编码(Coding)：JK/JXE260627001

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：	MF58 玻壳式 NTC 热敏电阻器 MF58 Series Glass shell NTC Thermistor
产品型号 PART NUMBER：	MF58 502F3470
版次 REV.NO:	C0
日期 DATE:	2026-06-27

南京时恒电子科技有限公司
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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

MF58 502 F 3470

① ② ③ ④

① MF58：玻壳式 NTC 热敏电阻器系列（Glass shell NTC Thermistor Series）

② 502：25℃的零功率电阻值 5kΩ（Zero Power Resistance at 25℃ is 5kΩ）

③ 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%）

④ 3470：$B_{25/50}$ 值 3470K（$B_{25/50}$:3470K）

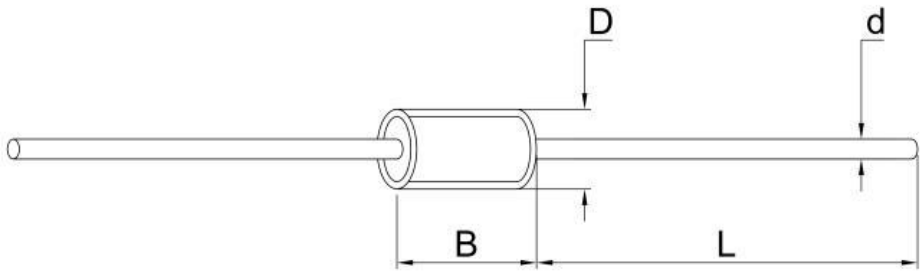
2、电气性能 Electrical characteristics

No.	项目 Item	符号 Symbol	测试条件 Test conditions	单位 Unit	性能要求 Requirements
2.1	25℃的零功率电阻值 Zero Power Resistance at 25℃	R_{25}	Ta=25±0.01℃ (Test Power≤0.1mW)	kΩ	5kΩ±1%
2.2	B 值 B-value	$B_{25/50}$	$B=[(T_a\times T_b)/(T_b-T_a)]\times \ln(R_a/R_b)$ T_a=25±0.01℃ T_b=50±0.01℃	K	3470K±1%
2.3	耗散系数 Thermal dissipation Coefficient	δ	静止空气中 In still air	mW/℃	约 1.8
2.4	时间常数 Thermal time constant	τ	静止空气中 In still air	sec	约 12
2.5	工作温度范围 Operating temperature range	/	/	℃	-55 ~ +250
2.6	最大额定功率 Maximum rated power	Pmax	/	mW	10
2.7	阻温特性 R&T-table	/	/	/	见附表 I See attached table I
2.8	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.	MF58 502F3470		审核 Approve:		日期 DATE	

尺寸 Dimensions: （Unit：mm）



型号	D （mm）	d（mm）	B （mm）	L（mm）
MF58	1.8±0.2	0.5±0.05	3.7±0.3	28±1

技术要求 Technical requirements:

1) 零功率阻值：R_{25}：5kΩ±1% (Zero Power Resistance: R_{25}：5kΩ±1%)；
2) $B_{25/50}$ 数值：3470K±1% (B-value:$B_{25/50}$: 3470K±1%)；
3) 引线：ϕ0.5 镀锡铜包钢线（ Φ0.5tinned copper-weld steel wire)
4) 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 5kΩ	1	
2	包封类 Coating material	玻壳	1	
3	电极 Electrode	镀锡电极	2	
4	引线 Lead	铁镍合金	2	

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：10N±1 N，时间：10±1 秒 Keep the unit fixed, apply 10 ± 1 N for 10 ± 1 seconds.	无可见性损伤 No Visible damage|Δ R_{25}/R_{25}|≤2%
4.2	可焊性 Solder ability	IEC60068-2-20	温度：245°C±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 $\|\Delta R_{25}/R_{25}\|$≤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 $\|\Delta R_{25}/R_{25}\|$≤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 $\|\Delta R_{25}/R_{25}\|$≤2%
			步骤 Step / 温度 Temperature (°C) / 周期 Period (minutes)	
			1 / -55±5 / 30±3	
			2 / Room Temperature (室温) / 5±3	
			3 / 250±5 / 30±3	
			4 / Room Temperature (室温) / 5±3	
4.6	高温储存 High temperature storage	IEC60068-2-2	温度：250°C±2°C，时间：1000h Temperature: 250°C ± 2°C, Duration: 1000 hrs.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|$≤2%
4.7	低温储存 Low temperature storage	IEC60068-2-1	温度：-55°C±2°C，时间：1000h Temperature: –55°C ± 2°C, Duration: 1000 hrs.	无可见性损伤 No Visible damage $\|\Delta R_{25}/R_{25}\|$≤2%

