

**SODOWELL**

ShenZhen XinDaoWei Technology CO.,LTD

深圳鑫道为科技有限公司

**SPECIFICATION FOR APPROVAL**

**承认书**

客户名称 (CUSTOMER) : 华虹  
产品名称 (PRODUCT ITEM) : 温度传感器  
客户料号 (CUSTOMER PART NO.): DG3H104HB-2206  
规格型号 (PART NO.): TS104H4390GB600C  
文件编号 (FILE NO.): S0126  
版 本 (EDITION) : A0  
编制日期 (DATE) : 2022. 03. 16  
修订日期 (DATE) :

客户确认 (CUSTOMER CONFIRM)

供货商确认 (SUPPLIER CONFIRM)	
制作 (Edited)	吴恒武 2022. 03. 16
审核 (CHECK )	---
批准 (APPROVE)	周波 2022. 03. 16
公司签章	



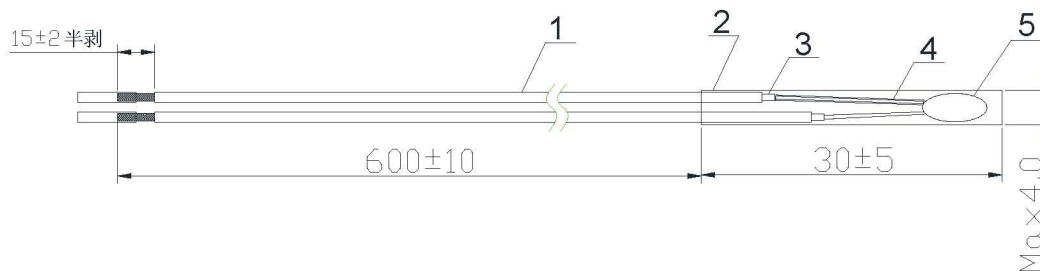
## Product specification

## 产品技术规格

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## 2、外形尺寸

(单位: mm)



## 3、材料规格

序号	材料名称	规格/型号	数量
3-1.	电线	UL10362 22AWG TS 250°C 600V 黑色铁氟龙线	1PCS
3-2.	套管	铁氟龙带胶热缩管	2PCS
3-3.	端子	黄铜铆接端子	2PCS
3-4.	套管	30L 铁氟龙管	1PCS
3-5.	热敏电阻	DG3H104HB (IST)	1PCS

## 4、电气性能

序号	项目	符号	测试条件	最小值	中心值	最大值	单位
4-1.	25°C的电阻值	R25	Ta=25±0.05°C P <sub>T</sub> ≤0.1mw	97.000	100.00	103.00	KΩ
4-2.	50°C的电阻值	R50	Ta=50±0.05°C P <sub>T</sub> ≤0.1mw	/	32.420	/	KΩ
4-3.	85°C的电阻值	R85	Ta=85±0.05°C P <sub>T</sub> ≤0.1mw	/	8.486	/	KΩ
4-4.	B 值	B25/85	$B=LN \frac{R_{T1}}{R_{T2}} / \left( \frac{1}{T1} - \frac{1}{T2} \right)$	4346.10	4390.00	4433.90	K
4-5.	耗散系数 (in air)	σ	Ta=25±0.5°C	/	2.5	/	mW/°C

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4-6.	时间常数 (in water)	$\tau$	25°C → 50°C $T1=25+(50-25)*63.2\%$ =40.8°C	/	/	10.0	Sec
4-7.	绝缘电阻	/	500V <sub>DC</sub>	100	/	/	MΩ
4-8.	耐压测试	/	3750V AC 60Sec	/	10	/	mA
4-9.	使用温度范围	/	/	-30	/	+250	°C

### 5、机械性能

序号	项目	技术要求	测试条件及方法
5-1.	拉力测试	端子无脱落	加载 9.8N (1KGF) 1 秒钟。
5-2.	落地测试	无可见性损伤	在 1 米的高度，让产品做自由落体运动，下落到 10mm 厚的橡木板上，5 次

