

规格承认书

SPECIFICATION FOR APPROVAL

客户(Customer):

品名(Product Name): NTC热敏传感器 NTC thermal sensor

维宏料号(Part Number): WH0103F338070-2

发布日期(Issue Date): 2024.12.18

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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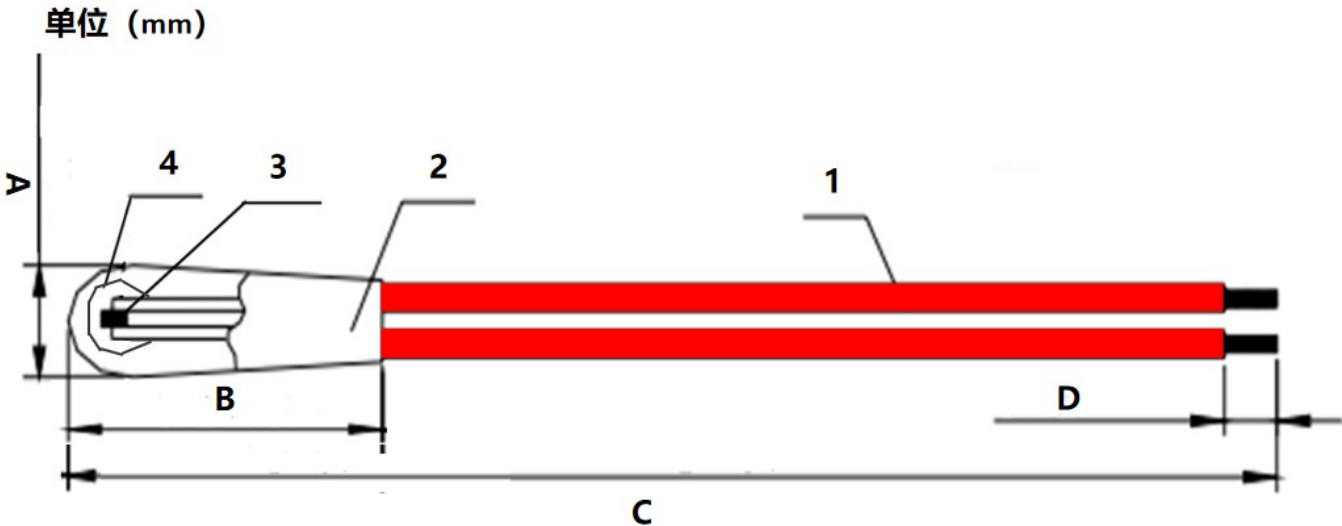
修订记录清单 Revised Record Sheet

版本 REV. NO	发布日期 REV. Date	修改内容 Revised Content
V1.1	2024.12.18	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	0.27纯铜漆包线 Pure copper enameled wire	2	红色 red	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=10KΩ,B25/50=3380,1%	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	10KΩ ±1%
B25/50	3380K ±1%



A	B	C	D
Max 2.0	Max 4.5	70±5	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	WH0103F3380 70-2
V1.1	1、增加机械性能 2、统一环氧头部尺寸	刘兆霞	2024.12.18	马国辉	日期date	2024.12.18

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

WH0	103	F	3380	70	2
①	②	③	④	⑤	⑥

①WH0:

- 维宏公司:纯铜漆包线产品

Weihong Company: Pure copper enameled wire products

②103: 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

③F: 阻值允许偏差代号

Code for allowable deviation of resistance value

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

④3380: B值

- B25/50℃ 值: 3380K

⑤70: 产品长度 (mm) Product length (mm)

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

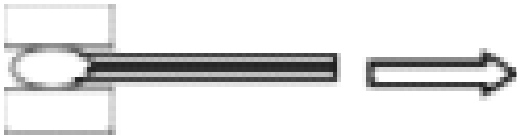
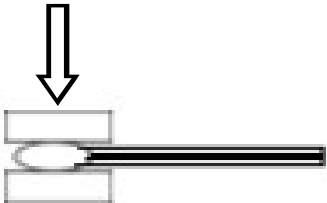
3. 电气特性 Electrical Characteristics:

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℃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	$10\text{K}\Omega\pm 1\%$
3.2	B值	$B_{25/50}$	$B=\frac{[T_a\times T_b]/(T_b-T_a)]\times\ln(R_a/R_b)}{T_b-50^{\circ}\text{C}\pm 0.05^{\circ}\text{C}}$	K	$3380\pm 1\%$
3.3	耗散系数 Dissipation coefficient	δ	静止空气中In still air	mW/°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°C 5min $\rightarrow$ 105°C 30min $\rightarrow$ 25°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	$R_{25} \Delta R/R \leq \pm 5\%$

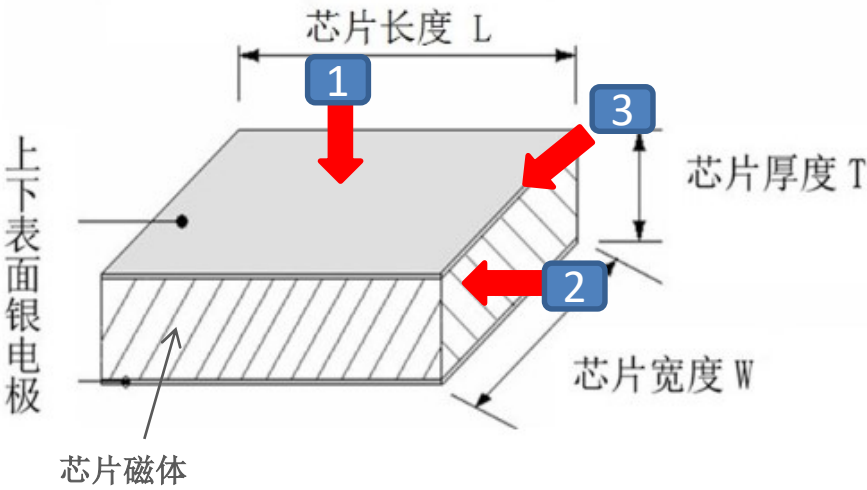
5. 机械性能: Mechanical performance:

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 ± 1 秒 Fixed resistor end: tension: $5 \pm 1\text{ N}$, time: 10 ± 1 seconds	无可见性损伤 No visible damage $R_{25} \Delta R/R \leq \pm 2\%$
5.3垂直拉力 Vertical tension	 固定产品两端引线 $F=1\text{N}$, 1min Fixed product leads at both ends $F=1\text{N}$, 1min	外观无损伤 $\Delta R_{25} / R_{25}$ $\leq 2\%$ $\Delta B / B$ $\leq 2\%$
5.4 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.

8. 附表1： 阻温特性表 R-T table

R25=10K Ω , B25/50=3380K, 精度:±1%

温度 [°C]	R最大 [k Ω]	R中心 [k Ω]	R最小 [k Ω]	温度偏差 [°C]	
-50	385.1	367.7	351.1	-0.8	+0.8
-49	362.1	346.0	330.5	-0.8	+0.8
-48	340.7	325.7	311.3	-0.8	+0.8
-47	320.7	306.8	293.4	-0.8	+0.8
-46	302.0	289.1	276.7	-0.8	+0.8
-45	284.6	272.6	261.0	-0.8	+0.8
-44	268.4	257.2	246.4	-0.8	+0.8
-43	253.1	242.7	232.7	-0.8	+0.8
-42	238.9	229.2	219.9	-0.8	+0.8
-41	225.6	216.6	207.8	-0.8	+0.8
-40	213.1	204.7	196.6	-0.8	+0.8
-39	201.3	193.4	185.8	-0.7	+0.8
-38	190.1	182.8	175.8	-0.7	+0.7
-37	179.7	172.9	166.3	-0.7	+0.7
-36	170.0	163.6	157.4	-0.7	+0.7
-35	160.8	154.9	149.1	-0.7	+0.7
-34	152.2	146.7	141.3	-0.7	+0.7
-33	144.1	139.0	133.9	-0.7	+0.7
-32	136.6	131.7	127.0	-0.7	+0.7
-31	129.4	124.9	120.5	-0.7	+0.7
-30	122.7	118.5	114.4	-0.7	+0.7
-29	116.3	112.4	108.5	-0.7	+0.7
-28	110.3	106.6	103.0	-0.7	+0.7
-27	104.6	101.2	97.88	-0.7	+0.7
-26	99.26	96.08	92.98	-0.7	+0.7
-25	94.24	91.27	88.37	-0.7	+0.7
-24	89.52	86.73	84.02	-0.7	+0.7
-23	85.06	82.45	79.92	-0.7	+0.7
-22	80.86	78.42	76.05	-0.7	+0.7
-21	76.90	74.61	72.39	-0.7	+0.7
-20	73.16	71.02	68.94	-0.6	+0.6