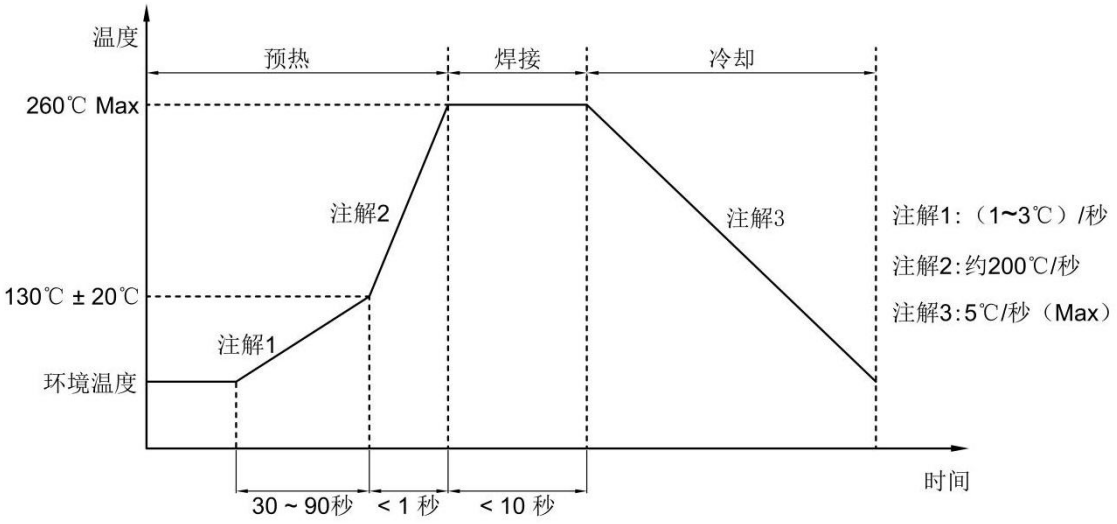
▲注： 1）稳态湿热及温度快速变化试验结束后，样品需在常温环境下静置 2 小时后再做性能测试；

▲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；

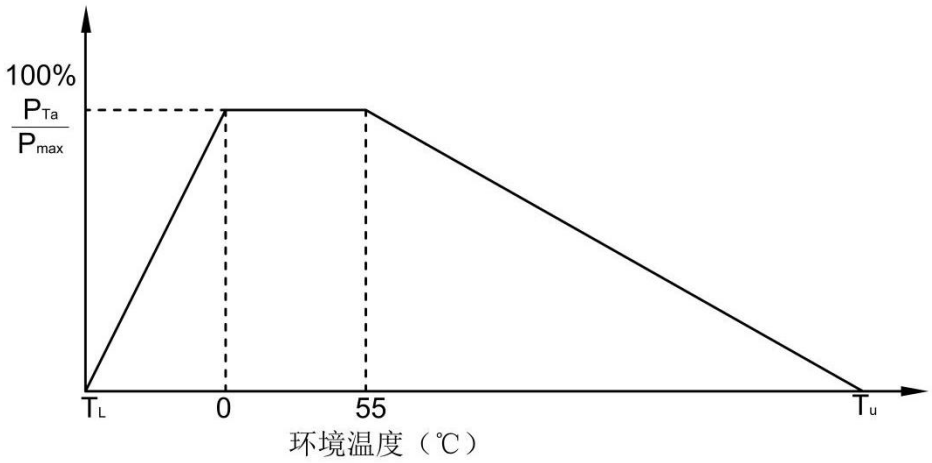
2）高温存储结束后，需随测试环境自然恢复至常温，再取出做性能测试。

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）=250°C

P_{Ta}=（T_U-T_a)/(T_U-55)*P_{max}=84.6%P_{max}

环境温度（T_a）= -10°C

最低工作温度（T_L）= -55°C

P_{Ta}=（T_L-T_a)/(T_L-0)*P_{max}=81.8%P_{max}

7、产品包装 Product packaging

7.1 包装方式 Packing Type

☑ 散装方式 Bulk Type ☐编编带方式 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	自封口袋(self sealing bag) W×H＝125mm×90mm	500/包
2	编编带包装盒 Reel Packing box	265mm*80mm*75mm	5000/盒

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，焊接处距玻壳距离至少 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 glass shell 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玻壳物理撞击，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 glass shell in the process of use, so as not to cause product damage;

9.10 若引线弯曲时，弯曲点应距玻壳端 2mm 以上，以免造成玻壳损伤；

In case of lead bending,the dot of bending should be above 2mm from glass shell to avoid of damaging for glass shell.

