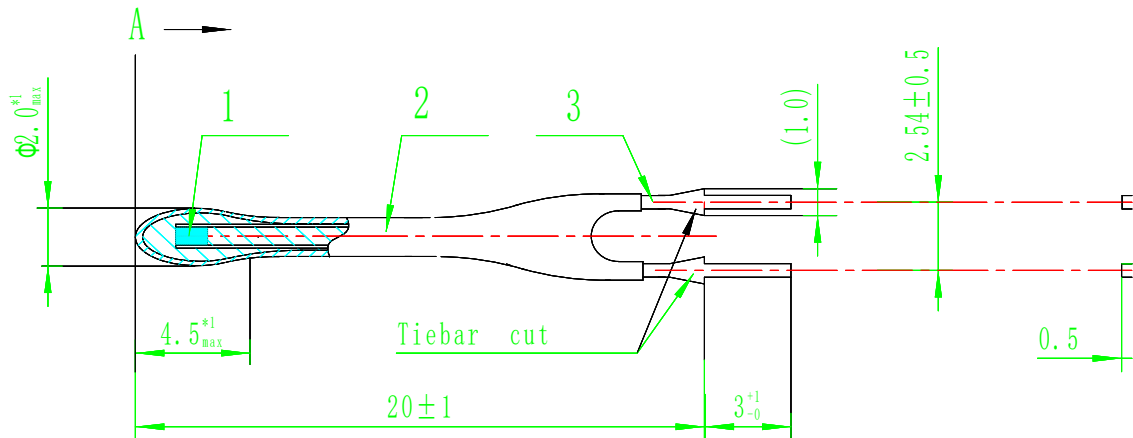
Confirm got the spec and accept as our company's warehouse accept standard.

Version	Revise content	Forwarder	Date
A/0	Just made	Cheng	2016-05-18



### 1、 Overall Dimension

(Unit: mm)



### 2、 Material explanation

NO	Material Name	Item/PN
2-1.	Element	R25=100KΩ±1% B25/50=4200K±1% DC
2-2.	Coating	Resin (Black)
2-3.	Lead Wire	Stents

### 3、 Part Number :

$\frac{\times\times\times}{1} - \frac{\times\times}{2} \frac{\times\times\times}{3} \frac{\times}{4} \frac{\times\times\times\times}{5} \frac{\times}{6} \quad 7 \quad 8$

- (1) NTC Thermistor Mark;
- (2) Head shape sign (B:Housing Type, D:Dip-Coating, M:Molding);
- (3) Series Type (0:Epoxy coating structure, 1:Epoxy coating structure(high temp)) ;
- (4) Nominal resistor is value at 25degree,unit is Ohm, previous two digital representation significant digitsofresistance, third digital representation the number of zero;
- (5) Resistance tolerance (%) ;
- (6) B Value constant sign In general, it is value of 25/50Deg, other conditions will remark and explain;
- (7) Length Sign, unit is mm ;
- (8) Special code ;



#### 4、Electrical Performance:

NO	Item	Sign	Test Conditions	Min.	Normal value	Max.	Unit
4-1.	Resistance at 25°C	R25	Ta=25±0.05°C P <sub>T</sub> ≤0.1mw	99.0	100.0	101.0	kΩ
4-2.	B Value	B25/50	$B=LN \frac{R_{T1}}{R_{T2}} / \left( \frac{1}{T1} - \frac{1}{T2} \right)$	4158.0	4200	4242.0	k
4-3.	Dissipation factor	σ	Ta=25±0.5°C	≅0.9			mW/°C
4-4.	Time constant	τ	Ta=25±0.5°C	≅15			sec
4-5.	Maximum rated power	P	/	≅25			mW
4-6.	Operating temp.range	/	/	-40	/	+125	°C

