



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 1 / 14

## APPROVAL SHEET OF DELIVERY SPECIFICATION

### 规格书

客户名称 ( CUSTOMER ):

产品名称 ( PRODUCT ITEM ): NTC Sensor

客户料号(CUSTOMER PART NO.) :

规格型号(PART NO.) : CWF103F3984FB150RC

编制日期 ( DATE ): 2021-05-03

供货商确认 ( SUPPLIER CONFIRM )			客户确认 (CUSTOMER CONFIRM)		
制作 ( Edited )	审核(Check)	批准 ( Approve )	制作 ( Edited )	审核(Check)	批准 ( Approve )
CHEMMY	CHEMMY				

\_\_\_\_\_ 公司

确认收到此规格书，兹同意此规格书作为我公司的验收标准。

( 收到该规格书后请在上一行相应处签字回传我司技术部 )

Email: [sales1@ampfort.net](mailto:sales1@ampfort.net)

Web:www.thermistor-sensor.com

版本 Version	变更记录 Revise content	提出	日期 Date
A/1	首版	CHEMMY	



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



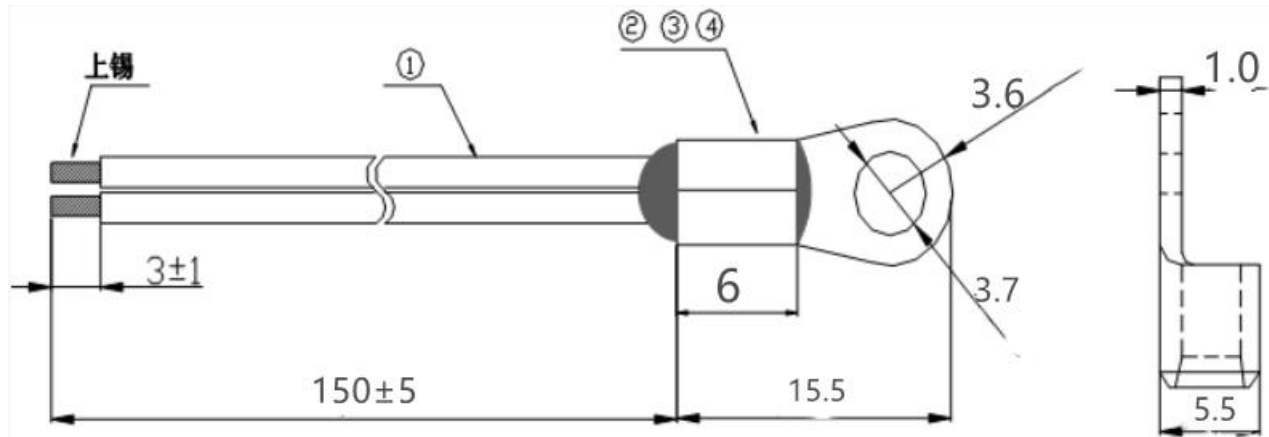
NO. : A-CWFA00562

Version : A/1

Page 2 / 14

## 1、外形尺寸 ( Exterior Dimension )

( 单位 Unit : mm )



## 2、外型规格 ( Exterior Specification )

序号 Serial number	材料名称 Material name	规格/型号 Specifications / Models	材质 Texture of material
2-1.	LEAD WIRE ( 电线 )	UL1332#26AWG TS 200°C BLACK OD1.2	PTFE
2-2.	CAP ( 外壳 )	RNB5.5-3.7	Cu/Sn
2-3.	EPOXY FILLING ( 环氧树脂 )	NB-5/BLACK	
2-4.	THERMISTOR ( 电阻 )	R25=10KΩ±1% B25/85=3984K±1% SE	