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（CQC09001033986） CQC certificate（CQC09001033986）	
10.7	TUV 认证（R50245892） TUV certificate（R50245892）	

附表 I Attachment I

南京时恒电子科技有限公司

R_{25}=5kΩ 精度:±1%　　$B_{25/50}$=3470K 精度:±1%（SH-27A）

温度(°C)	电阻(KΩ)			电阻精度(%)		温度精度(°C)	
	最小值	中心值	最大值	△R	-△R	△T	-△T
-55	198.7	208.6	218.4	4.732	-4.732	1.945	-1.945
-54	186.8	195.9	205.1	4.67	-4.67	1.908	-1.908
-53	175.7	184.2	192.7	4.608	-4.608	1.872	-1.872
-52	165.5	173.4	181.2	4.547	-4.547	1.836	-1.836
-51	155.9	163.3	170.6	4.487	-4.487	1.8	-1.8
-50	147.1	153.9	160.7	4.428	-4.428	1.765	-1.765
-49	138.8	145.1	151.5	4.369	-4.369	1.731	-1.731
-48	131.1	137	142.9	4.311	-4.311	1.697	-1.697
-47	123.8	129.3	134.8	4.254	-4.254	1.663	-1.663
-46	117.1	122.2	127.3	4.197	-4.197	1.63	-1.63
-45	110.7	115.5	120.3	4.141	-4.141	1.598	-1.598
-44	104.7	109.2	113.6	4.085	-4.085	1.566	-1.566
-43	99.16	103.3	107.4	4.029	-4.029	1.534	-1.534
-42	93.87	97.76	101.6	3.974	-3.974	1.503	-1.503
-41	88.9	92.53	96.16	3.918	-3.918	1.472	-1.472
-40	83.9	87.27	90.63	3.86	-3.86	1.443	-1.443
-39	79.82	82.98	86.14	3.809	-3.809	1.413	-1.413
-38	75.67	78.62	81.57	3.755	-3.755	1.384	-1.384
-37	71.76	74.52	77.27	3.702	-3.702	1.355	-1.355
-36	68.07	70.65	73.23	3.649	-3.649	1.327	-1.327
-35	64.6	67.01	69.42	3.596	-3.596	1.299	-1.299
-34	61.33	63.58	65.84	3.543	-3.543	1.272	-1.272
-33	58.25	60.36	62.46	3.491	-3.491	1.245	-1.245
-32	55.34	57.32	59.29	3.439	-3.439	1.218	-1.218
-31	52.61	54.45	56.3	3.388	-3.388	1.192	-1.192
-30	50.02	51.75	53.48	3.337	-3.337	1.166	-1.166
-29	47.59	49.21	50.83	3.287	-3.287	1.141	-1.141

-28	45.29	46.81	48.32	3.237	-3.237	1.116	-1.116
-27	43.13	44.55	45.97	3.187	-3.187	1.091	-1.091
-26	41.08	42.41	43.74	3.138	-3.138	1.067	-1.067
-25	39.15	40.4	41.64	3.089	-3.089	1.043	-1.043
-24	37.32	38.49	39.66	3.041	-3.041	1.02	-1.02
-23	35.59	36.69	37.79	2.993	-2.993	0.9968	-0.9968
-22	33.96	34.99	36.02	2.946	-2.946	0.974	-0.974
-21	32.42	33.39	34.35	2.899	-2.899	0.9515	-0.9515
-20	30.96	31.87	32.77	2.852	-2.852	0.9293	-0.9293
-19	29.57	30.42	31.28	2.806	-2.806	0.9075	-0.9075
-18	28.26	29.06	29.86	2.76	-2.76	0.886	-0.886
-17	27.01	27.77	28.52	2.714	-2.714	0.8648	-0.8648
-16	25.83	26.54	27.25	2.669	-2.669	0.8439	-0.8439
-15	24.71	25.38	26.04	2.624	-2.624	0.8233	-0.8233
-14	23.65	24.27	24.9	2.58	-2.58	0.8031	-0.8031
-13	22.63	23.22	23.81	2.536	-2.536	0.7831	-0.7831
-12	21.67	22.22	22.78	2.492	-2.492	0.7635	-0.7635
-11	20.76	21.28	21.8	2.448	-2.448	0.7441	-0.7441
-10	19.82	20.31	20.79	2.401	-2.401	0.7258	-0.7258
-9	19.05	19.51	19.98	2.362	-2.362	0.7063	-0.7063
-8	18.26	18.7	19.13	2.319	-2.319	0.6878	-0.6878
-7	17.51	17.92	18.32	2.276	-2.276	0.6696	-0.6696
-6	16.79	17.17	17.56	2.234	-2.234	0.6517	-0.6517
-5	16.1	16.46	16.83	2.192	-2.192	0.6341	-0.6341
-4	15.45	15.79	16.13	2.15	-2.15	0.6168	-0.6168
-3	14.82	15.14	15.46	2.108	-2.108	0.5997	-0.5997
-2	14.23	14.53	14.83	2.066	-2.066	0.5829	-0.5829
-1	13.65	13.94	14.22	2.025	-2.025	0.5663	-0.5663
0	13.11	13.38	13.64	1.984	-1.984	0.5501	-0.5501
1	12.59	12.84	13.09	1.943	-1.943	0.5341	-0.5341
2	12.09	12.32	12.56	1.902	-1.902	0.5183	-0.5183
3	11.61	11.83	12.05	1.861	-1.861	0.5028	-0.5028
4	11.15	11.36	11.57	1.821	-1.821	0.4876	-0.4876
5	10.72	10.91	11.11	1.78	-1.78	0.4726	-0.4726

