



Dongguan Ampfort Electronics Co., Ltd.

东莞市安伏特电子有限公司

No.: AFT-15080011

Version: A/0

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## Specification For Approval

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

Product name : NTC Thermistor

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

MFG PN : CWFB0103FB-451X

MFG			Customer Confirmation		
Make	Check	Approval	Test	Check	Approval

\_\_\_\_\_  
(Company name)

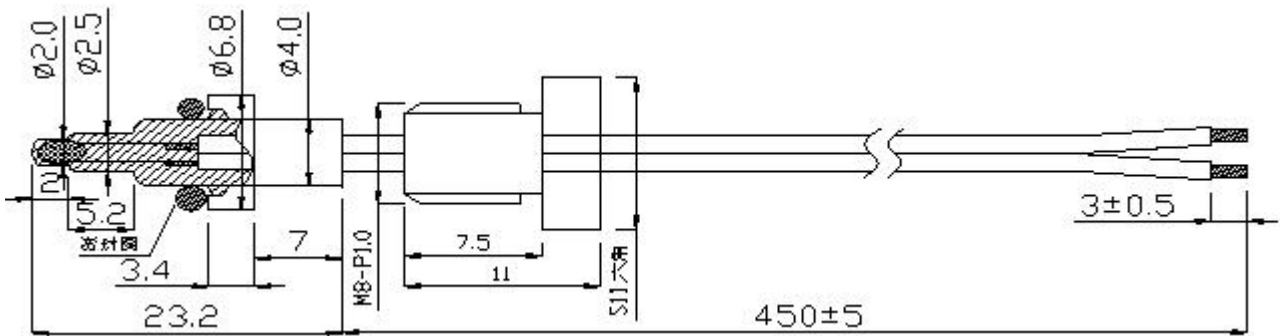
Confirm got the spec and accept as our company's warehouse accept standard.

Version	Revise content	Forwarder	Date
A/0	Just made	Cheng	2015-08-05



1、Overall Dimension

(Unit: mm)



2、Material explanation

NO	Material Name	Item/PN
2-1.	Housing	Φ4.0×23.2 + Φ6.8×3.4 SUS304 Three ladder stainless steel shell +Nickel plated copper ring Φ4.5*11+M8*P1.0+S11 Brass nut
2-2.	Element	R25=10KΩ±1% B25/50=3450±1% DD
2-3.	Coating	Epoxy Resin (S)
2-4.	Lead Wire	L=450mm UL2651 AWG26*2C 105°C 300V (White)
2-5.	Sealing Ring	7.0*3.2*1.9 (Black)

3、Part Number :

CWF - x x x x x x x x x  
 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 sturcture(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℃	R25	Ta=25±0.05℃ P <sub>T</sub> ≤0.1mw	9.9	10.0	10.1	kΩ
4-2.	B Value	B25/50	$B=LN \frac{R_{T1}}{R_{T2}} / \left( \frac{1}{T1} - \frac{1}{T2} \right)$	3415.5	3450.0	3484.5	k
4-3.	Dissipation factor	σ	Ta=25±0.5℃	2		/	mw/℃
4-4.	Time constant	τ	Ta=25±0.5℃	/	/	20	sec
4-5.	Operating temp.range	/	/	-10	/	+105	℃
4-6.	Insulation resistance	/	500V DC	100	/	/	MΩ
4-7.	Withstand voltage test	/	1500V AC	2			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.	100±5℃, power on 500±24 hrs, DC0.2mA
5-2.	Low temp. tes		-15±5℃, power on 500±24 hrs, DC0.2mA
5-3.	Endure moisture test		Store in environment 55±2℃,90%-95%RH for 500±24 hrs
5-4.	Temp. cycle test		-20℃×30min→Room temp.×10min→ in 100℃ 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℃ / + 40℃, 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=10KΩ±1%