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
-19	69.53	67.53	65.59	-0.6	+0.6
-18	66.11	64.24	62.42	-0.6	+0.6
-17	62.88	61.14	59.43	-0.6	+0.6
-16	59.83	58.20	56.61	-0.6	+0.6
-15	56.96	55.43	53.94	-0.6	+0.6
-14	54.24	52.81	51.41	-0.6	+0.6
-13	51.67	50.33	49.02	-0.6	+0.6
-12	49.24	47.99	46.76	-0.6	+0.6
-11	46.94	45.77	44.62	-0.6	+0.6
-10	44.77	43.67	42.60	-0.6	+0.6
-9	42.69	41.66	40.66	-0.6	+0.6
-8	40.72	39.76	38.82	-0.6	+0.6
-7	38.86	37.96	37.08	-0.6	+0.6
-6	37.09	36.25	35.42	-0.5	+0.6
-5	35.42	34.63	33.86	-0.5	+0.5
-4	33.84	33.10	32.37	-0.5	+0.5
-3	32.33	31.64	30.96	-0.5	+0.5
-2	30.91	30.26	29.62	-0.5	+0.5
-1	29.55	28.95	28.35	-0.5	+0.5
0	28.27	27.70	27.14	-0.5	+0.5
1	27.04	26.50	25.98	-0.5	+0.5
2	25.87	25.37	24.88	-0.5	+0.5
3	24.76	24.29	23.83	-0.5	+0.5
4	23.70	23.26	22.83	-0.5	+0.5
5	22.70	22.29	21.88	-0.5	+0.5
6	21.74	21.36	20.98	-0.5	+0.5
7	20.83	20.48	20.12	-0.5	+0.5
8	19.97	19.63	19.30	-0.4	+0.5
9	19.15	18.83	18.52	-0.4	+0.4
10	18.36	18.07	17.78	-0.4	+0.4

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
11	17.61	17.34	17.07	-0.4	+0.4
12	16.90	16.64	16.39	-0.4	+0.4
13	16.22	15.98	15.74	-0.4	+0.4
14	15.57	15.35	15.12	-0.4	+0.4
15	14.95	14.74	14.53	-0.4	+0.4
16	14.36	14.17	13.97	-0.4	+0.4
17	13.80	13.62	13.43	-0.4	+0.4
18	13.26	13.09	12.92	-0.4	+0.4
19	12.75	12.59	12.43	-0.4	+0.4
20	12.26	12.11	11.96	-0.4	+0.4
21	11.79	11.65	11.51	-0.3	+0.3
22	11.34	11.21	11.08	-0.3	+0.3
23	10.91	10.79	10.67	-0.3	+0.3
24	10.50	10.38	10.27	-0.3	+0.3
25	10.10	10.00	9.900	-0.3	+0.3
26	9.730	9.630	9.529	-0.3	+0.3
27	9.376	9.275	9.175	-0.3	+0.3
28	9.036	8.936	8.836	-0.3	+0.4
29	8.711	8.612	8.512	-0.4	+0.4
30	8.400	8.301	8.202	-0.4	+0.4
31	8.100	8.002	7.904	-0.4	+0.4
32	7.813	7.715	7.618	-0.4	+0.4
33	7.538	7.441	7.344	-0.4	+0.4
34	7.274	7.177	7.082	-0.4	+0.4
35	7.021	6.925	6.830	-0.4	+0.4
36	6.778	6.683	6.590	-0.4	+0.4
37	6.545	6.452	6.359	-0.5	+0.5
38	6.322	6.229	6.137	-0.5	+0.5
39	6.107	6.016	5.925	-0.5	+0.5
40	5.902	5.811	5.721	-0.5	+0.5