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 3 / 14

### 3、电气特性 ( Electrical Characteristics )

序号 Serial number	项目 Item	符号 Symbol	测试条件 Test Conditions	最小值 Min.	正常值 Nor.	最大值 Max.	单位 Unit
3-1.	Resistance At 25°C	R <sub>25</sub>	Ta=25±0.05°C P <sub>T</sub> ≤0.1mw	9.9	10	10.1	kΩ
3-2.	B Constant	B25/85	$B=LN \frac{R_{T1}}{R_{T2}} / \left( \frac{1}{T1} - \frac{1}{T2} \right)$	3944.16	3984	4023.84	k
3-3.	Thermal Dissipation Constant	σ	Ta=25±0.5°C	3	/	/	mw/°C
3-4.	Thermal Time Constant (in water)	τ	Ta=25±0.5°C 25°C→ 50°C T1=25+(50-25)* 63.2%=40.8°C	/	/	20	sec
3-5.	Insulation test	/	500V <sub>DC</sub>	100	/	/	MΩ
3-6.	Withstand voltage test	/	1500V AC 5mA	2	/	/	Sec
3-7.	Operation Temperature Range	/	/	-40	/	+150	°C



#### 4、可靠性试验 ( Reliability Test )

序号 Serial number	项目 Item	变量 Variable	测试条件及方法 Test Conditions	
4-1.	高温试验 Hightemp.test	耐电压、绝缘性能无变化。外观无损伤。	105±5°C , 1000±24h ( Reference IEC60068-2-2/GB2423.2 test )	
4-2.	低温试验 Low temp.test		$\Delta R/R25 \leq \pm 3\%$ -30±5°C , 1000±24h ( Reference IEC60068-2-1/GB2423.1 test )	
4-3.	耐潮湿试验 Humidity test		$\Delta B/B \leq \pm 3\%$ 60±2°C, 90%-95%RH 1000±24h ( Reference IEC60068-2-3/GB2423.3 test )	
4-4.	温度循环试验 Temp. cycle test		-30°C×30min→25°C×5min→105×30min→25°C×5min , X 5Cycles ( Reference IEC60068-2-14/GB2423.22 test )	
4-5	负荷通电试验 Load test		Voltage and insulation 在常温常湿通电 DC1mA,500hrs At normal temperature and humidity, DC1mA, 500hrs.	
4-6	引线强度 LEAD WIRE Strength		resistance. Appearance without	Application of 2 kg force for 1 minutes.
4-7	跌落试验 Drop test		damage	从 1m 高处自由落下混凝土地板 ,共进行 10 次。 Free fall from the 1m height of the concrete floor, a total of 10 times
4-8	振动试验 vibration test			频率范围 : 10 ~ 55HZ 全振幅 1.52mm1 次循环 1 分钟 ,方向和时间 X、Y、Z 轴各 2 小时。 Frequency



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 5 / 14

			range: 10 ~ 55HZ full amplitude 1.52mm1 times cycle 1 minutes, direction and time X, Y, Z axis each 2 hours
4-9	弯曲试验 Bend test		来回 10 次 180°弯曲引线及环氧树脂结合部位。 Back and forth 180 times 10 degree bend lead wire and epoxy resin binding site

### 5、贮存方法 ( Storage method )

5.1 贮存和运输过程中每堆叠放高度不超过 4 箱产品。During storage and transportation, no more than 4 boxes of products are placed in each stack.

5.2 允许用任何方法运输 ,但要避免雨、雪的直接或间接的淋袭和机械损伤。Allows for the transport of any method, but to avoid direct or indirect rain and snow damage and mechanical damage.

5.3 产品应贮存环境在温度为-10°C/+45°C ,相对湿度不大于 80% ,周围环境不应有酸性、碱性物质及腐蚀气体或辐射源。Products should be stored in the environment at a temperature of minus 10 degrees C / C, 45 degrees Celsius, the relative humidity is less than 80%, the surrounding environment should not be acidic, alkaline substances and corrosive gases or radiation source.