### 6、可靠性试验

序号	项目	技术要求	测试条件及方法
6-1.	高温试验	$\Delta R/R_{25} \leq \pm 3\%$	250 ± 5°C, 1000 ± 24h (参照 IEC60068-2-2/GB2423.2 试验)
6-2.	低温试验	$\Delta R/R_{25} \leq \pm 3\%$	-30 ± 5°C, 1000 ± 24h (参照 IEC60068-2-1/GB2423.1 试验)
6-3.	耐潮湿试验	$\Delta R/R_{25} \leq \pm 3\%$	40 ± 2°C, 90%-95%RH 环境下放置 1000 ± 24h (参照 IEC60068-2-3/GB2423.3 试验)
6-4.	温度冷热循环试验	$\Delta R/R_{25} \leq \pm 3\%$	-30°C × 30min → 25°C × 5min → 250°C × 30min → 25°C × 5min, 反复 10 次 (参照 IEC60068-2-14/GB2423.22 试验)

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#### 7. 产品型号命名方法 (The rule of product type)

TS 104 H 4390 G B 600 C

(1) (2) (3) (4) (5) (6) (7) (8)

(1) : 温度传感器。

(2) : 电阻值, 单位为欧姆。前两位数字表示电阻值的有效数字, 第三位数字表示其后零的个数。

(3) : 电阻值公差符号 (%)

记号	F	G	H	J	X
电阻值公差	±1.0	±2.0	±3.0	±5.0	特殊公差

(4) : B 值常数记号, 例如 B 值为 3950, 则记为 3950。

记号	3950	3970	4200	3990	4100
B 值常数记号	3950	3970	4200	3990	4100

(5) : B 值公差符号 (%)

记号	F	G	H	J	X
B 值公差	±1.0	±2.0	±3.0	±5.0	特殊公差

(6) : 计算 B 值温度代码

记号	A	B	C	D	E
两温度点	25/50	25/85	100/200	0/100	25/100
记号	F	G	H	J	K
两温度点	0/25	0/50	5/25	25/75	20/80

(7) : 传感器线长, 例如线长为 110mm, 则记为 110。

记号	110	500	1000
传感器线长	110mm	500mm	1000 mm

(8) : 传感器外形代码及特殊代码。

记号	A**	B**	C**
外形	外壳封装型	树脂包封型	加工型

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**8. 产品使用条件 (Product use conditions)**

8.1 产品使用的最大工作温度，最大功率等，均依照规格书要求作业，不可超出规格书之范围；

(The maximum service temperature of product use, the maximum power to wait, all in accordance with the specification requirements homework, shall not exceed the scope of specification)

8.2. 产品移动、安装必须轻拿轻放，不可用力拉动

(Product mobile, installation must be handled with care not pulling force)

8.3. 外壳发生变形、氧化等现象时，不要使用，以免影响感温精度

(Cap occur deformation, oxidation etc. Phenomenon, do not use, so as not to affect the temperature accuracy)

8.4. 产品外观发现变形、破损时，不可使用，以免影响电性能

(Product appearance found deformation, breakage, do not use, lest affect performance)

8.5. 在操作温度范围内，应尽量避免过于激烈的温度变化

(Avoid from exceeding radical temperature change, which is beyond operation temperature range)

8.6. 不可施加过度振动的压力

(Do not add excessive vibration shocking pressure)

8.7. 避免过度拉伸，弯曲导线

(Avoid from excessive pulling and bending of the lead wire)

8.8. 不要使用在有腐蚀性气体 (CO<sub>2</sub>, NH<sub>3</sub>, Sox, Nox) 超出指定的条件。不要使用在电解、盐、酸、碱性和有机溶剂超出指定的条件

(Do not use in corrosiveness gas atmosphere (CO<sub>2</sub>, NH<sub>3</sub>, Sox, Nox) beyond the designated condition.) Do not use at the place where the sensor touches the electrolytic, brine, acid, alkaline and organic solvent beyond the designated condition)

8.9. 不要使用在超出规格要求的高温，高湿及其它带腐蚀性环境中

(As far as possible avoid using in high temperature, high humidity that out of the specification and other rot environment.)

