



Specification For Approval

Customer name : _____

Product name : NTC Thermistor

Customer PN : _____

MFG PN : CWFB0104FC-151C

MFG			Customer Confirmation		
Make	Check	Approval	Test	Check	Approval

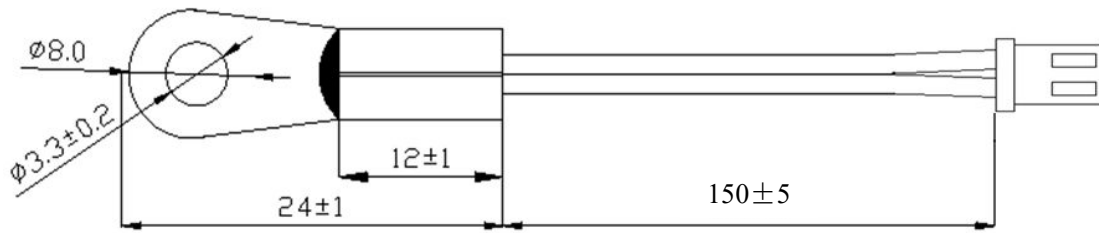
(Company name)

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

Version	Revise content	Forwarder	Date
A/0	Just made	Cheng	2015-12-10

1、 Overall Dimension

(Unit: mm)



2、 Material explanation

NO	Material Name	Item/PN
2-1.	Housing	Φ 5.0×12×24 Copper nickel plating
2-2.	Element	R25=100K Ω ±1% B25/50=3950±1% DD
2-3.	Coating	Epoxy Resin (Black)
2-4.	Lead Wire	L=150mm AWG24 125°C 300V (Black)
2-5.	Terminal	XH-2Y /XH-2.54

3、 Part Number :

CWF - × × × × × × × ×
 1 2 3 4 5 6 7

- (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±0.1°C P _T ≤0.1mw	99.0	100.0	101.0	k Ω
4-2.	B Value	B25/50	$B=LN \frac{R_{T1}}{R_{T2}} / \left(\frac{1}{T1} - \frac{1}{T2} \right)$	3910.5	3950	3989.5	k
4-3.	Dissipation factor	σ	Ta=25±0.5°C	1		/	mw/°C
4-4.	Time constant	τ	Ta=25±0.5°C	/	/	10	sec
4-5.	Operating temp.range	/	/	-30	/	+125	°C
4-6.	Insulation resistance	/	500V DC	100	/	/	M Ω
4-7.	Withstand voltage test	/	1500V AC	5			Sec

5、Reliability Test

NO	Item	Technical requirements	Test conditions and method
5-1.	High temp. Test	ΔR/R25≤±3% ΔB/B≤±3% No change with withstand voltage、 Insulation performance。 Appearance without damage.	105±5°C, power on 500±24 hrs, DC0.2mA
5-2.	Low temp. tes		-30±5°C, power on 500±24 hrs, DC0.2mA
5-3.	Endure moisture test		Store in environment 55±2°C,90%-95%RH for 500±24 hrs
5-4.	Temp. cycle test		-20°C×30min→Room temp.×10min→ in 100°C water×30min→Room temp.×10min 10 cycles
5-5.	Load electrify test		Power on DC1mA, 500hrs in room temp. and humid.
5-6.	Drop test		Free fall into concrete floor from height 1M, 10 cycle.
5-7.	Vibration test		Frequency range: 10~55HZ Total amplitude 1.52mm 1 cycle 1 min, direction and time X、Y、Z axis 2Hr each.
5-8.	Bending test		Bend 180°binding site wire and epoxy resin. Back and forth 10 times
5-9.	Tensile tests		Put 2 kg of force lasts 1 min

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

R₂₅=100K Ω ± 1%

B_{25/50}=3950K ± 1%

T/°C	R _{min}	R _{cen}	R _{max}	T/°C	R _{min}	R _{cen}	R _{max}
-40	03215	03363	03518	-2	353.8	362.0	370.3
-39	03011	03148	03291	-1	336.2	343.8	351.5
-38	02821	02947	03079	0	319.5	326.6	333.8
-37	02644	02761	02883	1	303.8	310.4	317.1
-36	02480	02588	02700	2	289.0	295.1	301.3
-35	02327	02426	02530	3	275.0	280.6	286.4
-34	02184	02276	02372	4	261.7	267.0	272.3
-33	02051	02136	02224	5	249.2	254.0	259.0
-32	01927	02005	02087	6	237.3	241.8	246.4
-31	01811	01883	01959	7	226.1	230.2	234.5
-30	01702	01770	01840	8	215.4	219.3	223.2
-29	01601	01664	01728	9	205.3	208.9	212.6
-28	01507	01565	01624	10	195.8	199.1	202.5
-27	01419	01472	01527	11	186.7	189.8	192.9
-26	01336	01385	01436	12	178.1	181.0	183.9
-25	01259	01304	01352	13	170.0	172.6	175.3
-24	01186	01229	01273	14	162.2	164.7	167.2
-23	01119	01158	01198	15	154.9	157.2	159.5
-22	01055	01091	01129	16	148.0	150.1	152.2
-21	995.5	01029	01064	17	141.3	143.3	145.2
-20	939.8	971.1	01003	18	135.1	136.9	138.7
-19	887.4	916.4	946.3	19	129.1	130.8	132.4
-18	838.3	865.2	892.9	20	123.4	125.0	126.5
-17	792.2	817.2	842.9	21	118.0	119.4	120.9
-16	748.9	772.1	795.9	22	112.9	114.2	115.5
-15	708.2	729.7	751.8	23	108.0	109.2	110.4
-14	670.0	690.0	710.5	24	103.4	104.5	105.6
-13	634.1	652.6	671.6	25	99.00	100.00	101.0
-12	600.3	617.5	635.1	26	94.70	95.70	96.70
-11	568.5	584.5	600.8	27	90.62	91.61	92.61
-10	538.6	553.4	568.6	28	86.73	87.72	88.71
-9	510.4	524.2	538.3	29	83.03	84.02	85.00
-8	483.9	496.7	509.7	30	79.51	80.49	81.47
-7	458.9	470.8	482.9	31	76.16	77.13	78.10
-6	435.3	446.4	457.6	32	72.96	73.92	74.89
-5	413.1	423.4	433.8	33	69.92	70.87	71.83
-4	392.2	401.7	411.4	34	67.03	67.96	68.91
-3	372.4	381.3	390.3	35	64.26	65.19	66.13