### 6、检验标准 GB2828-2003 ( Inspection standard GB2828-2003. )

项目 ( Item )	判定标准 ( Decision criteria )	检验水平 ( Inspection level )	判定基准 Decision criteria
绝缘抵抗 Insulation test	DC500V/100MΩ↑	N=5	C=0
耐电压	AC1500V5mA/2S	N=5	C=0



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 6 / 14

Withstand voltage test			
外观检查 Appearance check	无缺陷 No defect	S=3	C=0
引线强度 LEAD WIRE Strength	2kg.f↑	N=5	C=0
制品长度 Product length	参考图纸 Reference drawing	N=5	C=0
外壳长度 Shell length	参考图纸 Reference drawing	N=5	C=0
阻值 RT1 resistance RT1	Reference resources Electrical characteristics 3-1	S=3	C=0
B Constant	Reference resources Electrical characteristics 3-2	N=5	C=0

**TEMPERATURE VS RESISTANCE TABLE**

**Resistance** 10k Ohms at 25deg. C

**Resistance Tolerance** + / - 1%

**B Value** 3984K at 25/85 deg. C

**B Value Tolerance** + / - 1%

Temp. (deg. C)	Rmax (k Ohms)	Rnor (k Ohms)	Rmin (k Ohms)
-40	354.8415	339.1634	324.1456
-39	331.6236	317.1838	303.3424



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 7 / 14

-38	310.0813	296.7768	284.0147
-37	290.0829	277.8198	266.0485
-36	271.5081	260.2006	249.3391
-35	254.2462	243.8162	233.7906
-34	238.1963	228.5722	219.3150
-33	223.2657	214.3822	205.8316
-32	209.3692	201.1666	193.2660
-31	196.4288	188.8524	181.5501
-30	184.3727	177.3726	170.6211
-29	173.1351	166.6654	160.4213
-28	162.6553	156.6740	150.8976
-27	152.8776	147.3463	142.0008
-26	143.7506	138.6339	133.6860
-25	135.2270	130.4927	125.9115
-24	127.2633	122.8816	118.6389
-23	119.8193	115.7630	111.8328
-22	112.8579	109.1019	105.4603
-21	106.3450	102.8663	99.4914
-20	100.2490	97.0264	93.8979
-19	94.5407	91.5547	88.6541
-18	89.1931	86.4258	83.7360
-17	84.1813	81.6163	79.1214
-16	79.4823	77.1043	74.7899
-15	75.0747	72.8697	70.7223
-14	70.9387	68.8937	66.9011
-13	67.0559	65.1592	63.3099
-12	63.4095	61.6500	59.9334
-11	59.9836	58.3513	56.7577
-10	56.7636	55.2491	53.7697
-9	53.7360	52.3307	50.9571
-8	50.8882	49.5841	48.3086
-7	48.2085	46.9982	45.8137
-6	45.6860	44.5627	43.4627
-5	43.3105	42.2680	41.2465
-4	41.0727	40.1052	39.1565
-3	38.9639	38.0658	37.1848
-2	36.9758	36.1423	35.3241
-1	35.1009	34.3274	33.5675
0	33.3321	32.6142	31.9086
1	31.6628	30.9966	30.3415
2	30.0869	29.4688	28.8605
3	28.5986	28.0251	27.4604
4	27.1925	26.6606	26.1364



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 8 / 14

5	25.8638	25.3704	24.8839
6	24.6076	24.1501	23.6987
7	23.4197	22.9955	22.5768
8	22.2959	21.9028	21.5144
9	21.2325	20.8682	20.5081
10	20.2259	19.8884	19.5546
11	19.2727	18.9602	18.6509
12	18.3699	18.0806	17.7941
13	17.5144	17.2467	16.9815
14	16.7036	16.4561	16.2106
15	15.9349	15.7061	15.4790
16	15.2059	14.9945	14.7845
17	14.5143	14.3191	14.1251
18	13.8580	13.6779	13.4988
19	13.2350	13.0690	12.9037
20	12.6435	12.4905	12.3381
21	12.0817	11.9409	11.8005
22	11.5479	11.4184	11.2893
23	11.0407	10.9217	10.8030
24	10.5585	10.4494	10.3403
25	10.1000	10.0000	9.9000
26	9.6724	9.5724	9.4725
27	9.2651	9.1654	9.0659
28	8.8773	8.7779	8.6788
29	8.5078	8.4089	8.3104
30	8.1556	8.0574	7.9597
31	7.8199	7.7225	7.6256
32	7.4999	7.4033	7.3073
33	7.1946	7.0990	7.0040
34	6.9034	6.8088	6.7149
35	6.6255	6.5321	6.4393
36	6.3603	6.2680	6.1764
37	6.1071	6.0160	5.9257
38	5.8654	5.7755	5.6865
39	5.6344	5.5459	5.4581
40	5.4138	5.3266	5.2402
41	5.2030	5.1171	5.0321
42	5.0015	4.9169	4.8333
43	4.8088	4.7257	4.6435
44	4.6246	4.5428	4.4620
45	4.4484	4.3680	4.2886
46	4.2798	4.2008	4.1229
47	4.1184	4.0409	3.9644