8.10. 通过负温度系数温度传感器的电流会引起组件自身发热而产生测量误差，因此需在使用前将此因素考虑在内。

(Through the negative temperature coefficient temperature sensor current will cause element own fever and produce measurement error, therefore need before use this factor into consideration.)

8.11 如果有任何不清楚的地方，请咨询到我们公司的销售主管或工程师。

(If there is anything remaining unclear, please contact to our company's sales supervisor/engineer)

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T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(°C)
-40	4161.4	4632.1	5151.5	11.21%	1.49
-39	3880.6	4313.4	4790.2	11.05%	1.48
-38	3620.3	4018.4	4456.2	10.90%	1.47
-37	3378.9	3745.2	4147.4	10.74%	1.46
-36	3155.0	3492.1	3861.7	10.59%	1.45
-35	2947.1	3257.5	3597.3	10.43%	1.44
-34	2754.1	3040.0	3352.5	10.28%	1.42
-33	2574.9	2838.2	3125.7	10.13%	1.41
-32	2408.3	2651.0	2915.5	9.98%	1.40
-31	2253.4	2477.1	2720.6	9.83%	1.39
-30	2109.3	2315.6	2539.8	9.68%	1.38
-29	1975.3	2165.6	2372.0	9.53%	1.37
-28	1850.5	2026.1	2216.3	9.39%	1.36
-27	1734.3	1896.3	2071.6	9.24%	1.35
-26	1626.1	1775.6	1937.2	9.10%	1.34
-25	1525.2	1663.3	1812.3	8.96%	1.33
-24	1431.1	1558.7	1696.1	8.82%	1.31
-23	1343.4	1461.2	1588.0	8.68%	1.30
-22	1261.5	1370.4	1487.4	8.54%	1.29
-21	1185.1	1285.7	1393.7	8.40%	1.28
-20	1113.7	1206.8	1306.5	8.26%	1.27
-19	1047.0	1133.1	1225.2	8.12%	1.26
-18	984.72	1064.3	1149.4	7.99%	1.24
-17	926.46	1000.1	1078.7	7.85%	1.23
-16	871.98	940.15	1012.7	7.72%	1.22
-15	821.00	884.10	951.19	7.59%	1.21
-14	773.28	831.70	893.72	7.46%	1.19
-13	728.61	782.70	840.05	7.33%	1.18
-12	686.76	736.85	789.89	7.20%	1.17
-11	647.55	693.95	743.00	7.07%	1.16
-10	610.79	653.78	699.16	6.94%	1.14
-9	576.33	616.16	658.15	6.81%	1.13
-8	544.00	580.91	619.76	6.69%	1.12
-7	513.66	547.87	583.83	6.56%	1.10
-6	485.18	516.89	550.18	6.44%	1.09
-5	458.44	487.84	518.66	6.32%	1.08
-4	433.32	460.58	489.11	6.19%	1.06
-3	409.71	434.99	461.41	6.07%	1.05
-2	387.52	410.96	435.43	5.95%	1.03
-1	366.66	388.40	411.05	5.83%	1.02
0	347.03	367.19	388.18	5.71%	1.01
1	328.56	347.26	366.70	5.60%	0.99