6	10.3	10.48	10.66	1.74	-1.74	0.4579	-0.4579
7	9.903	10.07	10.24	1.7	-1.7	0.4434	-0.4434
8	9.519	9.679	9.84	1.66	-1.66	0.4291	-0.4291
9	9.151	9.301	9.452	1.62	-1.62	0.4151	-0.4151
10	8.891	9.035	9.178	1.591	-1.591	0.3968	-0.3968
11	8.46	8.592	8.725	1.541	-1.541	0.3878	-0.3878
12	8.136	8.26	8.384	1.502	-1.502	0.3745	-0.3745
13	7.825	7.941	8.058	1.462	-1.462	0.3615	-0.3615
14	7.527	7.636	7.745	1.423	-1.423	0.3486	-0.3486
15	7.242	7.343	7.445	1.384	-1.384	0.336	-0.336
16	6.968	7.063	7.158	1.345	-1.345	0.3236	-0.3236
17	6.705	6.794	6.882	1.306	-1.306	0.3115	-0.3115
18	6.453	6.535	6.618	1.267	-1.267	0.2995	-0.2995
19	6.211	6.288	6.365	1.229	-1.229	0.2878	-0.2878
20	5.978	6.05	6.122	1.19	-1.19	0.2762	-0.2762
21	5.755	5.822	5.89	1.152	-1.152	0.2649	-0.2649
22	5.541	5.604	5.666	1.114	-1.114	0.2538	-0.2538
23	5.336	5.394	5.452	1.075	-1.075	0.2429	-0.2429
24	5.139	5.193	5.247	1.037	-1.037	0.2322	-0.2322
25	4.95	5	5.05	1	-1	0.2221	-0.2221
26	4.764	4.814	4.864	1.037	-1.037	0.2313	-0.2313
27	4.586	4.636	4.686	1.075	-1.075	0.241	-0.241
28	4.415	4.465	4.515	1.113	-1.113	0.2509	-0.2509
29	4.252	4.301	4.351	1.15	-1.15	0.2607	-0.2607
30	4.094	4.144	4.193	1.187	-1.187	0.2707	-0.2707
31	3.943	3.992	4.041	1.224	-1.224	0.2807	-0.2807
32	3.798	3.847	3.896	1.262	-1.262	0.2908	-0.2908
33	3.659	3.708	3.756	1.298	-1.298	0.301	-0.301
34	3.526	3.574	3.621	1.335	-1.335	0.3112	-0.3112
35	3.398	3.445	3.492	1.372	-1.372	0.3215	-0.3215
36	3.274	3.321	3.368	1.408	-1.408	0.3319	-0.3319
37	3.156	3.203	3.249	1.445	-1.445	0.3424	-0.3424
38	3.043	3.088	3.134	1.481	-1.481	0.3529	-0.3529
39	2.934	2.979	3.024	1.517	-1.517	0.3636	-0.3636

