编码(Coding)：JK/JXD260729001

南京时恒电子科技有限公司

Nanjing Shiheng Electronics Co.,Ltd.

产品承认书

APPROVAL SHEET

客户名称 CUSTOMER：	
产品名称 PART NAME：	MF52 测温型 NTC 热敏电阻器 MF52 Series Temp Measurement NTC Thermistor
产品型号 PART NUMBER：	MF52B 104F395030Z0100
版次 REV.NO:	C0
日期 DATE:	2026-07-29

南京时恒电子科技有限公司
NANJING SHIHENG ELECTRONICS CO.,LTD.
地址：南京市江宁区湖熟镇金阳路 18 号
Address: No.18 Jinyang Road Hushu Town Jiangning District Nanjing China
邮编 Postcode：211121
TEL: 025-52121868
Http: //www.shiheng.com.cn E-MAIL: sales@shiheng.com.cn

变更登记表

REVISED RECORD SHEET

版次 REV. NO	变更日期 REV.DATE	变更内容 CHANGE CONTENT	申请人 APPLICANT	批准人 APPROVED
A0	2015/10/11	版本制定。 Version formulation	鞠晓丽	李少媛
B0	2022/4/1	更新规格书版本格式，增加版次管控，细化规格纸。 Update for version form of data sheet, add to management and control for number of edition, refine to PN and draw.	吴迎丽	李少媛
C0	2025/12/01	去掉：产品图纸此一页的变更履历表 Remove: Change history table on this page of the product drawing	刘星月	李少媛

1、产品型号说明 Product model specification

MF52	B	104	F	3950	30	Z	0100
①	②	③	④	⑤	⑥	⑦	⑧

① MF52：测温型 NTC 热敏电阻器系列 (Series Temp Measurement NTC Thermistor)

② B：指引线为漆包线 (Lead wire is enamelled wire)

③ 104：25°C的零功率电阻值 100kΩ (Zero Power Resistance at 25°Cis 100kΩ)

④ F：阻值精度代码 F-±1% G-±2% H-±3% J-±5% (Resistance precision code F-±1% G-±2% H-±3% J-±5%)

⑤ 3950：$B_{25/50}$ 值 3950K ($B_{25/50}$:3950K)

⑥ 30：线材规格：引线外径Φ0.3mm (Wire dimension: The outer diameter of lead wire isΦ0.3mm)

⑦ Z：测量线材长度方式：L 指线长 Z 指总长 (Method of measuring Wire length：L=Line length Z=Total length)

⑧ 0100：线材长度 0100=100mm (Wire length 0100=100mm)

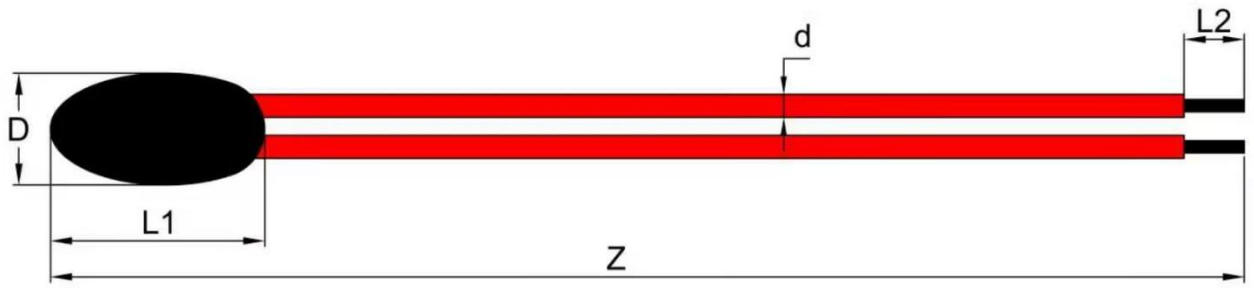
2、电气性能 Electrical characteristics

No.	项目 Item	符号 Symbol	测试条件 Test conditions	单位 Unit	性能要求 Requirements
2.1	25°C的零功率电阻值 Zero Power Resistance at 25°C	R_{25}	Ta=25±0.01°C (Test Power≤0.1mW)	kΩ	100kΩ±1%
2.2	B 值 B-value	$B_{25/85}$	$B=[(T_a\times T_b)/(T_b-T_a)]\times \ln(R_a/R_b)$ T_a=25±0.01°C T_b=50±0.01°C	K	3950K±1%
2.3	耗散系数 Thermal dissipation Coefficient	δ	静止空气中 In still air	mW/°C	约 2
2.4	时间常数 Thermal time constant	τ	静止空气中 In still air	sec	约 10
2.5	绝缘电阻 Insulation resistance	/	100V/DC 1min	MΩ	≥100
2.6	工作温度范围 Operating temperature range	/	/	°C	-40 ~ +125
2.7	最大额定功率 Maximum rated power	Pmax	/	mW	10
2.8	阻温特性 R&T-table	/	/	/	见附表 I See attached table I
2.9	阻值误差&温度误差 Resistance tolerance& Temperature tolerance	/	/	/	见附表 II See attached table II