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2	311.18	328.53	346.53	5.48%	0.98
3	294.81	310.90	327.58	5.36%	0.96
4	279.39	294.32	309.76	5.25%	0.95
5	264.86	278.71	293.02	5.13%	0.93
6	251.17	264.02	277.27	5.02%	0.92
7	238.26	250.18	262.45	4.91%	0.90
8	226.09	237.14	248.51	4.79%	0.89
9	214.60	224.85	235.38	4.68%	0.88
10	203.76	213.26	223.02	4.57%	0.86
11	193.52	202.34	211.37	4.46%	0.84
12	183.86	192.03	200.39	4.35%	0.83
13	174.73	182.31	190.05	4.24%	0.81
14	166.10	173.13	180.29	4.14%	0.80
15	157.95	164.46	171.09	4.03%	0.78
16	150.24	156.27	162.41	3.92%	0.77
17	142.95	148.54	154.21	3.82%	0.75
18	136.05	141.23	146.47	3.71%	0.74
19	129.52	134.32	139.16	3.61%	0.72
20	123.34	127.78	132.26	3.51%	0.70

T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(°C)
21	117.49	121.60	125.74	3.40%	0.69
22	111.95	115.75	119.57	3.30%	0.67
23	106.69	110.21	113.74	3.20%	0.65
24	101.72	104.97	108.22	3.10%	0.64
25	97.000	100.00	103.00	3.00%	0.62
26	92.348	95.296	98.249	3.10%	0.65
27	87.943	90.838	93.743	3.20%	0.67
28	83.773	86.612	89.467	3.30%	0.69
29	79.822	82.606	85.409	3.39%	0.72
30	76.078	78.806	81.557	3.49%	0.75
31	72.530	75.200	77.899	3.59%	0.77
32	69.166	71.779	74.425	3.69%	0.80
33	65.976	68.532	71.124	3.78%	0.82
34	62.949	65.449	67.986	3.88%	0.85
35	60.078	62.520	65.004	3.97%	0.87
36	57.352	59.739	62.168	4.07%	0.90
37	54.765	57.095	59.471	4.16%	0.93
38	52.308	54.582	56.905	4.25%	0.95
39	49.974	52.193	54.463	4.35%	0.98
40	47.756	49.922	52.139	4.44%	1.01
41	45.648	47.760	49.926	4.53%	1.03
42	43.644	45.704	47.818	4.63%	1.06



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43	41.739	43.747	45.811	4.72%	1.09
44	39.926	41.884	43.898	4.81%	1.12
45	38.202	40.110	42.075	4.90%	1.14
46	36.561	38.420	40.337	4.99%	1.17
47	34.999	36.810	38.680	5.08%	1.20
48	33.512	35.276	37.100	5.17%	1.23
49	32.096	33.814	35.592	5.26%	1.26
50	30.747	32.420	34.153	5.35%	1.29
51	29.461	31.090	32.780	5.43%	1.32
52	28.236	29.822	31.469	5.52%	1.34
53	27.068	28.612	30.217	5.61%	1.37
54	25.954	27.458	29.022	5.70%	1.40
55	24.892	26.355	27.880	5.78%	1.43
56	23.878	25.303	26.788	5.87%	1.46
57	22.912	24.298	25.745	5.96%	1.49
58	21.989	23.338	24.748	6.04%	1.52
59	21.107	22.421	23.794	6.13%	1.55
60	20.266	21.544	22.883	6.21%	1.58
61	19.463	20.706	22.010	6.30%	1.61
62	18.695	19.905	21.175	6.38%	1.64
63	17.961	19.139	20.376	6.46%	1.67
64	17.260	18.407	19.612	6.55%	1.71
65	16.590	17.706	18.879	6.63%	1.74
66	15.949	17.035	18.178	6.71%	1.77
67	15.336	16.393	17.507	6.79%	1.80
68	14.750	15.778	16.863	6.87%	1.83
69	14.189	15.190	16.246	6.96%	1.86
70	13.652	14.626	15.655	7.04%	1.90
71	13.138	14.086	15.089	7.12%	1.93
72	12.646	13.569	14.545	7.20%	1.96
73	12.175	13.073	14.024	7.28%	1.99
74	11.724	12.597	13.524	7.36%	2.03
75	11.291	12.142	13.045	7.44%	2.06
76	10.877	11.705	12.584	7.52%	2.09
77	10.480	11.286	12.143	7.59%	2.13
78	10.099	10.884	11.719	7.67%	2.16
79	9.734	10.498	11.311	7.75%	2.19
80	9.384	10.128	10.920	7.83%	2.23