40	2.829	2.874	2.918	1.553	-1.553	0.3743	-0.3743
41	2.728	2.772	2.816	1.589	-1.589	0.385	-0.385
42	2.632	2.675	2.719	1.625	-1.625	0.3959	-0.3959
43	2.539	2.582	2.625	1.66	-1.66	0.4068	-0.4068
44	2.45	2.492	2.534	1.696	-1.696	0.4178	-0.4178
45	2.364	2.406	2.447	1.731	-1.731	0.4289	-0.4289
46	2.282	2.323	2.364	1.766	-1.766	0.44	-0.44
47	2.202	2.243	2.283	1.801	-1.801	0.4513	-0.4513
48	2.126	2.166	2.206	1.836	-1.836	0.4626	-0.4626
49	2.053	2.092	2.132	1.87	-1.87	0.4739	-0.4739
50	1.983	2.022	2.06	1.905	-1.905	0.4854	-0.4854
51	1.915	1.953	1.991	1.939	-1.939	0.4969	-0.4969
52	1.85	1.888	1.925	1.973	-1.973	0.5085	-0.5085
53	1.788	1.825	1.861	2.007	-2.007	0.5202	-0.5202
54	1.728	1.764	1.8	2.041	-2.041	0.532	-0.532
55	1.67	1.706	1.741	2.075	-2.075	0.5438	-0.5438
56	1.615	1.649	1.684	2.108	-2.108	0.5557	-0.5557
57	1.561	1.595	1.629	2.142	-2.142	0.5677	-0.5677
58	1.51	1.543	1.577	2.175	-2.175	0.5798	-0.5798
59	1.46	1.493	1.526	2.208	-2.208	0.592	-0.592
60	1.413	1.445	1.477	2.241	-2.241	0.6042	-0.6042
61	1.367	1.399	1.43	2.273	-2.273	0.6165	-0.6165
62	1.323	1.354	1.385	2.306	-2.306	0.6289	-0.6289
63	1.28	1.311	1.341	2.338	-2.338	0.6413	-0.6413
64	1.239	1.269	1.299	2.37	-2.37	0.6539	-0.6539
65	1.2	1.229	1.259	2.402	-2.402	0.6665	-0.6665
66	1.162	1.191	1.22	2.434	-2.434	0.6791	-0.6791
67	1.125	1.154	1.182	2.466	-2.466	0.6919	-0.6919
68	1.09	1.118	1.146	2.497	-2.497	0.7047	-0.7047
69	1.056	1.084	1.111	2.528	-2.528	0.7177	-0.7177
70	1.024	1.051	1.077	2.559	-2.559	0.7307	-0.7307
71	0.9926	1.019	1.045	2.59	-2.59	0.7437	-0.7437
72	0.9623	0.9882	1.014	2.621	-2.621	0.7569	-0.7569
73	0.933	0.9584	0.9838	2.652	-2.652	0.7701	-0.7701

74	0.9048	0.9297	0.9546	2.682	-2.682	0.7834	-0.7834
75	0.8776	0.902	0.9265	2.712	-2.712	0.7968	-0.7968
76	0.8513	0.8753	0.8993	2.742	-2.742	0.8102	-0.8102
77	0.826	0.8495	0.8731	2.772	-2.772	0.8237	-0.8237
78	0.8015	0.8246	0.8478	2.802	-2.802	0.8373	-0.8373
79	0.7779	0.8006	0.8233	2.832	-2.832	0.851	-0.851
80	0.7552	0.7774	0.7997	2.861	-2.861	0.8648	-0.8648
81	0.7332	0.755	0.7769	2.89	-2.89	0.8786	-0.8786
82	0.712	0.7334	0.7548	2.919	-2.919	0.8925	-0.8925
83	0.6915	0.7125	0.7335	2.948	-2.948	0.9065	-0.9065
84	0.6717	0.6923	0.7129	2.977	-2.977	0.9205	-0.9205
85	0.6557	0.676	0.6962	3.001	-3.001	0.9354	-0.9354
86	0.6341	0.6539	0.6738	3.034	-3.034	0.9488	-0.9488
87	0.6162	0.6357	0.6552	3.062	-3.062	0.9631	-0.9631
88	0.5989	0.618	0.6372	3.09	-3.09	0.9774	-0.9774
89	0.5822	0.601	0.6197	3.118	-3.118	0.9919	-0.9919
90	0.5661	0.5845	0.6029	3.146	-3.146	1.006	-1.006
91	0.5505	0.5685	0.5866	3.174	-3.174	1.02	-1.02
92	0.5354	0.5531	0.5708	3.201	-3.201	1.035	-1.035
93	0.5208	0.5381	0.5555	3.229	-3.229	1.05	-1.05
94	0.5066	0.5237	0.5407	3.256	-3.256	1.065	-1.065
95	0.4929	0.5097	0.5264	3.283	-3.283	1.079	-1.079
96	0.4797	0.4961	0.5125	3.31	-3.31	1.094	-1.094
97	0.4668	0.483	0.4991	3.337	-3.337	1.109	-1.109
98	0.4544	0.4702	0.4861	3.364	-3.364	1.124	-1.124
99	0.4424	0.4579	0.4734	3.39	-3.39	1.14	-1.14
100	0.4307	0.446	0.4612	3.417	-3.417	1.155	-1.155
101	0.4194	0.4344	0.4493	3.443	-3.443	1.17	-1.17
102	0.4085	0.4231	0.4378	3.469	-3.469	1.186	-1.186
103	0.3978	0.4123	0.4267	3.496	-3.496	1.201	-1.201
104	0.3875	0.4017	0.4158	3.521	-3.521	1.216	-1.216
105	0.3776	0.3915	0.4053	3.547	-3.547	1.232	-1.232
106	0.3679	0.3815	0.3952	3.573	-3.573	1.248	-1.248
107	0.3585	0.3719	0.3853	3.599	-3.599	1.263	-1.263

