

规格承认书

SPECIFICATION FOR APPROVAL

客户(Customer):

品名(Product Name): NTC温度传感器 NTC temperature sensor

维宏料号(Part Number): WH282104E395050-2-10

发布日期(Issue Date): 2025.11.6

发布版本(Rev. No.): V1.1

文件编号(Doc. No.): WH-0-01

客户承认Customer Approved

判定结果 Result		
检验 Inspector	审核 Checked	核准 Approved

维宏感应（山东）科技有限公司

Weihong Induction (Shandong) Technology Co., Ltd

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修订记录清单 Revised Record Sheet

版本 REV. NO	发布日期 REV. Date	修改内容 Revised Content
V1.1	2025.11.6	新版本发布(New Released)

1. 外形尺寸 Shape and Dimensions:

材料清单 Bill of Material									
NO	名称 name	材料规格 Material specifications	数量 number	备注 notes	NO	名称 name	材料规格 Material specifications	数量 number	备注 notes
1	线材 wire rod	UL2651-28#	1	黑色 black	2	环氧树脂 epoxy resin	包封类环氧树脂 Encapsulated epoxy resin	1	黑色 black
3	芯片 chip	R25=100K Ω ±0.5% B25/50=3950, 1%	1	/	4	硅胶 silica gel	硅胶 silica gel	1	透明 transparent
主要参数									
项目				数值					
R25阻值 resistance				100K Ω ±0.5%					
B25/50				3950K ±1%					

单位 (mm)



A	B	C	D	E
Max3.5	Max 6.5	50±3	10±2	2±0.5

版本	修改内容 REVISION	修改者 Modified By	修改日期 modification date	确认 confirm	维宏料号 Weihong part number	WH262104E395050-2-10
V1.1	新做成	刘兆霞	2025.11.16	马国辉	日期 date	2025.11.16

2. 产品型号说明 Product Identification(Part Number):

<u>WH282</u>	<u>104</u>	<u>E</u>	<u>3950</u>	<u>50</u>	<u>2</u>	<u>10</u>
①	②	③	④	⑤	⑥	⑦

①WH282:

- 维宏公司:28#并线产品

Weihong Company: 28# parallel products

②104: 标准阻值 Standard resistance value

- 25℃的零功率电阻值10KΩ Zero power resistance value of 10K Ω at 25 °C

③E: 阻值允许偏差代号

Code for allowable deviation of resistance value

- E: ±05%, F: ±1%, G: ±2%, H: ±3%, J: ±5%, K: ±10%

④3950: B值

- B25/50℃ 值: 3950F

⑤50: 产品长度 (mm) Product length (mm)

⑥2: 尾部侵锡长度 (mm) Tail tin penetration length (mm)

⑦10: 尾部分线长度 (mm) Tail branch length (mm)

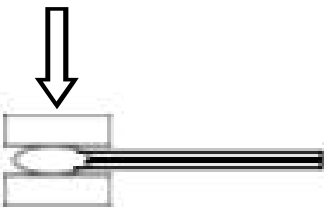
3. 电气特性 Electrical Characteristics:

序号	项目 project	符号 symbol	测试条件 Test conditions	单位 unit	性能要求 Performance Requirement
3.1	25°C的零功率电阻Zero power resistance value at 25 °C	$R_{25^{\circ}\text{C}}$	$T_a=25\pm0.05^{\circ}\text{C}$ 测试功率 $\leq 0.1\text{mw}$	K Ω	$100\text{K}\Omega\pm0.5\%$
3.2	B值	$B_{25/50}$	$B=\frac{[T_a\times T_b]/(T_b-T_a)]\times\ln(R_a/R_b)}{T_b-50^{\circ}\text{C}\pm0.05^{\circ}\text{C}}$	K	$3950\pm1\%$
3.3	耗散系数 Dissipation coefficient	δ	静止空气中In still air	mW/ $^{\circ}\text{C}$	≥ 2
3.4	时间常数 time constant	τ	静止空气中In still air	sec	≤ 7
3.5	绝缘耐压 insulation resistance	/	300V/DC 1min	M Ω	≥ 300
3.6	工作温度范围 Operating temperature range	/	/	/	$-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$
3.7	最大额定功率 Maximum rated power	P_{max}	/	mW	10
3.8	阻温特性 Resistance temperature characteristic	/	/	/	见附表1

4. 信赖性试验 Reliability Test:

项目 project	测试条件 Test conditions	技术要求 technical requirement
4.1尾部焊接 soldering resistance	温度: $260\pm 5^{\circ}\text{C}$, 浸入深度距电阻体 6mm, 时间 0.4~1.0秒	$R_{25} \Delta R/R \leq \pm 2\%$
4.2稳态湿热 Damp heat steady state	温度: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 湿度: $93 \pm 2\%$, 时间: 500小时	$R_{25} \Delta R/R \leq \pm 2\%$
4.3冷热冲击 Thermal Shock	-40°C 30min $\rightarrow 25^{\circ}\text{C}$ 5min $\rightarrow 105^{\circ}\text{C}$ 30min $\rightarrow 25^{\circ}\text{C}$ 5min, 反复5次	$R_{25} \Delta R/R \leq \pm 2\%$
4.4低温储存 low temperature storage	温度: -40°C 时间: 1000小时	$R_{25} \Delta R/R \leq \pm 2\%$
4.5高温高湿老化 High temperature and high humidity storage	温度: $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 湿度: 85% 时间: 1000小时 Temperature: $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Humidity: 85% Time: 1000 hours	$R_{25} \Delta R/R \leq \pm 5\%$

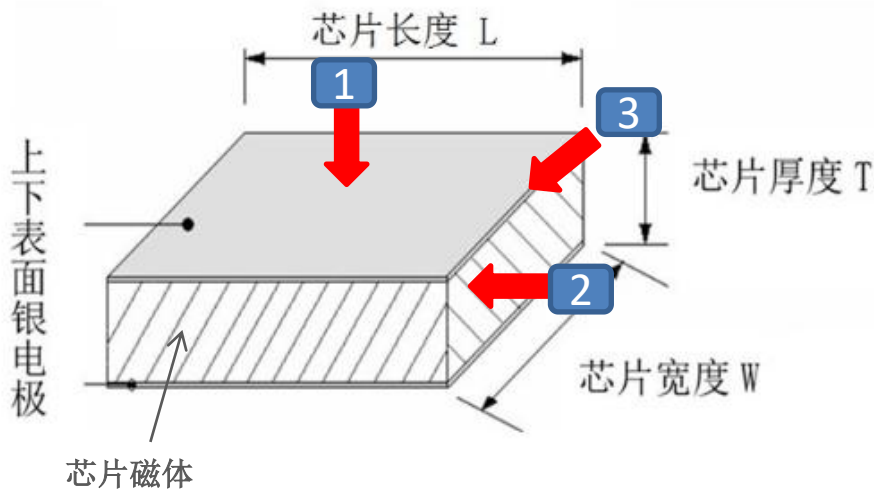
5. 机械性能: Mechanical performance:

项目 project	测试条件 Test conditions	技术要求 technical requirement
5.1自由跌落 free fall	跌落高度: 1.0m Drop height: 1.0m 跌落次数: 3次 Number of drops: 3 times 跌落面: 木板 Falling surface: wooden board	外观无损伤 $\Delta R_{25} / R_{25}$ $\leq 1\%$ $\Delta B / B$ $\leq 1\%$
5.2 水平拉力 Horizontal tensile force	 固定环氧头部: 拉力: $F=5\pm 1\text{N}$, 时间: $10\pm 1\text{秒}$ Fixed resistor end: tension: $5 \pm 1\text{ N}$, time: $10 \pm 1\text{ seconds}$	无可见性损伤 No visible damage $R_{25} \Delta R/R \leq \pm 2\%$
5.3 压力测试 Stress testing	 常规室温接通阻值测试仪/万用表, 阻值稳定后施加50N压力持续5秒 Connect the resistance tester/multimeter to the conventional room temperature at the tail line, and apply 50N pressure for 5 seconds after the resistance stabilizes	$R_{25} \Delta R/R \leq \pm 2\%$

6.高精度NTC热敏电阻芯片特性:

Characteristics of high-precision NTC thermistor chip:

芯片结构chip structure



芯片压力极限测试: Chip Pressure Limit Test

受力方向 Direction of force	极限压力值 Ultimate pressure value	受损部位 Damaged area
①正面 Frontal	80N	电极表面OK, 芯片磁体破损。 The electrode surface is OK, and the chip magnet is damaged.
②侧面 Sides	40N	芯片电极/磁体均出现破损 Both chip electrodes and magnets are damaged
③侧面45度 45 degrees on the side	10N	芯片电极/磁体开裂分离 Chip electrode/magnet cracking separation
芯片电极与磁体结合力 Bonding force between chip electrode and magnet	2N	芯片电极/磁体交接处分离 Separation of chip electrode/magnet junction

7. 使用注意事项 Notes & Warnings:

7.1 本产品的用途：温度测量与控制；

The purpose of this product: temperature measurement and control;

7.2 避免流过热敏电阻芯片的电流引起元件自身发热而产生测量误差；

To avoid measurement errors caused by the heating of the component itself caused by the current flowing through the thermistor chip;

7.3 焊接时，焊接温度应低于 275℃，焊接时间<3ses；

When welding, the welding temperature should be lower than 275 °C and the welding time should be less than 3 seconds;

7.4 允许任何方法运输，但要避免雨/雪直接或间接的淋袭。

Any method of transportation is allowed, but direct or indirect rain/snow should be avoided.