3、产品图纸 Product drawing

产品图纸 Product drawing		客户确认 Customer confirm	客户名称 Customer:			
			确认 Confirm		日期 DATE	
产品型号 MODEL NO.	MF52B 104F395030Z0100		审核 Approve:		日期 DATE	

尺寸 Dimensions: (Unit: mm)



型号	D	L 1	Z	L2	d
MF52B	1.8±0.3	Max5	100±2	2±0.5	0.3

技术要求 Technical requirements:

1) 零功率阻值: R_{25}: 100kΩ±1% (Zero Power Resistance: R_{25}: 100kΩ±1%);
2) $B_{25/85}$ 数值: 3950K±1% (B-value:$B_{25/50}$: 3950K±1%);
3) 线材: 外径φ0.3 红色漆包线 (OD Φ0.3 red enamelled wire);
4) 封装: 黑色环氧树脂包封 (Black Epoxy);
5) 符合 RoHS 环保要求 (Meet environmental protection requirements:RoHS)。

材料规格 Material specifications

No.	名称 Name	材料规格 Material specifications	数量 Quantity	备注 note
1	核心元件 Core element	热敏电阻芯片 100kΩ	1	
2	包封类 Coating material	环氧树脂	/	黑色 Black
3	导线 Conducting wire	φ0.27/外径 0.3 红色漆包钢线	2	红色 Red

4、可靠性 Reliability

No.	项目 Test Item	试验标准 Test Standard	试验条件及方法 Test Conditions / Methods	性能要求 Acceptance Criteria
4.1	引出端强度 Tensile Strength of Terminals	IEC60068-2-21	固定电阻端，拉力：5±1 N，时间：10±1 秒 Keep the unit fixed, apply 5 ± 1 N for 10 ± 1 seconds.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.2	可焊性 Solderability	IEC60068-2-20	温度：245±5°C ，时间：2-3 秒 Temperature: 245°C ± 5°C for 2 ~ 3 seconds.	着锡面积≥95% Coverage area≥ 95%
4.3	耐焊接热 Resistance to Soldering Heat	IEC60068-2-20	锡锅温度：260°C±5°C,浸入深度距电阻体6mm,时间：5±1 秒 Temperature of solder bath: 260°C ± 5°C, insertion depth: 6 mm from resistor body, duration: 5 ± 1 seconds.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.4	稳态湿热 Damp heat，Steady State	IEC60068-2-78	温度：40°C±2°C,湿度：93%RH±2%RH,时间：500h Temperature: 40°C ± 2°C, 93% RH ± 2% RH, 500 hrs.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.5	温度快速变化 Rapid changes of temperature	IEC60068-2-14	以下条件重复 5 个周期 The conditions shown below shall be repeated 5 cycles.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
			步骤 Step / 温度 Temperature (°C) / 周期 Period (minutes)：1 / -40±5 / 30±3；2 / Room Temperature (室温) / 5±3；3 / 125±5 / 30±3；4 / Room Temperature (室温) / 5±3	
4.6	高温储存 High temperature storage	IEC60068-2-2	温度：125±2°C，时间：1000h Temperature: 125 ± 2°C, Duration: 1000 hrs.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.7	低温储存 Low temperature storage	IEC60068-2-1	温度：-40±2°C，时间：1000h Temperature: -40 ± 2°C, Duration: 1000 hrs.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$

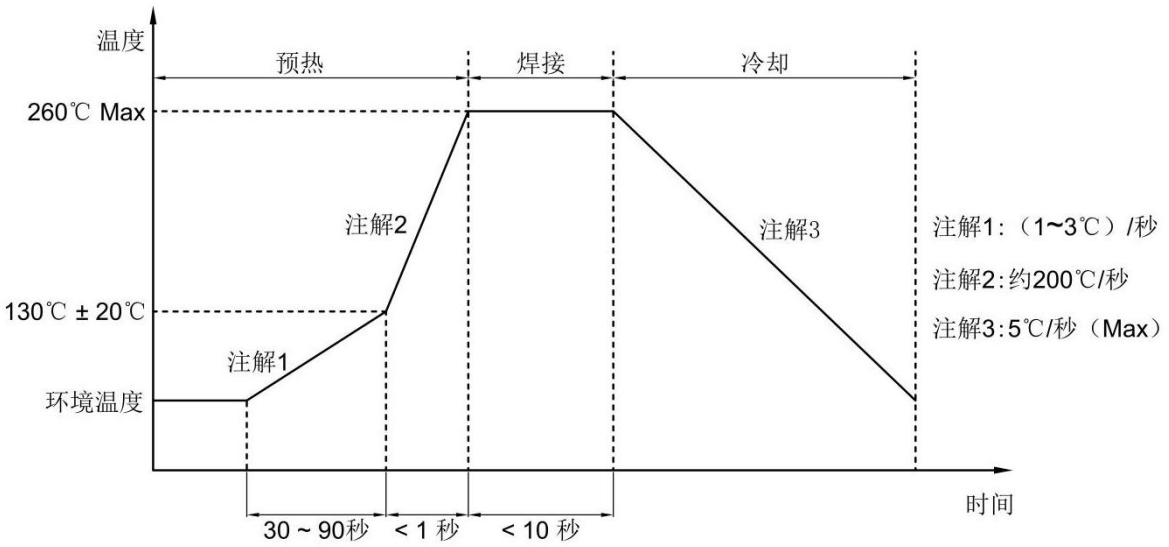
▲注： 1）稳态湿热及温度快速变化试验结束后，样品需在常温环境下静置 2 小时后再做性能测试；