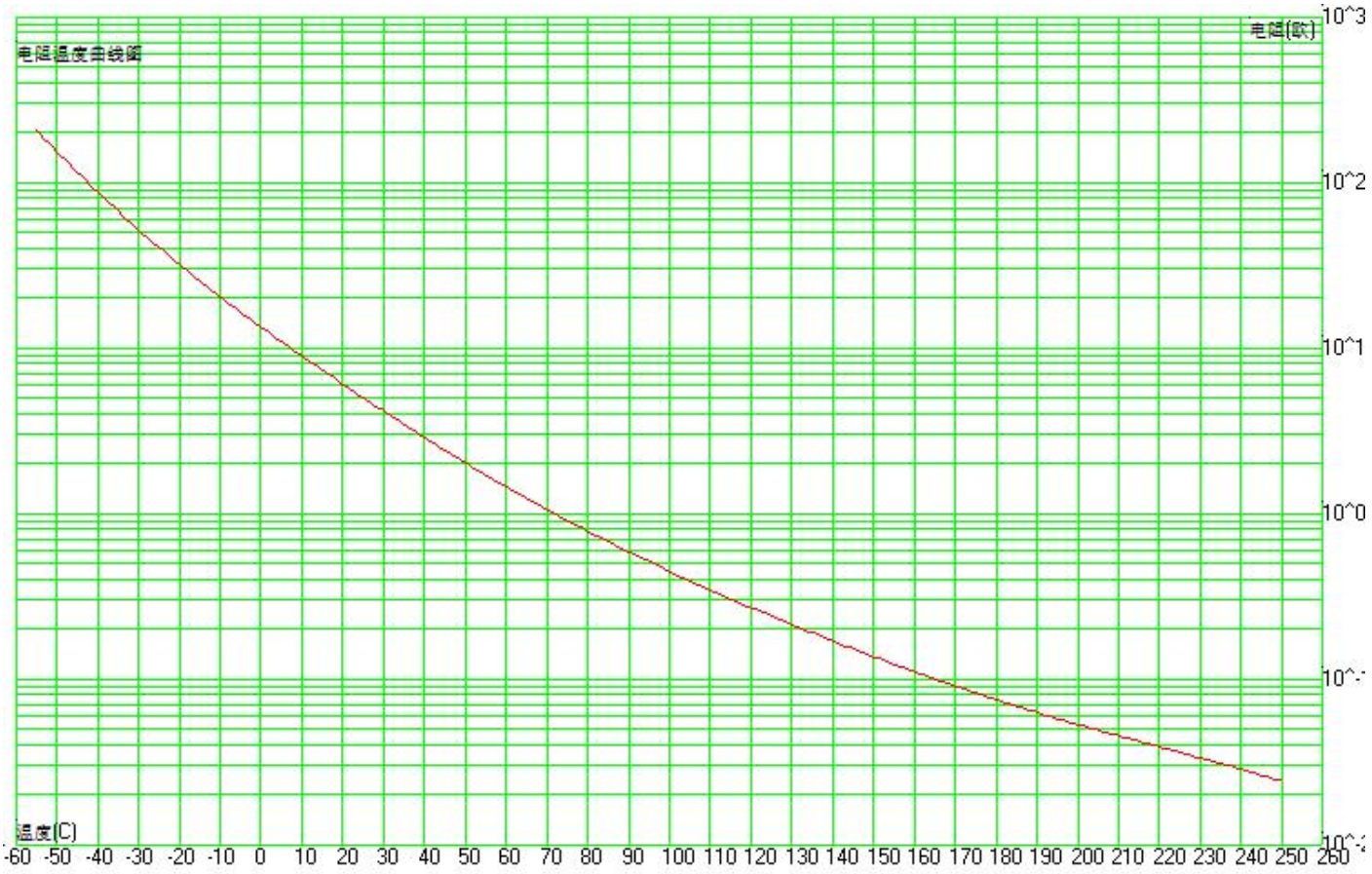
108	0.3494	0.3625	0.3757	3.624	-3.624	1.279	-1.279
109	0.3405	0.3534	0.3664	3.649	-3.649	1.295	-1.295
110	0.332	0.3446	0.3573	3.675	-3.675	1.311	-1.311
111	0.3236	0.3361	0.3485	3.7	-3.7	1.327	-1.327
112	0.3156	0.3278	0.34	3.725	-3.725	1.343	-1.343
113	0.3077	0.3197	0.3317	3.75	-3.75	1.359	-1.359
114	0.3001	0.3119	0.3236	3.775	-3.775	1.375	-1.375
115	0.2927	0.3043	0.3158	3.799	-3.799	1.392	-1.392
116	0.2855	0.2969	0.3082	3.824	-3.824	1.408	-1.408
117	0.2785	0.2897	0.3008	3.849	-3.849	1.425	-1.425
118	0.2717	0.2827	0.2936	3.873	-3.873	1.441	-1.441
119	0.2652	0.2759	0.2867	3.897	-3.897	1.458	-1.458
120	0.2587	0.2693	0.2799	3.921	-3.921	1.474	-1.474
121	0.2525	0.2629	0.2733	3.946	-3.946	1.491	-1.491
122	0.2465	0.2567	0.2668	3.97	-3.97	1.508	-1.508
123	0.2406	0.2506	0.2606	3.994	-3.994	1.525	-1.525
124	0.2349	0.2447	0.2545	4.017	-4.017	1.542	-1.542
125	0.2293	0.239	0.2486	4.041	-4.041	1.559	-1.559
126	0.2239	0.2334	0.2429	4.065	-4.065	1.576	-1.576
127	0.2186	0.2279	0.2373	4.088	-4.088	1.593	-1.593
128	0.2135	0.2227	0.2318	4.112	-4.112	1.61	-1.61
129	0.2085	0.2175	0.2265	4.135	-4.135	1.627	-1.627
130	0.2037	0.2125	0.2213	4.159	-4.159	1.645	-1.645
131	0.199	0.2076	0.2163	4.182	-4.182	1.662	-1.662
132	0.1944	0.2029	0.2114	4.205	-4.205	1.68	-1.68
133	0.1899	0.1983	0.2067	4.228	-4.228	1.697	-1.697
134	0.1855	0.1938	0.202	4.251	-4.251	1.715	-1.715
135	0.1813	0.1894	0.1975	4.274	-4.274	1.732	-1.732
136	0.1772	0.1852	0.1931	4.296	-4.296	1.75	-1.75
137	0.1732	0.181	0.1888	4.319	-4.319	1.768	-1.768
138	0.1693	0.177	0.1847	4.342	-4.342	1.786	-1.786
139	0.1655	0.173	0.1806	4.364	-4.364	1.804	-1.804
140	0.1618	0.1692	0.1766	4.386	-4.386	1.822	-1.822
141	0.1582	0.1655	0.1728	4.409	-4.409	1.84	-1.84