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
41	5.702	5.613	5.524	-0.5	+0.5
42	5.511	5.423	5.335	-0.5	+0.5
43	5.327	5.240	5.154	-0.5	+0.5
44	5.151	5.064	4.979	-0.5	+0.5
45	4.981	4.896	4.812	-0.6	+0.6
46	4.818	4.734	4.651	-0.6	+0.6
47	4.661	4.579	4.497	-0.6	+0.6
48	4.510	4.429	4.349	-0.6	+0.6
49	4.365	4.285	4.206	-0.6	+0.6
50	4.226	4.147	4.069	-0.6	+0.6
51	4.091	4.013	3.936	-0.6	+0.6
52	3.960	3.884	3.808	-0.6	+0.6
53	3.835	3.760	3.685	-0.7	+0.7
54	3.714	3.640	3.567	-0.7	+0.7
55	3.598	3.525	3.453	-0.7	+0.7
56	3.486	3.414	3.344	-0.7	+0.7
57	3.378	3.308	3.238	-0.7	+0.7
58	3.275	3.205	3.137	-0.7	+0.7
59	3.175	3.106	3.039	-0.7	+0.7
60	3.078	3.011	2.945	-0.8	+0.8
61	2.985	2.919	2.854	-0.8	+0.8
62	2.895	2.830	2.766	-0.8	+0.8
63	2.808	2.744	2.681	-0.8	+0.8
64	2.725	2.662	2.600	-0.8	+0.8
65	2.644	2.582	2.521	-0.8	+0.8
66	2.566	2.505	2.446	-0.8	+0.8
67	2.491	2.431	2.372	-0.9	+0.9
68	2.418	2.360	2.302	-0.9	+0.9
69	2.348	2.291	2.234	-0.9	+0.9
70	2.281	2.224	2.168	-0.9	+0.9
71	2.215	2.159	2.105	-0.9	+0.9
72	2.152	2.097	2.043	-0.9	+0.9
73	2.090	2.037	1.984	-0.9	+0.9

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
74	2.031	1.978	1.927	-1.0	+1.0
75	1.974	1.922	1.871	-1.0	+1.0
76	1.919	1.868	1.818	-1.0	+1.0
77	1.865	1.815	1.766	-1.0	+1.0
78	1.814	1.764	1.716	-1.0	+1.0
79	1.764	1.715	1.668	-1.0	+1.0
80	1.716	1.668	1.622	-1.0	+1.0
81	1.668	1.622	1.576	-1.0	+1.1
82	1.623	1.577	1.532	-1.1	+1.1
83	1.579	1.533	1.489	-1.1	+1.1
84	1.536	1.492	1.448	-1.1	+1.1
85	1.495	1.451	1.409	-1.1	+1.1
86	1.455	1.412	1.370	-1.1	+1.1
87	1.416	1.374	1.333	-1.1	+1.2
88	1.378	1.337	1.297	-1.2	+1.2
89	1.342	1.301	1.262	-1.2	+1.2
90	1.307	1.267	1.228	-1.2	+1.2
91	1.273	1.233	1.195	-1.2	+1.2
92	1.240	1.201	1.164	-1.2	+1.2
93	1.207	1.170	1.133	-1.2	+1.2
94	1.176	1.139	1.103	-1.3	+1.3
95	1.146	1.110	1.074	-1.3	+1.3
96	1.117	1.081	1.046	-1.3	+1.3
97	1.089	1.053	1.019	-1.3	+1.3
98	1.061	1.027	0.9934	-1.3	+1.3
99	1.035	1.001	0.9679	-1.3	+1.3
100	1.009	0.9753	0.9433	-1.4	+1.4
101	0.9831	0.9507	0.9192	-1.4	+1.4
102	0.9586	0.9268	0.8959	-1.4	+1.4
103	0.9349	0.9036	0.8733	-1.4	+1.4
104	0.9119	0.8811	0.8514	-1.4	+1.4
105	0.8896	0.8594	0.8301	-1.4	+1.4