▲Note：1）After the test of steady-state humid heat and rapid temperature change, the sample should be kept for 2 hours at room temperature before performance test；

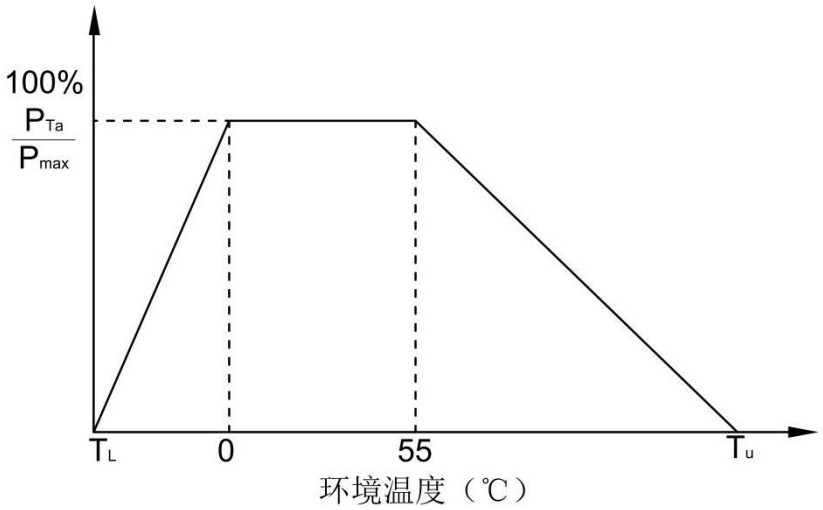
2）高温存储结束后，需随测试环境自然恢复至常温，再取出做性能测试。

2）After the test of high-temperature storage is complete, and then take it out for performance test when the test environment naturally regain to normal temperature.

5、推荐波峰焊曲线 Recommended wave soldering profile



6、降功耗曲线 Power derating curve



例如： 环境温度（T_a）=85°C

最高工作温度（T_U）=125°C

P_{Ta}=（T_U-T_a)/(T_U-55)*P_{max}=57.1%P_{max}

环境温度（T_a）=-10°C

最低工作温度（T_L）=-40°C

P_{Ta}=（T_L-T_a)/(T_L-0)*P_{max}=75 %P_{max}

7、产品包装 Product packaging

7.1 包装方式 Packing Type

☑ 散装方式 Bulk Type ☐盒装方式 Boxed Type ☐ 盘装方式 Reel Type

7.2 包装规格 Packing specification

No.	包装规格 Packing specification	包装材料、尺寸 Packing material, size	产品数量 Quantity
1	包装袋 Packing bag	热封口袋(Heat sealing bag) W×H=110mm×130mm	1000
2	内包装盒 Inner box	纸箱(Carton)	
3	外包装箱 Outer carton	纸箱(Carton)	

8、存储&运输要求 Storage & Transportation requirements

8.1 存储环境要求；Storage environment requirements；

8.1.1 储存温度：-10℃～ +40℃；储存湿度：≤75% RH；

Storage temperature: -10℃～ +40℃; storage humidity: ≤75% RH；

8.1.2 避免存放在具有腐蚀性物质及气体的环境中、光照及辐射源的环境下；

Avoid storage in the environment of corrosive substances and gas, light and radiation source；

8.1.3 包装打开后需重新密封保存，贮存期 1 年，超过贮存期，可按本标准规定的项目重新检验，如符合要求仍可使用；

After the package is opened, it should be re-sealed and stored for one year. If the storage period exceeds, it can be retested according to the items specified in this sheet. If it meets the requirements, it can still be used；

8.2 运输要求；Transportation requirements；

8.2.1 存储或运输过程中，产品叠放高度不超过 4 箱产品；

During storage or transportation, the height of stacked products should not exceed the height of 4 boxes；

8.2.2 避免产品在运输过程中强烈碰撞和跌落；

Avoid strong collision and fall during transportation；

8.2.3 产品运输方式不限，但需要避免雨水、雪、冰雹、海水的直接或间接淋袭。

The transportation method is not limited, but the direct or indirect attack of rain, snow, hail and sea water should be avoided.