7.5 生产、运输或使用过程中应避免80N以上的外力挤压或损伤。

During production, transportation, or use, external forces exceeding 80N should be avoided from squeezing or damaging.

7.6 存储：Storage:

最佳存储温度： 25℃±3℃ 湿度： 30%~60%

Class I: Storage temperature: 25 °C ± 3 °C Humidity: 30%~60%

存储有效期12个月内阻值变化3%以内（仅限整包密封包装），不排除锡脚表面氧化的可能。The resistance change within 12 months of storage validity is within 3% (limited to whole package vacuum packaging), and the possibility of oxidation on the surface of the tin feet cannot be ruled out.

常规存储温度： -10℃~40℃ 湿度： <75%

Class II: Storage temperature: -10 °C ~40 °C Humidity:<75%

存储有效期6个月内阻值变化3%以内（仅限整包密封包装），不排除锡脚表面氧化的可能。The resistance change within 6 months of storage is within 3% (limited to whole package vacuum packaging), and the possibility of oxidation on the surface of the tin feet cannot be ruled out.

R-T表 (No.2024030)

料号: WH033

品名: 104E3950F

R25 = 100.0kΩ±0.5%

B25/50 = 3950K±1.0%

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
-50	6352	6065	5792	-0.7	+0.7
-49	5928	5665	5413	-0.7	+0.7
-48	5537	5295	5063	-0.7	+0.7
-47	5174	4951	4737	-0.7	+0.7
-46	4839	4633	4436	-0.7	+0.7
-45	4527	4337	4156	-0.7	+0.7
-44	4238	4063	3895	-0.7	+0.7
-43	3970	3809	3654	-0.7	+0.7
-42	3721	3572	3429	-0.7	+0.7
-41	3489	3352	3219	-0.7	+0.7
-40	3274	3147	3024	-0.7	+0.7
-39	3068	2951	2838	-0.7	+0.7
-38	2877	2768	2664	-0.6	+0.7
-37	2699	2599	2502	-0.6	+0.6
-36	2533	2441	2352	-0.6	+0.6
-35	2379	2294	2211	-0.6	+0.6
-34	2236	2157	2080	-0.6	+0.6
-33	2102	2029	1958	-0.6	+0.6
-32	1977	1909	1844	-0.6	+0.6
-31	1860	1798	1738	-0.6	+0.6
-30	1752	1694	1638	-0.6	+0.6
-29	1648	1595	1543	-0.6	+0.6
-28	1551	1502	1454	-0.6	+0.6
-27	1461	1415	1371	-0.6	+0.6
-26	1376	1334	1293	-0.6	+0.6
-25	1297	1258	1220	-0.6	+0.6
-24	1224	1187	1152	-0.6	+0.6
-23	1155	1121	1088	-0.6	+0.6
-22	1090	1059	1028	-0.6	+0.6
-21	1029	1000	972.6	-0.5	+0.5
-20	972.1	945.7	920.0	-0.5	+0.5
-19	917.6	893.2	869.5	-0.5	+0.5
-18	866.6	844.1	822.1	-0.5	+0.5
-17	818.9	798.0	777.6	-0.5	+0.5
-16	774.0	754.7	735.9	-0.5	+0.5
-15	732.0	714.1	696.7	-0.5	+0.5
-14	692.5	676.0	659.8	-0.5	+0.5
-13	655.5	640.2	625.2	-0.5	+0.5
-12	620.7	606.5	592.6	-0.5	+0.5
-11	588.0	574.8	562.0	-0.5	+0.5
-10	557.2	545.1	533.2	-0.5	+0.5