东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 9 / 14

48	3.9640	3.8878	3.8128
49	3.8162	3.7414	3.6678
50	3.6746	3.6012	3.5290
51	3.5390	3.4670	3.3962
52	3.4091	3.3385	3.2691
53	3.2846	3.2154	3.1474
54	3.1653	3.0975	3.0308
55	3.0510	2.9845	2.9191
56	2.9413	2.8762	2.8121
57	2.8362	2.7723	2.7096
58	2.7353	2.6727	2.6113
59	2.6385	2.5772	2.5171
60	2.5457	2.4856	2.4268
61	2.4566	2.3977	2.3401
62	2.3710	2.3134	2.2570
63	2.2888	2.2324	2.1772
64	2.2099	2.1547	2.1007
65	2.1341	2.0801	2.0272
66	2.0613	2.0084	1.9567
67	1.9913	1.9396	1.8889
68	1.9241	1.8734	1.8239
69	1.8594	1.8098	1.7614
70	1.7973	1.7487	1.7013
71	1.7375	1.6900	1.6436
72	1.6800	1.6335	1.5881
73	1.6247	1.5792	1.5348
74	1.5715	1.5269	1.4835
75	1.5202	1.4767	1.4342
76	1.4709	1.4283	1.3868
77	1.4235	1.3818	1.3411
78	1.3778	1.3369	1.2972
79	1.3337	1.2938	1.2549
80	1.2913	1.2523	1.2143
81	1.2505	1.2123	1.1751
82	1.2111	1.1737	1.1374
83	1.1732	1.1366	1.1010
84	1.1366	1.1008	1.0660
85	1.1014	1.0663	1.0323
86	1.0674	1.0331	0.9998
87	1.0346	1.0011	0.9685
88	1.0030	0.9702	0.9383
89	0.9725	0.9404	0.9092
90	0.9431	0.9116	0.8812



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 10 / 14

91	0.9147	0.8839	0.8541
92	0.8873	0.8572	0.8280
93	0.8608	0.8314	0.8028
94	0.8353	0.8064	0.7785
95	0.8106	0.7824	0.7551
96	0.7868	0.7592	0.7324
97	0.7638	0.7367	0.7106
98	0.7415	0.7151	0.6895
99	0.7201	0.6942	0.6691
100	0.6993	0.6739	0.6495
101	0.6792	0.6544	0.6304
102	0.6598	0.6355	0.6121
103	0.6411	0.6173	0.5943
104	0.6230	0.5997	0.5772
105	0.6054	0.5826	0.5606
106	0.5885	0.5661	0.5446
107	0.5721	0.5502	0.5291
108	0.5562	0.5348	0.5142
109	0.5408	0.5199	0.4997
110	0.5260	0.5054	0.4857
111	0.5116	0.4915	0.4721
112	0.4976	0.4780	0.4590
113	0.4842	0.4649	0.4463
114	0.4711	0.4522	0.4340
115	0.4584	0.4399	0.4222
116	0.4462	0.4281	0.4107
117	0.4343	0.4166	0.3995
118	0.4228	0.4054	0.3887
119	0.4117	0.3947	0.3783
120	0.4009	0.3842	0.3682
121	0.3904	0.3741	0.3584
122	0.3803	0.3643	0.3489
123	0.3705	0.3547	0.3397
124	0.3609	0.3455	0.3307
125	0.3517	0.3366	0.3221
126	0.3427	0.3279	0.3137
127	0.3340	0.3195	0.3056
128	0.3256	0.3114	0.2977
129	0.3174	0.3034	0.2901
130	0.3094	0.2958	0.2827
131	0.3017	0.2883	0.2755
132	0.2942	0.2811	0.2685
133	0.2870	0.2741	0.2618