B25/50=3450K±1%

T/°C	Rmin	Rcen	Rmax	T/°C	Rmin	Rcen	Rmax
-40	208.003	216.667	225.669	-1	28.766	29.372	29.987
-39	196.321	204.379	212.747	0	27.522	28.088	28.664
-38	185.374	192.870	200.650	1	26.339	26.869	27.407
-37	175.109	182.086	189.322	2	25.213	25.710	26.213
-36	165.482	171.976	178.708	3	24.142	24.607	25.078
-35	156.447	162.495	168.760	4	23.123	23.558	23.998
-34	147.965	153.599	159.432	5	22.153	22.559	22.971
-33	140.000	145.249	150.680	6	21.229	21.609	21.994
-32	132.515	137.407	142.466	7	20.349	20.704	21.064
-31	125.480	130.041	134.754	8	19.510	19.842	20.179
-30	118.864	123.117	127.509	9	18.710	19.021	19.335
-29	112.640	116.607	120.702	10	17.948	18.239	18.532
-28	106.783	110.484	114.302	11	17.221	17.493	17.767
-27	101.268	104.722	108.282	12	16.528	16.782	17.038
-26	96.073	99.297	102.619	13	15.867	16.104	16.342
-25	91.179	94.189	97.288	14	15.236	15.457	15.679
-24	86.565	89.376	92.269	15	14.633	14.839	15.047
-23	82.215	84.840	87.540	16	14.057	14.250	14.443
-22	78.111	80.563	83.085	17	13.508	13.687	13.868
-21	74.238	76.530	78.884	18	12.983	13.150	13.318
-20	70.582	72.723	74.922	19	12.481	12.637	12.793
-19	67.131	69.133	71.188	20	12.002	12.146	12.292
-18	63.871	65.743	67.663	21	11.543	11.678	11.813
-17	60.790	62.540	64.334	22	11.105	11.230	11.355
-16	57.876	59.513	61.190	23	10.685	10.801	10.918
-15	55.121	56.651	58.219	24	10.284	10.392	10.500
-14	52.513	53.945	55.411	25	9.900	10.000	10.100
-13	50.045	51.385	52.755	26	9.523	9.623	9.723
-12	47.708	48.961	50.243	27	9.163	9.263	9.363
-11	45.494	46.667	47.866	28	8.819	8.918	9.018
-10	43.397	44.495	45.616	29	8.489	8.588	8.687
-9	41.409	42.437	43.485	30	8.174	8.272	8.371
-8	39.525	40.486	41.467	31	7.872	7.970	8.068
-7	37.737	38.637	39.555	32	7.583	7.680	7.777
-6	36.042	36.884	37.742	33	7.306	7.402	7.499
-5	34.433	35.221	36.024	34	7.041	7.136	7.232
-4	32.905	33.643	34.394	35	6.787	6.881	6.976
-3	31.454	32.145	32.848	36	6.543	6.637	6.730
-2	30.076	30.723	31.380	37	6.310	6.402	6.495



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38	6.086	6.177	6.269	80	1.592	1.637	1.684
39	5.871	5.961	6.052	81	1.548	1.592	1.638
40	5.665	5.754	5.844	82	1.505	1.548	1.593
41	5.468	5.556	5.644	83	1.463	1.506	1.550
42	5.278	5.365	5.452	84	1.423	1.465	1.508
43	5.096	5.182	5.268	85	1.384	1.425	1.468
44	4.921	5.006	5.091	86	1.346	1.387	1.428
45	4.754	4.837	4.921	87	1.309	1.349	1.390
46	4.592	4.674	4.757	88	1.274	1.313	1.353
47	4.438	4.518	4.600	89	1.239	1.278	1.317
48	4.289	4.368	4.449	90	1.206	1.244	1.283
49	4.146	4.224	4.303	91	1.174	1.211	1.249
50	4.008	4.085	4.163	92	1.143	1.179	1.217
51	3.877	3.953	4.030	93	1.112	1.148	1.185
52	3.751	3.826	3.901	94	1.083	1.118	1.154
53	3.630	3.703	3.777	95	1.055	1.089	1.125
54	3.513	3.585	3.658	96	1.027	1.061	1.096
55	3.400	3.471	3.543	97	1.000	1.034	1.068
56	3.292	3.362	3.433	98	0.974	1.007	1.041
57	3.188	3.257	3.326	99	0.949	0.981	1.014
58	3.088	3.155	3.224	100	0.925	0.956	0.989
59	2.991	3.057	3.125	101	0.901	0.932	0.964
60	2.898	2.963	3.029	102	0.878	0.909	0.940
61	2.808	2.872	2.937	103	0.856	0.886	0.917
62	2.721	2.784	2.848	104	0.835	0.864	0.894
63	2.638	2.700	2.763	105	0.814	0.843	0.872
64	2.557	2.618	2.680	106	0.793	0.822	0.851
65	2.480	2.539	2.600	107	0.774	0.801	0.830
66	2.405	2.464	2.523	108	0.755	0.782	0.810
67	2.333	2.390	2.449	109	0.736	0.763	0.790
68	2.263	2.320	2.377	110	0.718	0.744	0.771
69	2.196	2.251	2.308	111	0.700	0.726	0.753
70	2.131	2.185	2.241	112	0.683	0.709	0.735
71	2.068	2.122	2.177	113	0.667	0.692	0.718
72	2.008	2.060	2.114	114	0.651	0.675	0.701
73	1.949	2.001	2.054	115	0.635	0.659	0.684
74	1.893	1.944	1.995	116	0.620	0.644	0.668
75	1.838	1.888	1.939	117	0.605	0.628	0.653
76	1.786	1.835	1.885	118	0.591	0.614	0.637
77	1.735	1.783	1.832	119	0.577	0.599	0.623
78	1.686	1.733	1.781	120	0.563	0.585	0.608
79	1.638	1.684	1.732				