9、安装&使用注意事项 Installation & Use precautions

9.1 本产品的用途：温度测量与控制；

Usage of this product: Temperature measurement and control；

9.2 本产品适用于常规家用、工业产品上，如果用于特殊设备/装置如：航空航天、深海探测、医疗、军用、新能源电源、铁道交通、消防、交通信号等设备上，请联系我司人员对相应的要求进行确认；

This product is used for conventional household and industrial products. If used in special equipment/device such as: aerospace, deep sea exploration, medical, military, new energy power supply, railway traffic, fire control, traffic signals and other equipment, please contact our staff to confirm the corresponding requirements；

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

The maximum working temperature, maximum power, etc. of the product shall be operated in accordance with the requirements of the specification, and shall not exceed the scope of the specification；

9.4 设计使用时，避免过大的电流引起元件自身发热而产生测量误差；

When designing and using, avoid measuring error caused by excessive current；

9.5 产品外观发现变形、破损时，不建议使用，可能会影响产品电气性能；

If the product is deformed or damaged, do not use it. Otherwise, the electrical performance may be affected;

9.6 烙铁焊接时，焊接处距包封头部距离至少 2mm，焊接温度应低于 360℃，焊接时间＜3ses；

When soldering by soldering iron, the distance between the welding place and the coating head should be at least 2mm, the welding temperature should be lower than 360℃, and the welding time should be less than 3sec;

9.7 如在加工过程中需使用热缩管，热缩管热缩时不可使用电吹风进行吹制，建议热缩工艺，将套好热缩管后的产品放入恒温烘箱中，按 110℃/10～12min 进行热缩；

If the heat shrinkable tube is used in the manufacturing process, do not use a hair dryer to shrink the tube. This is a recommended heat shrinkable process that puts the product covered shrinkable tube into a constant temperature oven, and shrink them at 110℃/10 ~ 12min;

9.8 一般不建议做注塑加工，因为注塑工艺的高温和高压会直接影响产品性能，本产品如果采用注塑工艺加工，需与我司确认具体的注塑工艺参数；

Generally, injection molding is not recommended, because the high temperature and high pressure of injection molding process will directly affect the product performance. If the product is processed by injection molding process, it is necessary to confirm the specific injection molding process parameters with our company;

9.9 产品核心芯片为陶瓷半导体，在使用过程中避免挤压或对环氧端头物理撞击，以免造成产品损伤；

The core chip of the product is a ceramic semiconductor. Avoid extrusion or physical impact on the epoxy end in the process of use, so as not to cause product damage;

9.10 产品引线需剪短加工时，裁剪处距环氧端头距离应不小于 10mm，且裁切时夹紧端头处；

When the product leads need to be cut short, the cutting distance from the epoxy end should be no less than 10mm, and the end should be clamped when cutting;

9.11 如产品需要引线折弯时，折弯半径应不小于 1mm，折弯角度为 90°，折弯次数依引线直径大小存在差异，需与我司确认；

If the product needs lead bending, bending radius should not be less than 1mm, bending angle is 90°. Bending times vary according to the lead diameter and need to be confirmed with our company;

9.12 本产品采用环氧树脂封装，具有一般的防水性，若使用环境湿度＞80%RH 或长期浸泡水中会导致封装端头渗水，造成绝缘和阻值性能偏低，如有相关的要求需与我司联系，产品增加防水层保护；

This product is encapsulated with epoxy resin, which is generally waterproof. If the ambient humidity is more than 80%RH or the product has long-term immersion in water, water seepage will occur at the end of the epoxy head, resulting in low insulation and resistance performance. If you have relevant requirements, please contact our company and add waterproof layer to the product;

9.13 对于 MF52A、B、C、D 等型号的测温型 NTC 热敏电阻器，其均为径向引出线结构，不得将其两引线拉成 180°轴向使用；

For the MF52A, B, C, D Type NTC thermistors, they are all radial lead-out structure, shall not be used to pull its two leads into 180° axial;

9.14 实验证明，MF52B 产品的线长应≥30mm，低于此长度焊接后，产品有阻值漂移和稳定性变差的风险，特别是对测温精度高的场合，焊接过程的热量传导到引线与芯片焊接端的影响就不可忽略。

Experimental evidence shows that the wire length of the MF52B product should be ≥30mm. If it is shorter than this length, there a risk of resistance drift and reduced stability after welding. Especially in high-precision temperature measurement applications, the heat conduction during the welding process to the lead wire chip welding point cannot be ignored.