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 11 / 14

134	0.2799	0.2673	0.2552
135	0.2731	0.2607	0.2488
136	0.2664	0.2543	0.2427
137	0.2600	0.2480	0.2367
138	0.2537	0.2420	0.2308
139	0.2476	0.2361	0.2252
140	0.2417	0.2304	0.2197
141	0.2359	0.2249	0.2144
142	0.2303	0.2195	0.2092
143	0.2249	0.2143	0.2041
144	0.2196	0.2092	0.1993
145	0.2145	0.2043	0.1945
146	0.2095	0.1995	0.1899
147	0.2046	0.1948	0.1854
148	0.1999	0.1903	0.1810
149	0.1953	0.1859	0.1768
150	0.1909	0.1816	0.1727
151	0.1865	0.1774	0.1687
152	0.1823	0.1733	0.1648
153	0.1782	0.1694	0.1610
154	0.1742	0.1656	0.1573
155	0.1703	0.1618	0.1537
156	0.1665	0.1582	0.1502
157	0.1628	0.1547	0.1469
158	0.1593	0.1512	0.1436
159	0.1558	0.1479	0.1403
160	0.1524	0.1446	0.1372
161	0.1491	0.1414	0.1342
162	0.1458	0.1383	0.1312
163	0.1427	0.1353	0.1283
164	0.1396	0.1324	0.1255
165	0.1366	0.1295	0.1228
166	0.1337	0.1268	0.1201
167	0.1309	0.1241	0.1175
168	0.1282	0.1214	0.1150
169	0.1255	0.1188	0.1126
170	0.1228	0.1163	0.1102
171	0.1203	0.1139	0.1078
172	0.1178	0.1115	0.1055
173	0.1154	0.1092	0.1033
174	0.1130	0.1069	0.1012
175	0.1107	0.1047	0.0991
176	0.1085	0.1026	0.0970



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 12 / 14

177	0.1063	0.1005	0.0950
178	0.1041	0.0984	0.0931
179	0.1020	0.0964	0.0912
180	0.1000	0.0945	0.0893
181	0.0980	0.0926	0.0875
182	0.0961	0.0908	0.0857
183	0.0942	0.0890	0.0840
184	0.0923	0.0872	0.0823
185	0.0905	0.0855	0.0807
186	0.0888	0.0838	0.0791
187	0.0871	0.0822	0.0775
188	0.0854	0.0806	0.0760
189	0.0837	0.0790	0.0745
190	0.0822	0.0775	0.0731
191	0.0806	0.0760	0.0716
192	0.0791	0.0745	0.0703
193	0.0776	0.0731	0.0689
194	0.0761	0.0717	0.0676
195	0.0747	0.0704	0.0663
196	0.0733	0.0691	0.0651
197	0.0720	0.0678	0.0638
198	0.0706	0.0665	0.0626
199	0.0693	0.0653	0.0615
200	0.0681	0.0641	0.0603
201	0.0668	0.0629	0.0592
202	0.0656	0.0618	0.0581
203	0.0644	0.0606	0.0570
204	0.0633	0.0595	0.0560
205	0.0622	0.0585	0.0550
206	0.0611	0.0574	0.0540
207	0.0600	0.0564	0.0530
208	0.0589	0.0554	0.0521
209	0.0579	0.0544	0.0511
210	0.0569	0.0535	0.0502
211	0.0559	0.0525	0.0493
212	0.0549	0.0516	0.0485
213	0.0540	0.0507	0.0476
214	0.0531	0.0498	0.0468
215	0.0522	0.0490	0.0460
216	0.0513	0.0481	0.0452
217	0.0504	0.0473	0.0444
218	0.0496	0.0465	0.0436
219	0.0487	0.0457	0.0429