142	0.1547	0.1618	0.169	4.431	-4.431	1.858	-1.858
143	0.1513	0.1583	0.1654	4.453	-4.453	1.877	-1.877
144	0.1479	0.1549	0.1618	4.475	-4.475	1.895	-1.895
145	0.1447	0.1515	0.1583	4.497	-4.497	1.913	-1.913
146	0.1415	0.1482	0.1549	4.519	-4.519	1.932	-1.932
147	0.1384	0.145	0.1516	4.541	-4.541	1.95	-1.95
148	0.1355	0.1419	0.1484	4.562	-4.562	1.969	-1.969
149	0.1325	0.1389	0.1453	4.584	-4.584	1.988	-1.988
150	0.1297	0.136	0.1422	4.605	-4.605	2.006	-2.006
151	0.1269	0.1331	0.1392	4.627	-4.627	2.025	-2.025
152	0.1242	0.1303	0.1363	4.648	-4.648	2.044	-2.044
153	0.1216	0.1275	0.1335	4.669	-4.669	2.063	-2.063
154	0.119	0.1249	0.1307	4.69	-4.69	2.082	-2.082
155	0.1165	0.1223	0.128	4.711	-4.711	2.101	-2.101
156	0.1141	0.1198	0.1254	4.732	-4.732	2.121	-2.121
157	0.1117	0.1173	0.1229	4.753	-4.753	2.14	-2.14
158	0.1094	0.1149	0.1204	4.774	-4.774	2.159	-2.159
159	0.1071	0.1125	0.1179	4.795	-4.795	2.179	-2.179
160	0.1049	0.1103	0.1156	4.815	-4.815	2.198	-2.198
161	0.1028	0.108	0.1133	4.835	-4.835	2.218	-2.218
162	0.1007	0.1059	0.111	4.856	-4.856	2.237	-2.237
163	0.0987	0.1037	0.1088	4.876	-4.876	2.257	-2.257
164	0.0967	0.1017	0.1067	4.896	-4.896	2.277	-2.277
165	0.0948	0.0997	0.1046	4.916	-4.916	2.297	-2.297
166	0.0929	0.0977	0.1025	4.936	-4.936	2.317	-2.317
167	0.091	0.0958	0.1005	4.956	-4.956	2.337	-2.337
168	0.0892	0.0939	0.0986	4.976	-4.976	2.357	-2.357
169	0.0875	0.0921	0.0967	4.995	-4.995	2.377	-2.377
170	0.0858	0.0903	0.0949	5.015	-5.015	2.397	-2.397
171	0.0841	0.0886	0.0931	5.034	-5.034	2.418	-2.418
172	0.0825	0.0869	0.0913	5.053	-5.053	2.438	-2.438
173	0.0809	0.0853	0.0896	5.072	-5.072	2.459	-2.459
174	0.0794	0.0837	0.0879	5.091	-5.091	2.479	-2.479
175	0.0779	0.0821	0.0863	5.11	-5.11	2.5	-2.5