#### 5、Reliability Test

NO	Item	Technical requirements	Test conditions and method
5-1.	Weldability	Solder coating area is over 95%	Temperature: 260°C±5°C, Time: ≤Sec
5-2.	Resistance To Soldering Heat	R25 ΔR/R≤±3%	Tin stove temperature: ≤260±5°C, Immersion depth is ≥9mm distance far away with body, Time: ≤3Sec
5-3.	Steady State Temperatur	R25 ΔR/R≤±3%	Temperature:40±3°C; Humidity:90-98%, Time:300H
5-4.	Temp. cycle test	R25 ΔR/R≤±3%	-20±3°C×30min ↔ 120±3°C×30min×50 cycles
5-5.	High temperature storage	R25 ΔR/R≤±3%	Temperature:120±3°C; Time:300H
5-6.	Low temperature storage	R25 ΔR/R≤±3%	Temperature:-20°C; Time:300H
5-7.	Drop test	No visible damage	Free fall into concrete floor from height 1M , 5 cycle.
5-8.	Bending test		Bend 90°binding site wire and epoxy resin. Back and forth 3 times
5-9.	Tensile tests		Fixed resistors at both ends ,Pull: 10±1N, Time: 10±1 Sec

#### 6、Storage Method

6.1 In the process of storage and transportation, per stack height is not more than 4 CTN products.

6.2 Available with all transport method, but avoid the rain, snow of direct or indirect leaching and mechanical damage.

6.3 Products should be stored in the temperature of environment - 10 °C / + 40 °C, relative humidity is not more than 80%, environment should not have acid, alkali and corrosion gas or radioactive source.

#### 7、R—T Conversion Table.

**R—T CONVERSION TABLE**

T(°C)	<b>R<sub>25</sub>=100KΩ±1%</b>		<b>B<sub>25/50</sub>=4200K±1%</b>		R↑(%)
	R↓(%)	R <sub>min</sub> (KΩ)	R <sub>cen</sub> (KΩ)	R <sub>max</sub> (KΩ)	
-40	-4.605	3750.8089	3931.8762	4118.2448	4.74
-39	-4.541	3511.1765	3678.1961	3849.9964	4.671
-38	-4.477	3288.1699	3442.2749	3600.691	4.602
-37	-4.413	3080.5445	3222.7724	3368.8875	4.534
-36	-4.35	2887.1555	3018.4564	3153.262	4.466
-35	-4.287	2706.95	2828.1944	2952.5983	4.399
-34	-4.224	2538.9581	2650.9438	2765.7774	4.332
-33	-4.162	2382.2865	2485.7453	2591.7707	4.265
-32	-4.1	2236.1123	2331.7154	2429.6311	4.199
-31	-4.038	2099.6765	2188.0399	2278.4867	4.134
-30	-3.977	1972.2789	2053.9681	2137.5337	4.068
-29	-3.916	1853.8514	1929.4156	2006.6702	4.004
-28	-3.856	1743.1257	1813.0366	1884.4698	3.94
-27	-3.796	1639.5626	1704.2541	1770.3161	3.876
-26	-3.736	1542.6627	1602.5341	1663.6389	3.813
-25	-3.676	1451.9643	1507.3831	1563.9114	3.75
-24	-3.617	1367.0397	1418.3443	1470.6465	3.688
-23	-3.558	1287.4931	1334.9952	1383.3939	3.625
-22	-3.5	1212.9576	1256.9444	1301.7366	3.564
-21	-3.441	1143.093	1183.8292	1225.2884	3.502
-20	-3.383	1077.5844	1115.314	1153.6924	3.441
-19	-3.325	1016.6729	1051.6451	1087.1995	3.381
-18	-3.268	959.4662	991.8841	1024.8242	3.321
-17	-3.211	905.7225	935.7738	966.2931	3.261
-16	-3.155	855.2169	883.0752	911.3525	3.202
-15	-3.098	807.7404	833.5661	859.7666	3.143
-14	-3.042	763.0979	787.0394	811.3159	3.085
-13	-2.986	721.1083	743.3029	765.7966	3.026
-12	-2.93	681.6024	702.1772	723.0188	2.968
-11	-2.875	644.4227	663.4953	682.8055	2.91
-10	-2.819	609.4226	627.1018	644.9924	2.853
-9	-2.765	576.8508	593.2524	609.8421	2.796
-8	-2.71	546.1283	561.3427	576.7242	2.74
-7	-2.656	517.1436	531.2548	545.5142	2.684
-6	-2.602	489.7924	502.8783	516.0954	2.628
-5	-2.548	463.9768	476.1098	488.3588	2.573
-4	-2.495	439.6053	450.8527	462.2023	2.517
-3	-2.441	416.5923	427.0165	437.5307	2.462