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81	9.048	9.772	10.545	7.90%	2.26
82	8.726	9.431	10.184	7.98%	2.29
83	8.417	9.103	9.837	8.06%	2.33
84	8.120	8.789	9.504	8.13%	2.36
85	7.836	8.486	9.183	8.21%	2.40
86	7.562	8.196	8.875	8.28%	2.43
87	7.300	7.917	8.579	8.36%	2.47
88	7.047	7.649	8.294	8.43%	2.50
89	6.805	7.391	8.020	8.51%	2.54
90	6.572	7.143	7.756	8.58%	2.57
91	6.348	6.904	7.502	8.66%	2.61
92	6.133	6.675	7.257	8.73%	2.65
93	5.927	6.454	7.022	8.80%	2.68
94	5.728	6.242	6.796	8.88%	2.72
95	5.536	6.037	6.578	8.95%	2.76
96	5.353	5.841	6.367	9.02%	2.79
97	5.176	5.651	6.165	9.09%	2.83
98	5.005	5.469	5.970	9.16%	2.87
99	4.841	5.293	5.782	9.24%	2.90
100	4.684	5.124	5.601	9.31%	2.94
101	4.532	4.961	5.426	9.38%	2.98
102	4.385	4.804	5.258	9.45%	3.02
103	4.244	4.653	5.095	9.52%	3.05
104	4.109	4.507	4.939	9.59%	3.09
105	3.978	4.366	4.788	9.66%	3.13
106	3.852	4.230	4.642	9.73%	3.17
107	3.731	4.100	4.501	9.79%	3.21
108	3.614	3.974	4.366	9.86%	3.24
109	3.501	3.852	4.234	9.93%	3.28
110	3.392	3.734	4.108	10.00%	3.32
111	3.287	3.621	3.986	10.07%	3.36
112	3.186	3.512	3.868	10.14%	3.40
113	3.088	3.406	3.754	10.20%	3.44
114	2.994	3.304	3.644	10.27%	3.48
115	2.903	3.206	3.537	10.34%	3.52
116	2.815	3.111	3.435	10.40%	3.56
117	2.731	3.019	3.335	10.47%	3.60
118	2.649	2.931	3.239	10.53%	3.64
119	2.570	2.845	3.146	10.60%	3.68
120	2.494	2.762	3.057	10.67%	3.72
121	2.420	2.682	2.970	10.73%	3.76
122	2.349	2.605	2.886	10.80%	3.80
123	2.280	2.530	2.805	10.86%	3.85
124	2.214	2.458	2.726	10.92%	3.89

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125	2.150	2.388	2.650	10.99%	3.93
126	2.088	2.320	2.577	11.05%	3.97
127	2.028	2.255	2.506	11.12%	4.01
128	1.970	2.192	2.437	11.18%	4.05
129	1.913	2.130	2.370	11.24%	4.10
130	1.859	2.071	2.305	11.30%	4.14
131	1.807	2.014	2.243	11.37%	4.18
132	1.756	1.958	2.182	11.43%	4.23
133	1.707	1.905	2.124	11.49%	4.27
134	1.659	1.853	2.067	11.55%	4.31
135	1.613	1.802	2.012	11.61%	4.35
136	1.569	1.754	1.958	11.68%	4.40
137	1.526	1.706	1.907	11.74%	4.44
138	1.484	1.660	1.856	11.80%	4.49
139	1.444	1.616	1.808	11.86%	4.53
140	1.404	1.573	1.761	11.92%	4.57