10、产品认证 Product certification

No.	项目 Projects	产品认证 Product certification
10.1	质量管理体系认证 Quality Management System Certification	ISO9001:2015
		IATF16949：2016
10.2	环境管理体系认证 Environmental Management System Certification	ISO14001:2015
10.3	知识产权管理体系认证 Intellectual Property Management System Certification	GB/T29490-2013
10.4	环保检测报告 Environmental test report	RoHS 2.0
10.5	UL/cUL 认证（E240991） UL/cUL certificate（E240991）	
10.6	CQC 认证（CQC07001019009） CQC certificate（CQC07001019009）	
10.7	TUV 认证（R50245892） TUV certificate（R50245892）	

附表 I Attachment I

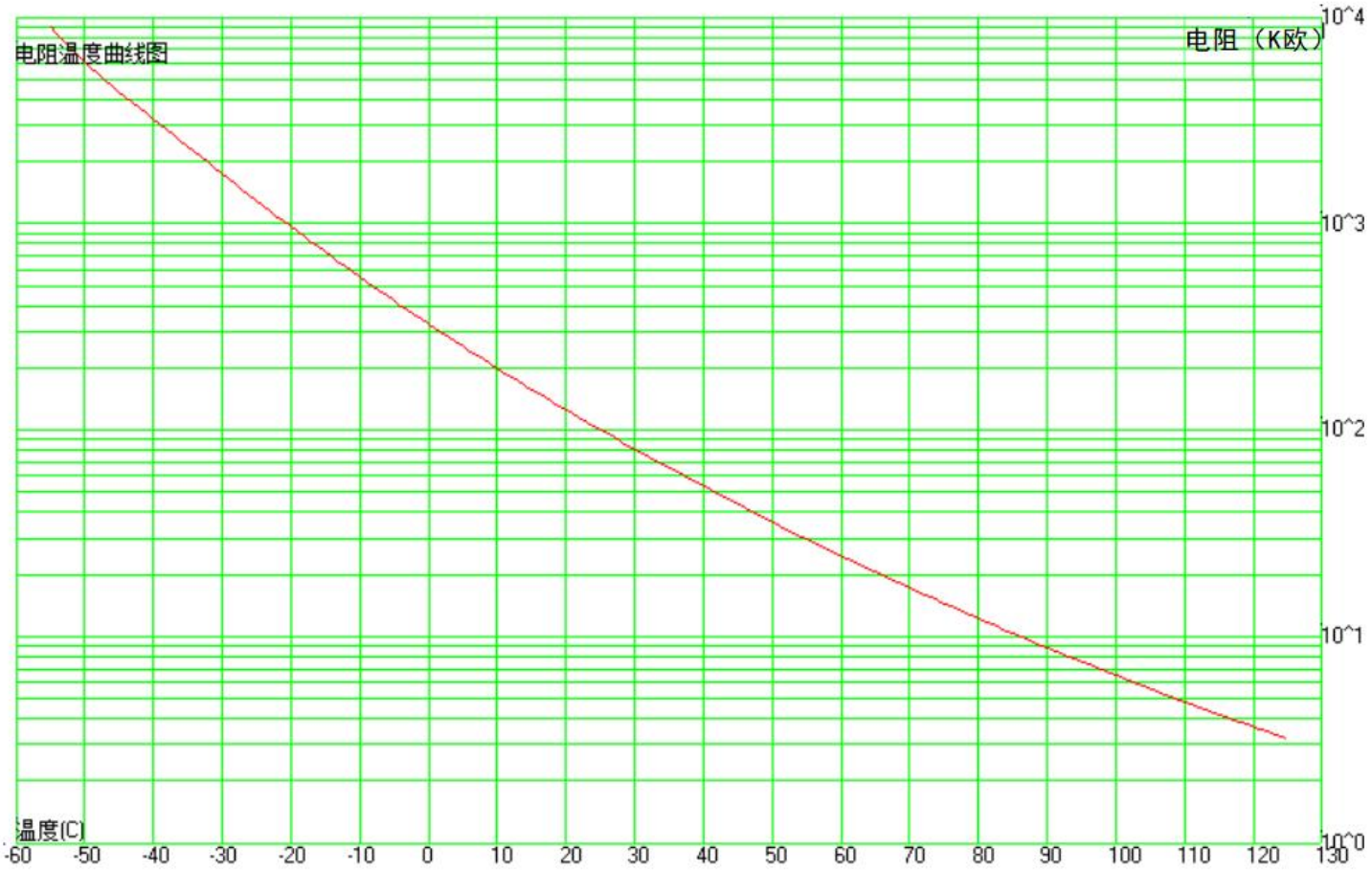
南京时恒阻温特性表 SHIHENG R-T Table							
R_{25}=100kΩ 精度:±1% $B_{25/50}$=3950K 精度:±1% (P209-15A)							
温度(℃)	电阻(kΩ)			电阻精度(%)		温度精度(℃)	
	最小值	中心值	最大值	△R	-△R	△T	-△T
-55	8494.5	8989	9483.49	5.501	-5.501	0.715	-0.715
-54	7796.4	8242.68	8688.97	5.414	-5.414	0.712	-0.712
-53	7188.1	7592.96	7997.83	5.332	-5.332	0.709	-0.709
-52	6652.5	7021.38	7390.27	5.253	-5.253	0.705	-0.705
-51	6176.43	6513.75	6851.07	5.178	-5.178	0.702	-0.702
-50	5749.67	6059.06	6368.44	5.106	-5.106	0.698	-0.698
-49	5364.21	5648.68	5933.14	5.035	-5.035	0.694	-0.694
-48	5013.72	5275.8	5537.88	4.967	-4.967	0.69	-0.69
-47	4693.17	4935.02	5176.87	4.9	-4.9	0.686	-0.686
-46	4398.51	4621.99	4845.47	4.835	-4.835	0.682	-0.682
-45	4126.5	4333.22	4539.93	4.77	-4.77	0.678	-0.678
-44	3874.47	4065.84	4257.21	4.706	-4.706	0.673	-0.673
-43	3640.25	3817.52	3994.79	4.643	-4.643	0.669	-0.669
-42	3422.02	3586.31	3750.61	4.581	-4.581	0.664	-0.664
-41	3218.28	3370.6	3522.91	4.519	-4.519	0.66	-0.66
-40	3027.74	3169	3310.25	4.457	-4.457	0.655	-0.655
-39	2849.32	2980.33	3111.35	4.395	-4.395	0.65	-0.65
-38	2682.07	2803.6	2925.13	4.334	-4.334	0.646	-0.646
-37	2525.17	2637.91	2750.64	4.273	-4.273	0.641	-0.641
-36	2377.88	2482.47	2587.05	4.212	-4.212	0.636	-0.636
-35	2239.56	2336.58	2433.6	4.152	-4.152	0.631	-0.631
-34	2109.62	2199.62	2289.63	4.091	-4.091	0.626	-0.626
-33	1987.52	2071.02	2154.51	4.031	-4.031	0.621	-0.621
-32	1872.78	1950.23	2027.68	3.971	-3.971	0.616	-0.616
-31	1764.94	1836.79	1908.63	3.911	-3.911	0.611	-0.611
-30	1663.59	1730.23	1796.87	3.851	-3.851	0.606	-0.606
-29	1568.33	1630.15	1691.96	3.792	-3.792	0.6	-0.6
-28	1478.8	1536.14	1593.47	3.732	-3.732	0.595	-0.595
-27	1394.65	1447.84	1501.02	3.673	-3.673	0.59	-0.59
-26	1315.56	1364.9	1414.23	3.614	-3.614	0.584	-0.584
-25	1241.24	1287	1332.75	3.555	-3.555	0.579	-0.579
-24	1171.38	1213.82	1256.27	3.496	-3.496	0.573	-0.573
-23	1105.72	1145.09	1184.47	3.438	-3.438	0.567	-0.567
-22	1044	1080.53	1117.06	3.38	-3.38	0.562	-0.562