R—T CONVERSION TABLE

R₂₅=100K Ω ± 1%

B_{25/50}=3950K ± 1%

T/°C	Rmin	Rcen	Rmax	T/°C	Rmin	Rcen	Rmax
36	61.63	62.55	63.47	74	14.84	15.28	15.72
37	59.12	60.02	60.93	75	14.35	14.78	15.21
38	56.73	57.61	58.51	76	13.88	14.30	14.72
39	54.44	55.32	56.20	77	13.43	13.84	14.25
40	52.26	53.12	53.99	78	12.99	13.39	13.80
41	50.18	51.03	51.88	79	12.57	12.96	13.36
42	48.19	49.03	49.87	80	12.17	12.55	12.94
43	46.29	47.11	47.94	81	11.78	12.15	12.54
44	44.48	45.29	46.10	82	11.41	11.77	12.15
45	42.75	43.54	44.34	83	11.05	11.40	11.77
46	41.09	41.87	42.66	84	10.70	11.05	11.41
47	39.51	40.27	41.05	85	10.36	10.70	11.06
48	37.99	38.74	39.50	86	10.04	10.38	10.72
49	36.55	37.28	38.03	87	9.731	10.06	10.39
50	35.16	35.88	36.61	88	9.432	9.752	10.08
51	33.84	34.55	35.26	89	9.143	9.456	9.779
52	32.57	33.27	33.97	90	8.865	9.171	9.486
53	31.36	32.04	32.73	91	8.596	8.895	9.204
54	30.20	30.87	31.55	92	8.336	8.629	8.932
55	29.09	29.75	30.41	93	8.086	8.373	8.669
56	28.03	28.67	29.32	94	7.844	8.125	8.415
57	27.01	27.64	28.28	95	7.611	7.885	8.169
58	26.04	26.65	27.27	96	7.385	7.654	7.932
59	25.10	25.70	26.31	97	7.167	7.430	7.702
60	24.20	24.79	25.39	98	6.957	7.214	7.481
61	23.34	23.92	24.51	99	6.754	7.006	7.266
62	22.52	23.08	23.66	100	6.557	6.804	7.059
63	21.73	22.28	22.84	101	6.366	6.607	6.857
64	20.97	21.51	22.06	102	6.181	6.417	6.662
65	20.24	20.76	21.30	103	6.002	6.233	6.473
66	19.54	20.05	20.58	104	5.829	6.055	6.290
67	18.86	19.37	19.89	105	5.662	5.883	6.113
68	18.22	18.71	19.22	106	5.500	5.717	5.942
69	17.60	18.08	18.58	107	5.344	5.557	5.777
70	17.00	17.48	17.96	108	5.193	5.401	5.617
71	16.43	16.89	17.37	109	5.047	5.251	5.462
72	15.88	16.33	16.80	110	4.906	5.105	5.312
73	15.35	15.79	16.25	111	4.770	4.965	5.167



R—T CONVERSION TABLE

R₂₅=100K Ω ± 1%

B_{25/50}=3950K ± 1%

T/°C	R _{min}	R _{cen}	R _{max}	T/°C	R _{min}	R _{cen}	R _{max}
112	4.637	4.828	5.027				
113	4.510	4.697	4.891				
114	4.386	4.569	4.759				
115	4.266	4.445	4.632				
116	4.150	4.326	4.508				
117	4.038	4.210	4.389				
118	3.929	4.097	4.273				
119	3.824	3.989	4.160				
120	3.722	3.883	4.052				
121	3.623	3.781	3.946				
122	3.527	3.682	3.844				
123	3.434	3.586	3.745				
124	3.344	3.493	3.648				
125	3.257	3.403	3.555				
126	3.173	3.316	3.466				
127	3.092	3.233	3.379				
128	3.014	3.151	3.295				
129	2.937	3.072	3.213				
130	2.863	2.996	3.134				
131	2.792	2.921	3.057				
132	2.722	2.849	2.982				
133	2.654	2.779	2.909				
134	2.589	2.711	2.839				
135	2.525	2.645	2.770				
136	2.463	2.581	2.704				
137	2.403	2.519	2.639				
138	2.345	2.458	2.576				
139	2.288	2.399	2.515				
140	2.233	2.342	2.456				
141	2.180	2.287	2.398				
142	2.128	2.233	2.342				
143	2.078	2.180	2.288				
144	2.029	2.129	2.235				
145	1.981	2.080	2.184				