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
-9	527.7	516.5	505.5	-0.4	+0.5
-8	500.0	489.6	479.5	-0.4	+0.4
-7	474.0	464.4	455.0	-0.4	+0.4
-6	449.5	440.6	431.9	-0.4	+0.4
-5	426.4	418.2	410.1	-0.4	+0.4
-4	404.6	397.1	389.6	-0.4	+0.4
-3	384.1	377.1	370.3	-0.4	+0.4
-2	364.8	358.4	352.0	-0.4	+0.4
-1	346.6	340.7	334.8	-0.4	+0.4
0	329.5	324.0	318.5	-0.4	+0.4
1	313.1	308.0	303.0	-0.4	+0.4
2	297.6	292.9	288.3	-0.4	+0.4
3	283.0	278.7	274.4	-0.4	+0.4
4	269.2	265.2	261.3	-0.3	+0.3
5	256.2	252.5	248.9	-0.3	+0.3
6	243.8	240.5	237.1	-0.3	+0.3
7	232.2	229.1	226.0	-0.3	+0.3
8	221.2	218.3	215.5	-0.3	+0.3
9	210.8	208.2	205.6	-0.3	+0.3
10	200.9	198.5	196.1	-0.3	+0.3
11	191.5	189.2	187.0	-0.3	+0.3
12	182.5	180.5	178.4	-0.3	+0.3
13	174.0	172.1	170.3	-0.3	+0.3
14	166.0	164.3	162.6	-0.3	+0.3
15	158.3	156.8	155.3	-0.3	+0.3
16	151.1	149.7	148.3	-0.2	+0.2
17	144.3	143.0	141.7	-0.2	+0.2
18	137.8	136.6	135.5	-0.2	+0.2
19	131.6	130.6	129.5	-0.2	+0.2
20	125.8	124.8	123.9	-0.2	+0.2
21	120.2	119.3	118.5	-0.2	+0.2
22	114.9	114.1	113.4	-0.2	+0.2
23	109.9	109.2	108.5	-0.2	+0.2
24	105.1	104.5	103.9	-0.2	+0.2
25	100.5	100.0	99.50	-0.2	+0.2
26	96.24	95.72	95.19	-0.2	+0.2
27	92.19	91.65	91.11	-0.2	+0.2
28	88.33	87.78	87.22	-0.2	+0.2
29	84.66	84.09	83.52	-0.2	+0.2
30	81.17	80.58	80.00	-0.2	+0.2
31	77.80	77.21	76.62	-0.2	+0.2
32	74.60	74.00	73.41	-0.2	+0.2
33	71.55	70.95	70.35	-0.3	+0.3
34	68.65	68.04	67.43	-0.3	+0.3
35	65.88	65.26	64.66	-0.3	+0.3
36	63.23	62.62	62.01	-0.3	+0.3
37	60.71	60.10	59.49	-0.3	+0.3
38	58.31	57.70	57.09	-0.3	+0.3
39	56.01	55.40	54.80	-0.3	+0.3
40	53.82	53.21	52.61	-0.3	+0.3

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
41	51.71	51.10	50.50	-0.3	+0.3
42	49.69	49.08	48.49	-0.4	+0.4
43	47.75	47.16	46.56	-0.4	+0.4
44	45.91	45.32	44.73	-0.4	+0.4
45	44.15	43.56	42.98	-0.4	+0.4
46	42.47	41.88	41.31	-0.4	+0.4
47	40.86	40.28	39.71	-0.4	+0.4
48	39.32	38.75	38.18	-0.4	+0.4
49	37.84	37.28	36.73	-0.4	+0.4
50	36.44	35.88	35.33	-0.4	+0.4
51	35.07	34.53	33.98	-0.5	+0.5
52	33.77	33.23	32.70	-0.5	+0.5
53	32.52	31.99	31.46	-0.5	+0.5
54	31.33	30.80	30.29	-0.5	+0.5
55	30.19	29.67	29.16	-0.5	+0.5
56	29.09	28.58	28.08	-0.5	+0.5
57	28.04	27.54	27.05	-0.5	+0.5
58	27.04	26.54	26.06	-0.5	+0.5
59	26.07	25.59	25.11	-0.6	+0.6
60	25.15	24.67	24.20	-0.6	+0.6
61	24.26	23.79	23.33	-0.6	+0.6
62	23.40	22.94	22.48	-0.6	+0.6
63	22.58	22.12	21.68	-0.6	+0.6
64	21.79	21.34	20.91	-0.6	+0.6
65	21.03	20.60	20.17	-0.6	+0.6
66	20.31	19.88	19.46	-0.6	+0.6
67	19.61	19.19	18.77	-0.7	+0.7
68	18.94	18.53	18.12	-0.7	+0.7
69	18.30	17.89	17.49	-0.7	+0.7
70	17.68	17.28	16.89	-0.7	+0.7
71	17.08	16.69	16.31	-0.7	+0.7
72	16.51	16.12	15.75	-0.7	+0.7
73	15.96	15.58	15.21	-0.7	+0.7
74	15.43	15.06	14.69	-0.8	+0.8
75	14.92	14.55	14.20	-0.8	+0.8
76	14.43	14.07	13.72	-0.8	+0.8
77	13.95	13.61	13.26	-0.8	+0.8
78	13.50	13.16	12.82	-0.8	+0.8
79	13.06	12.73	12.40	-0.8	+0.8
80	12.64	12.32	11.99	-0.8	+0.8
81	12.24	11.91	11.60	-0.8	+0.8
82	11.85	11.53	11.22	-0.9	+0.9
83	11.47	11.16	10.86	-0.9	+0.9
84	11.11	10.80	10.51	-0.9	+0.9
85	10.76	10.46	10.17	-0.9	+0.9
86	10.42	10.13	9.847	-0.9	+0.9
87	10.09	9.807	9.533	-0.9	+0.9
88	9.774	9.499	9.231	-0.9	+1.0
89	9.472	9.202	8.940	-1.0	+1.0
90	9.181	8.917	8.660	-1.0	+1.0