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
106	0.8679	0.8382	0.8095	-1.4	+1.5
107	0.8469	0.8177	0.7895	-1.5	+1.5
108	0.8264	0.7978	0.7700	-1.5	+1.5
109	0.8066	0.7785	0.7512	-1.5	+1.5
110	0.7874	0.7597	0.7329	-1.5	+1.5
111	0.7685	0.7413	0.7150	-1.5	+1.5
112	0.7502	0.7235	0.6976	-1.5	+1.6
113	0.7325	0.7062	0.6808	-1.6	+1.6
114	0.7152	0.6894	0.6644	-1.6	+1.6
115	0.6984	0.6730	0.6485	-1.6	+1.6
116	0.6821	0.6572	0.6331	-1.6	+1.6
117	0.6663	0.6418	0.6181	-1.6	+1.6
118	0.6509	0.6268	0.6035	-1.6	+1.7
119	0.6359	0.6122	0.5894	-1.7	+1.7
120	0.6214	0.5981	0.5756	-1.7	+1.7
121	0.6073	0.5844	0.5623	-1.7	+1.7
122	0.5935	0.5710	0.5493	-1.7	+1.7
123	0.5801	0.5580	0.5367	-1.7	+1.8
124	0.5671	0.5454	0.5244	-1.8	+1.8
125	0.5545	0.5331	0.5125	-1.8	+1.8
126	0.5422	0.5212	0.5009	-1.8	+1.8
127	0.5302	0.5095	0.4896	-1.8	+1.8
128	0.5186	0.4982	0.4786	-1.8	+1.8
129	0.5072	0.4872	0.4679	-1.8	+1.8
130	0.4962	0.4765	0.4576	-1.9	+1.8
131	0.4844	0.4650	0.4464	-1.8	+1.8
132	0.4736	0.4546	0.4363	-1.8	+1.9
133	0.4631	0.4444	0.4265	-1.9	+1.9
134	0.4530	0.4346	0.4169	-1.9	+1.9
135	0.4431	0.4250	0.4076	-1.9	+1.9
136	0.4334	0.4156	0.3985	-1.9	+1.9
137	0.4240	0.4065	0.3897	-1.9	+2.0

温度 [°C]	R最大 [kΩ]	R中心 [kΩ]	R最小 [kΩ]	温度偏差 [°C]	
138	0.4149	0.3977	0.3812	-2.0	+2.0
139	0.4060	0.3891	0.3728	-2.0	+2.0
140	0.3973	0.3807	0.3647	-2.0	+2.0
141	0.3886	0.3723	0.3566	-2.0	+2.0
142	0.3802	0.3641	0.3487	-2.0	+2.0
143	0.3720	0.3562	0.3410	-2.0	+2.0
144	0.3640	0.3484	0.3335	-2.0	+2.0
145	0.3562	0.3409	0.3262	-2.0	+2.1
146	0.3486	0.3335	0.3191	-2.1	+2.1
147	0.3412	0.3264	0.3122	-2.1	+2.1
148	0.3340	0.3194	0.3055	-2.1	+2.1
149	0.3270	0.3126	0.2989	-2.1	+2.1
150	0.3201	0.3060	0.2925	-2.1	+2.1