-21	986.001	1019.89	1053.77	3.322	-3.322	0.556	-0.556
-20	931.471	962.912	994.354	3.265	-3.265	0.55	-0.55
-19	880.206	909.379	938.552	3.208	-3.208	0.545	-0.545
-18	832.004	859.074	886.144	3.151	-3.151	0.539	-0.539
-17	786.677	811.797	836.918	3.094	-3.094	0.533	-0.533
-16	744.046	767.359	790.672	3.038	-3.038	0.527	-0.527
-15	703.943	725.581	747.219	2.982	-2.982	0.521	-0.521
-14	666.212	686.296	706.38	2.926	-2.926	0.515	-0.515
-13	630.705	649.348	667.992	2.871	-2.871	0.508	-0.508
-12	597.283	614.59	631.897	2.816	-2.816	0.502	-0.502
-11	565.816	581.883	597.951	2.761	-2.761	0.496	-0.496
-10	536.181	551.1	566.018	2.706	-2.706	0.489	-0.489
-9	508.266	522.117	535.969	2.652	-2.652	0.483	-0.483
-8	481.962	494.824	507.686	2.599	-2.599	0.477	-0.477
-7	457.17	469.113	481.056	2.545	-2.545	0.47	-0.47
-6	433.796	444.886	455.976	2.492	-2.492	0.463	-0.463
-5	411.751	422.05	432.348	2.44	-2.44	0.457	-0.457
-4	390.954	400.518	410.081	2.387	-2.387	0.45	-0.45
-3	371.328	380.209	389.089	2.335	-2.335	0.443	-0.443
-2	352.801	361.048	369.294	2.283	-2.283	0.436	-0.436
-1	335.306	342.963	350.62	2.232	-2.232	0.429	-0.429
0	319.429	326.56	333.69	2.183	-2.183	0.422	-0.422
1	303.163	309.764	316.364	2.13	-2.13	0.415	-0.415
2	288.402	294.529	300.656	2.08	-2.08	0.408	-0.408
3	274.444	280.131	285.819	2.03	-2.03	0.401	-0.401
4	261.242	266.52	271.798	1.98	-1.98	0.394	-0.394
5	248.75	253.647	258.545	1.93	-1.93	0.387	-0.387
6	236.926	241.47	246.013	1.881	-1.881	0.379	-0.379
7	225.731	229.946	234.16	1.832	-1.832	0.372	-0.372
8	215.128	219.036	222.944	1.784	-1.784	0.364	-0.364
9	205.083	208.706	212.328	1.735	-1.735	0.357	-0.357
10	195.562	198.92	202.277	1.687	-1.687	0.349	-0.349
11	186.536	189.647	192.757	1.64	-1.64	0.341	-0.341
12	177.977	180.857	183.737	1.592	-1.592	0.334	-0.334
13	169.857	172.523	175.189	1.545	-1.545	0.326	-0.326
14	162.151	164.618	167.085	1.498	-1.498	0.318	-0.318
15	154.837	157.118	159.399	1.451	-1.451	0.31	-0.31
16	147.892	150	152.109	1.405	-1.405	0.302	-0.302
17	141.296	143.243	145.191	1.359	-1.359	0.294	-0.294
18	135.029	136.827	138.624	1.313	-1.313	0.286	-0.286