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
91	8.899	8.640	8.388	-1.0	+1.0
92	8.627	8.374	8.127	-1.0	+1.0
93	8.365	8.117	7.875	-1.0	+1.0
94	8.112	7.869	7.632	-1.0	+1.0
95	7.868	7.630	7.398	-1.0	+1.1
96	7.633	7.399	7.173	-1.1	+1.1
97	7.406	7.177	6.955	-1.1	+1.1
98	7.187	6.963	6.745	-1.1	+1.1
99	6.976	6.756	6.543	-1.1	+1.1
100	6.771	6.556	6.347	-1.1	+1.1
101	6.573	6.362	6.158	-1.1	+1.1
102	6.382	6.175	5.975	-1.2	+1.2
103	6.197	5.995	5.799	-1.2	+1.2
104	6.019	5.820	5.628	-1.2	+1.2
105	5.846	5.652	5.464	-1.2	+1.2
106	5.680	5.489	5.305	-1.2	+1.2
107	5.519	5.332	5.152	-1.2	+1.2
108	5.363	5.180	5.003	-1.2	+1.3
109	5.213	5.033	4.860	-1.3	+1.3
110	5.067	4.891	4.722	-1.3	+1.3
111	4.926	4.754	4.588	-1.3	+1.3
112	4.789	4.621	4.458	-1.3	+1.3
113	4.657	4.492	4.332	-1.3	+1.3
114	4.529	4.367	4.211	-1.3	+1.3
115	4.406	4.247	4.094	-1.4	+1.4
116	4.286	4.130	3.980	-1.4	+1.4
117	4.170	4.018	3.871	-1.4	+1.4
118	4.058	3.909	3.764	-1.4	+1.4
119	3.949	3.803	3.662	-1.4	+1.4
120	3.844	3.701	3.562	-1.4	+1.4
121	3.742	3.601	3.465	-1.4	+1.5
122	3.642	3.504	3.371	-1.5	+1.5
123	3.546	3.410	3.280	-1.5	+1.5
124	3.452	3.319	3.192	-1.5	+1.5
125	3.362	3.232	3.106	-1.5	+1.5
126	3.274	3.146	3.024	-1.5	+1.5
127	3.189	3.064	2.944	-1.5	+1.6
128	3.107	2.984	2.866	-1.6	+1.6
129	3.027	2.906	2.791	-1.6	+1.6
130	2.949	2.831	2.718	-1.6	+1.6
131	2.873	2.757	2.646	-1.6	+1.6
132	2.799	2.686	2.577	-1.6	+1.6
133	2.727	2.616	2.510	-1.6	+1.6
134	2.658	2.549	2.444	-1.6	+1.7
135	2.591	2.484	2.381	-1.7	+1.7
136	2.525	2.420	2.320	-1.7	+1.7
137	2.462	2.359	2.260	-1.7	+1.7
138	2.400	2.299	2.203	-1.7	+1.7
139	2.341	2.242	2.147	-1.7	+1.7
140	2.283	2.186	2.093	-1.8	+1.7

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
141	2.225	2.130	2.039	-1.8	+1.8
142	2.169	2.076	1.987	-1.8	+1.8
143	2.115	2.024	1.936	-1.8	+1.8
144	2.063	1.973	1.887	-1.8	+1.8
145	2.012	1.924	1.840	-1.8	+1.8
146	1.963	1.876	1.794	-1.8	+1.8
147	1.915	1.830	1.749	-1.8	+1.9
148	1.868	1.785	1.705	-1.9	+1.9
149	1.823	1.741	1.663	-1.9	+1.9
150	1.779	1.699	1.622	-1.9	+1.9