T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(°C)
141	1.366	1.532	1.715	12.0%	4.62
142	1.330	1.491	1.671	12.0%	4.66
143	1.294	1.452	1.628	12.1%	4.71
144	1.260	1.414	1.586	12.2%	4.75
145	1.226	1.377	1.546	12.2%	4.80
146	1.194	1.342	1.506	12.3%	4.84
147	1.162	1.307	1.468	12.3%	4.89
148	1.132	1.273	1.431	12.4%	4.93
149	1.103	1.241	1.395	12.5%	4.98
150	1.074	1.209	1.361	12.5%	5.03
151	1.046	1.179	1.327	12.6%	5.07
152	1.019	1.149	1.294	12.6%	5.12
153	0.9931	1.120	1.262	12.7%	5.17
154	0.9678	1.092	1.231	12.7%	5.21
155	0.9432	1.065	1.201	12.8%	5.26
156	0.9193	1.038	1.172	12.9%	5.31
157	0.8962	1.013	1.144	12.9%	5.35
158	0.8737	0.9879	1.116	13.0%	5.40
159	0.8519	0.9637	1.089	13.0%	5.45
160	0.8307	0.9402	1.063	13.1%	5.50
161	0.8101	0.9173	1.038	13.1%	5.54
162	0.7902	0.8952	1.013	13.2%	5.59
163	0.7708	0.8736	0.9893	13.2%	5.64
164	0.7519	0.8527	0.9661	13.3%	5.69
165	0.7336	0.8323	0.9435	13.4%	5.74

#### Product specification

#### 产品技术规格

规格型号 (PART NO.)	TS104H4390GB600C
文件编号 (FILE NO.)	S0126
版本 (EDITION)	A0

166	0.7158	0.8125	0.9215	13.4%	5.79
167	0.6986	0.7933	0.9001	13.5%	5.83
168	0.6818	0.7746	0.8793	13.5%	5.88
169	0.6655	0.7564	0.8591	13.6%	5.93
170	0.6496	0.7388	0.8394	13.6%	5.98
171	0.6342	0.7216	0.8203	13.7%	6.03
172	0.6192	0.7049	0.8016	13.7%	6.08
173	0.6046	0.6886	0.7835	13.8%	6.13
174	0.5905	0.6728	0.7658	13.8%	6.18
175	0.5767	0.6574	0.7487	13.9%	6.23
176	0.5633	0.6424	0.7319	13.9%	6.28
177	0.5502	0.6278	0.7157	14.0%	6.33
178	0.5376	0.6136	0.6998	14.0%	6.38
179	0.5252	0.5998	0.6844	14.1%	6.44
180	0.5132	0.5864	0.6694	14.1%	6.49
181	0.5016	0.5733	0.6547	14.2%	6.54
182	0.4902	0.5606	0.6405	14.3%	6.59
183	0.4791	0.5482	0.6266	14.3%	6.64
184	0.4684	0.5361	0.6130	14.4%	6.69
185	0.4579	0.5243	0.5998	14.4%	6.74
186	0.4477	0.5129	0.5870	14.5%	6.80
187	0.4377	0.5017	0.5745	14.5%	6.85
188	0.4281	0.4908	0.5623	14.6%	6.90
189	0.4187	0.4802	0.5504	14.6%	6.96
190	0.4095	0.4699	0.5388	14.7%	7.01
191	0.4005	0.4599	0.5275	14.7%	7.06
192	0.3918	0.4501	0.5165	14.8%	7.11
193	0.3834	0.4405	0.5057	14.8%	7.17
194	0.3751	0.4312	0.4952	14.9%	7.22
195	0.3670	0.4221	0.4850	14.9%	7.28
196	0.3592	0.4133	0.4751	15.0%	7.33
197	0.3516	0.4046	0.4653	15.0%	7.38
198	0.3441	0.3962	0.4559	15.0%	7.44
199	0.3368	0.3880	0.4466	15.1%	7.49
200	0.3298	0.3800	0.4376	15.1%	7.55