-2	-2.388	394.8572	404.5162	414.2543	2.407
-1	-2.335	374.3249	383.2727	392.2897	2.353
0	-2.282	354.9246	363.2114	371.5586	2.298
1	-2.226	335.7422	343.3864	351.0828	2.241
2	-2.171	317.7254	324.7765	331.8726	2.185
3	-2.116	300.796	307.2996	313.8419	2.129
4	-2.062	284.8816	290.8797	296.911	2.073
5	-2.008	269.9151	275.4464	281.0059	2.018
6	-1.955	255.8343	260.9343	266.0583	1.964
7	-1.901	242.5813	247.2828	252.0046	1.909
8	-1.848	230.102	234.4353	238.7856	1.856
9	-1.796	218.3468	222.3397	226.3468	1.802
10	-1.744	207.2694	210.9476	214.6376	1.749
11	-1.692	196.8263	200.2135	203.6104	1.697
12	-1.64	186.9774	190.0955	193.2215	1.644
13	-1.589	177.6856	180.5548	183.4303	1.593
14	-1.538	168.9155	171.5545	174.1985	1.541
15	-1.488	160.635	163.061	165.4909	1.49
16	-1.438	152.8139	155.0428	157.2746	1.439
17	-1.388	145.4237	147.4701	149.5188	1.389
18	-1.338	138.4383	140.3159	142.1952	1.339
19	-1.289	131.8331	133.5545	135.277	1.29
20	-1.24	125.5851	127.1619	128.7394	1.241
21	-1.191	119.6728	121.1158	122.5592	1.192
22	-1.143	114.0764	115.3955	116.7148	1.143
23	-1.095	108.777	109.9814	111.1859	1.095
24	-1.047	103.7572	104.8555	105.9538	1.047
25	-1	99	100	101	1
26	-1.047	94.401	95.3999	96.3988	1.047
27	-1.094	90.0463	91.0421	92.038	1.094
28	-1.14	85.9194	86.9103	87.9014	1.14
29	-1.186	82.007	82.9915	83.9763	1.187
30	-1.232	78.2971	79.2737	80.2508	1.233
31	-1.277	74.7776	75.7452	76.7134	1.278
32	-1.323	71.4379	72.3953	73.3535	1.324
33	-1.367	68.2675	69.2139	70.1612	1.369
34	-1.412	65.2573	66.1918	67.1274	1.413
35	-1.456	62.3982	63.3201	64.2433	1.458
36	-1.5	59.6815	60.5902	61.5004	1.502
37	-1.543	57.0994	57.9945	58.8913	1.546
38	-1.587	54.6447	55.5257	56.4086	1.59
39	-1.63	52.3102	53.1767	54.0454	1.634
40	-1.672	50.0892	50.9411	51.7953	1.677
41	-1.715	47.9759	48.8129	49.6524	1.72
42	-1.757	45.9645	46.7864	47.611	1.762
43	-1.799	44.0493	44.856	45.6656	1.805