19	129.074	130.731	132.389	1.267	-1.267	0.278	-0.278
20	123.412	124.94	126.467	1.222	-1.222	0.269	-0.269
21	118.029	119.435	120.842	1.177	-1.177	0.261	-0.261
22	112.908	114.202	115.495	1.132	-1.132	0.253	-0.253
23	108.036	109.225	110.413	1.088	-1.088	0.244	-0.244
24	103.4	104.491	105.581	1.043	-1.043	0.236	-0.236
25	99	100	101	1	-1	0.228	-0.228
26	94.7	95.699	96.698	1.043	-1.043	0.238	-0.238
27	90.621	91.617	92.614	1.087	-1.087	0.25	-0.25
28	86.738	87.731	88.723	1.13	-1.13	0.261	-0.261
29	83.042	84.028	85.015	1.174	-1.174	0.273	-0.273
30	79.522	80.501	81.481	1.216	-1.216	0.285	-0.285
31	76.168	77.14	78.112	1.259	-1.259	0.297	-0.297
32	72.973	73.936	74.899	1.301	-1.301	0.308	-0.308
33	69.928	70.881	71.834	1.344	-1.344	0.32	-0.32
34	67.025	67.968	68.91	1.386	-1.386	0.332	-0.332
35	64.257	65.188	66.119	1.427	-1.427	0.344	-0.344
36	61.618	62.537	63.455	1.469	-1.469	0.357	-0.357
37	59.099	60.006	60.912	1.51	-1.51	0.369	-0.369
38	56.696	57.59	58.484	1.551	-1.551	0.381	-0.381
39	54.403	55.283	56.164	1.592	-1.592	0.393	-0.393
40	52.213	53.08	53.947	1.633	-1.633	0.406	-0.406
41	50.123	50.976	51.829	1.673	-1.673	0.418	-0.418
42	48.126	48.965	49.804	1.714	-1.714	0.431	-0.431
43	46.218	47.044	47.869	1.754	-1.754	0.443	-0.443
44	44.396	45.207	46.018	1.793	-1.793	0.456	-0.456
45	42.654	43.451	44.247	1.833	-1.833	0.469	-0.469
46	40.989	41.771	42.554	1.873	-1.873	0.482	-0.482
47	39.397	40.165	40.933	1.912	-1.912	0.495	-0.495
48	37.874	38.628	39.382	1.951	-1.951	0.508	-0.508
49	36.418	37.157	37.897	1.99	-1.99	0.521	-0.521
50	35.024	35.75	36.475	2.028	-2.028	0.534	-0.534
51	33.691	34.402	35.113	2.067	-2.067	0.547	-0.547
52	32.414	33.112	33.809	2.105	-2.105	0.56	-0.56
53	31.193	31.876	32.559	2.143	-2.143	0.574	-0.574
54	30.022	30.692	31.361	2.181	-2.181	0.587	-0.587
55	28.902	29.558	30.214	2.218	-2.218	0.601	-0.601
56	27.828	28.471	29.113	2.256	-2.256	0.614	-0.614
57	26.8	27.429	28.058	2.293	-2.293	0.628	-0.628
58	25.814	26.43	27.046	2.33	-2.33	0.642	-0.642