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 13 / 14

220	0.0479	0.0449	0.0422
221	0.0471	0.0442	0.0414
222	0.0463	0.0435	0.0407
223	0.0456	0.0427	0.0401
224	0.0448	0.0420	0.0394
225	0.0441	0.0413	0.0387
226	0.0434	0.0407	0.0381
227	0.0427	0.0400	0.0375
228	0.0420	0.0393	0.0369
229	0.0413	0.0387	0.0362
230	0.0407	0.0381	0.0357
231	0.0400	0.0375	0.0351
232	0.0394	0.0369	0.0345
233	0.0388	0.0363	0.0340
234	0.0382	0.0357	0.0334
235	0.0376	0.0352	0.0329
236	0.0370	0.0346	0.0324
237	0.0364	0.0341	0.0319
238	0.0359	0.0335	0.0314
239	0.0353	0.0330	0.0309
240	0.0348	0.0325	0.0304
241	0.0342	0.0320	0.0299
242	0.0337	0.0315	0.0295
243	0.0332	0.0310	0.0290
244	0.0327	0.0306	0.0286
245	0.0322	0.0301	0.0281
246	0.0318	0.0297	0.0277
247	0.0313	0.0292	0.0273
248	0.0308	0.0288	0.0269
249	0.0304	0.0284	0.0265
250	0.0299	0.0280	0.0261
251	0.0295	0.0275	0.0257
252	0.0291	0.0271	0.0253
253	0.0287	0.0268	0.0250
254	0.0283	0.0264	0.0246
255	0.0279	0.0260	0.0242
256	0.0275	0.0256	0.0239
257	0.0271	0.0253	0.0236
258	0.0267	0.0249	0.0232
259	0.0263	0.0245	0.0229
260	0.0260	0.0242	0.0226
261	0.0256	0.0239	0.0222
262	0.0253	0.0235	0.0219



东莞市安伏特电子有限公司

Dongguan Ampfort Electronics Co., Ltd.



NO. : A-CWFA00562

Version : A/1

Page 14 / 14

263	0.0249	0.0232	0.0216
264	0.0246	0.0229	0.0213
265	0.0242	0.0226	0.0210
266	0.0239	0.0223	0.0207
267	0.0236	0.0220	0.0205
268	0.0233	0.0217	0.0202
269	0.0230	0.0214	0.0199
270	0.0227	0.0211	0.0196
271	0.0224	0.0208	0.0194
272	0.0221	0.0205	0.0191
273	0.0218	0.0203	0.0189
274	0.0215	0.0200	0.0186
275	0.0212	0.0197	0.0184
276	0.0210	0.0195	0.0181
277	0.0207	0.0192	0.0179
278	0.0204	0.0190	0.0177
279	0.0202	0.0187	0.0174
280	0.0199	0.0185	0.0172
281	0.0197	0.0183	0.0170
282	0.0194	0.0180	0.0168
283	0.0192	0.0178	0.0166
284	0.0189	0.0176	0.0163
285	0.0187	0.0174	0.0161
286	0.0185	0.0172	0.0159
287	0.0182	0.0170	0.0157
288	0.0180	0.0167	0.0156
289	0.0178	0.0165	0.0154
290	0.0176	0.0163	0.0152
291	0.0174	0.0161	0.0150
292	0.0172	0.0159	0.0148
293	0.0170	0.0158	0.0146
294	0.0168	0.0156	0.0145
295	0.0166	0.0154	0.0143
296	0.0164	0.0152	0.0141
297	0.0162	0.0150	0.0139
298	0.0160	0.0149	0.0138
299	0.0158	0.0147	0.0136
300	0.0156	0.0145	0.0135