44	-1.84	42.2251	43.0166	43.8112	1.847
45	-1.881	40.4872	41.2635	42.043	1.889
46	-1.922	38.831	39.5921	40.3566	1.931
47	-1.963	37.2524	37.9983	38.7478	1.972
48	-2.003	35.7472	36.478	37.2125	2.014
49	-2.044	34.3116	35.0274	35.7471	2.055
50	-2.083	32.942	33.6429	34.3478	2.095
51	-2.124	31.6031	32.2889	32.9789	2.137
52	-2.165	30.3238	30.9947	31.6698	2.178
53	-2.205	29.1016	29.7577	30.4182	2.219
54	-2.245	27.9334	28.5749	29.2208	2.261
55	-2.285	26.8168	27.4438	28.0754	2.301
56	-2.324	25.7494	26.3622	26.9796	2.342
57	-2.364	24.7285	25.3272	25.9307	2.383
58	-2.403	23.7521	24.337	24.9267	2.423
59	-2.442	22.8181	23.3894	23.9656	2.463
60	-2.481	21.9244	22.4823	23.0452	2.504
61	-2.52	21.0692	21.6139	22.1637	2.544
62	-2.559	20.2506	20.7824	21.3193	2.583
63	-2.597	19.467	19.9861	20.5104	2.623
64	-2.636	18.7166	19.2232	19.7351	2.663
65	-2.674	17.9981	18.4925	18.9922	2.702
66	-2.712	17.3098	17.7923	18.2801	2.741
67	-2.749	16.6504	17.1211	17.5972	2.781
68	-2.787	16.0186	16.4778	16.9424	2.82
69	-2.824	15.4131	15.8611	16.3145	2.858
70	-2.862	14.8328	15.2698	15.7122	2.897
71	-2.899	14.2764	14.7026	15.1342	2.936
72	-2.936	13.743	14.1587	14.5798	2.974
73	-2.973	13.2314	13.6368	14.0476	3.012
74	-3.009	12.7407	13.136	13.5367	3.051
75	-3.046	12.27	12.6555	13.0464	3.089
76	-3.082	11.8183	12.1942	12.5755	3.127
77	-3.118	11.385	11.7515	12.1234	3.164
78	-3.154	10.9691	11.3264	11.6891	3.202
79	-3.19	10.5699	10.9182	11.2719	3.239
80	-3.226	10.1865	10.5261	10.871	3.277
81	-3.262	9.8184	10.1495	10.4859	3.314
82	-3.297	9.4651	9.7878	10.1158	3.351
83	-3.333	9.1254	9.44	9.7599	3.388
84	-3.368	8.7993	9.106	9.4179	3.425
85	-3.403	8.4861	8.785	9.0891	3.462
86	-3.437	8.1891	8.4806	8.7773	3.498
87	-3.471	7.9038	8.188	8.4774	3.534
88	-3.506	7.6295	7.9067	8.189	3.57
89	-3.539	7.3658	7.6361	7.9114	3.606



90	-3.573	7.1121	7.3757	7.6443	3.641
91	-3.607	6.8682	7.1252	7.3872	3.677
92	-3.64	6.6336	6.8842	7.1397	3.712
93	-3.674	6.4079	6.6523	6.9016	3.747
94	-3.707	6.1907	6.429	6.6722	3.782
95	-3.74	5.9816	6.214	6.4512	3.817
96	-3.773	5.7804	6.0071	6.2385	3.852
97	-3.806	5.5868	5.8078	6.0335	3.887
98	-3.839	5.4002	5.6158	5.836	3.921
99	-3.871	5.2208	5.431	5.6458	3.956
100	-3.903	5.0478	5.2528	5.4624	3.99
101	-3.936	4.8811	5.0811	5.2856	4.024
102	-3.968	4.7207	4.9157	5.1152	4.059
103	-4	4.5661	4.7563	4.951	4.093
104	-4.032	4.417	4.6026	4.7925	4.126
105	-4.063	4.2734	4.4544	4.6397	4.16
106	-4.095	4.135	4.3116	4.4924	4.194
107	-4.126	4.0034	4.1757	4.3522	4.227
108	-4.157	3.8766	4.0447	4.217	4.26
109	-4.188	3.7542	3.9183	4.0865	4.293
110	-4.218	3.6362	3.7963	3.9605	4.325
111	-4.249	3.5223	3.6786	3.8389	4.358
112	-4.279	3.4124	3.5649	3.7214	4.39
113	-4.309	3.3063	3.4552	3.608	4.423
114	-4.339	3.204	3.3493	3.4985	4.455
115	-4.369	3.1052	3.2471	3.3928	4.487
116	-4.399	3.0098	3.1483	3.2906	4.519
117	-4.429	2.9178	3.053	3.1919	4.551
118	-4.458	2.8288	2.9608	3.0965	4.582
119	-4.488	2.7429	2.8718	3.0043	4.614
120	-4.517	2.66	2.7858	2.9152	4.646
121	-4.547	2.5798	2.7027	2.8291	4.677
122	-4.576	2.5024	2.6224	2.7459	4.708
123	-4.605	2.4276	2.5448	2.6654	4.739
124	-4.633	2.3552	2.4696	2.5874	4.77
125	-4.662	2.2853	2.3971	2.5122	4.801