59	24.869	25.472	26.075	2.367	-2.367	0.655	-0.655
60	23.963	24.554	25.144	2.404	-2.404	0.669	-0.669
61	23.095	23.672	24.25	2.44	-2.44	0.683	-0.683
62	22.261	22.827	23.392	2.477	-2.477	0.697	-0.697
63	21.462	22.016	22.569	2.513	-2.513	0.711	-0.711
64	20.695	21.237	21.778	2.549	-2.549	0.725	-0.725
65	19.96	20.489	21.019	2.585	-2.585	0.739	-0.739
66	19.253	19.771	20.29	2.621	-2.621	0.754	-0.754
67	18.575	19.082	19.589	2.656	-2.656	0.768	-0.768
68	17.924	18.42	18.916	2.691	-2.691	0.782	-0.782
69	17.299	17.784	18.269	2.727	-2.727	0.797	-0.797
70	16.698	17.172	17.647	2.762	-2.762	0.811	-0.811
71	16.121	16.585	17.049	2.796	-2.796	0.826	-0.826
72	15.566	16.02	16.474	2.831	-2.831	0.841	-0.841
73	15.033	15.477	15.921	2.866	-2.866	0.856	-0.856
74	14.521	14.955	15.389	2.9	-2.9	0.87	-0.87
75	14.029	14.453	14.877	2.934	-2.934	0.885	-0.885
76	13.555	13.97	14.384	2.968	-2.968	0.9	-0.9
77	13.1	13.505	13.911	3.002	-3.002	0.915	-0.915
78	12.661	13.058	13.454	3.036	-3.036	0.93	-0.93
79	12.24	12.628	13.015	3.069	-3.069	0.946	-0.946
80	11.834	12.213	12.592	3.102	-3.102	0.961	-0.961
81	11.444	11.815	12.185	3.136	-3.136	0.976	-0.976
82	11.068	11.431	11.793	3.169	-3.169	0.992	-0.992
83	10.707	11.061	11.415	3.202	-3.202	1.007	-1.007
84	10.358	10.705	11.051	3.234	-3.234	1.023	-1.023
85	10.023	10.362	10.7	3.267	-3.267	1.038	-1.038
86	9.7	10.031	10.362	3.299	-3.299	1.054	-1.054
87	9.389	9.712	10.036	3.332	-3.332	1.07	-1.07
88	9.089	9.405	9.722	3.364	-3.364	1.086	-1.086
89	8.8	9.11	9.419	3.396	-3.396	1.102	-1.102
90	8.522	8.824	9.127	3.428	-3.428	1.118	-1.118
91	8.254	8.549	8.845	3.459	-3.459	1.134	-1.134
92	7.995	8.284	8.573	3.491	-3.491	1.15	-1.15
93	7.746	8.028	8.311	3.522	-3.522	1.166	-1.166
94	7.505	7.782	8.058	3.553	-3.553	1.182	-1.182
95	7.273	7.544	7.814	3.585	-3.585	1.199	-1.199
96	7.05	7.314	7.579	3.615	-3.615	1.215	-1.215
97	6.834	7.093	7.351	3.646	-3.646	1.231	-1.231
98	6.626	6.879	7.132	3.677	-3.677	1.248	-1.248

99	6.425	6.673	6.92	3.707	-3.707	1.265	-1.265
100	6.231	6.474	6.716	3.738	-3.738	1.281	-1.281
101	6.045	6.281	6.518	3.768	-3.768	1.298	-1.298
102	5.864	6.096	6.327	3.798	-3.798	1.315	-1.315
103	5.69	5.916	6.143	3.828	-3.828	1.332	-1.332
104	5.522	5.743	5.965	3.857	-3.857	1.349	-1.349
105	5.36	5.576	5.793	3.887	-3.887	1.366	-1.366
106	5.203	5.415	5.627	3.916	-3.916	1.383	-1.383
107	5.051	5.259	5.467	3.945	-3.945	1.4	-1.4
108	4.905	5.108	5.312	3.975	-3.975	1.418	-1.418
109	4.764	4.963	5.162	4.003	-4.003	1.435	-1.435
110	4.628	4.822	5.017	4.032	-4.032	1.452	-1.452
111	4.496	4.687	4.877	4.061	-4.061	1.47	-1.47
112	4.369	4.555	4.742	4.089	-4.089	1.488	-1.488
113	4.246	4.428	4.611	4.118	-4.118	1.505	-1.505
114	4.127	4.306	4.484	4.146	-4.146	1.523	-1.523
115	4.012	4.187	4.362	4.174	-4.174	1.541	-1.541
116	3.902	4.073	4.244	4.201	-4.201	1.559	-1.559
117	3.794	3.962	4.13	4.229	-4.229	1.577	-1.577
118	3.691	3.855	4.019	4.256	-4.256	1.595	-1.595
119	3.591	3.751	3.912	4.284	-4.284	1.613	-1.613
120	3.494	3.651	3.809	4.311	-4.311	1.631	-1.631
121	3.4	3.555	3.709	4.337	-4.337	1.649	-1.649
122	3.31	3.461	3.612	4.364	-4.364	1.668	-1.668
123	3.223	3.371	3.519	4.391	-4.391	1.686	-1.686
124	3.138	3.283	3.428	4.417	-4.417	1.705	-1.705
125	3.056	3.199	3.341	4.443	-4.443	1.723	-1.723


电阻温度曲线图
电阻（K欧）
10^4
10^3
10^2
10^1
10^0
温度(C)
-60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

附表 II Attachment II