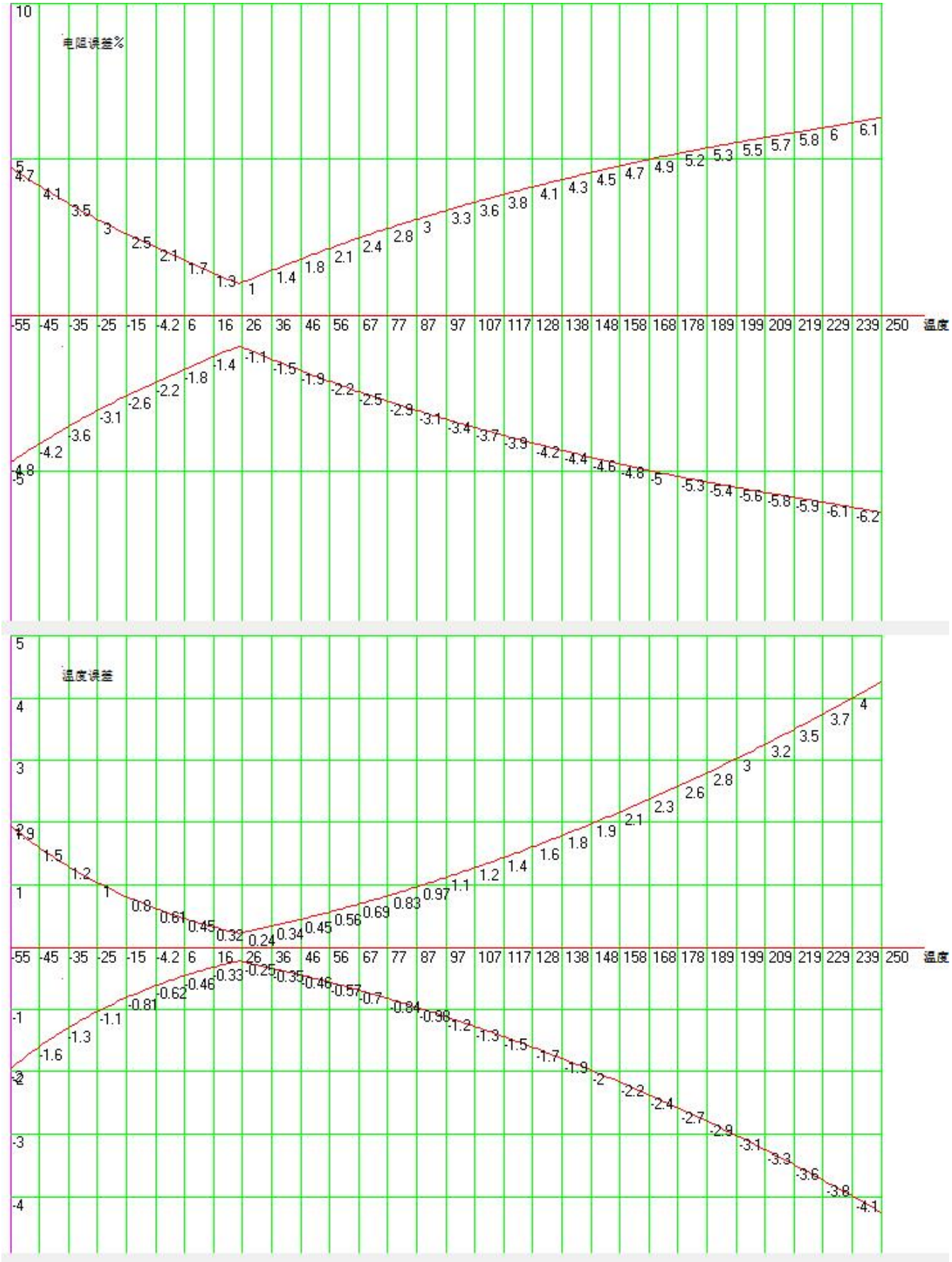
176	0.0764	0.0806	0.0847	5.129	-5.129	2.521	-2.521
177	0.075	0.0791	0.0831	5.148	-5.148	2.541	-2.541
178	0.0736	0.0776	0.0816	5.167	-5.167	2.562	-2.562
179	0.0722	0.0762	0.0801	5.185	-5.185	2.583	-2.583
180	0.0709	0.0748	0.0787	5.203	-5.203	2.604	-2.604
181	0.0696	0.0734	0.0773	5.222	-5.222	2.625	-2.625
182	0.0683	0.0721	0.0759	5.24	-5.24	2.646	-2.646
183	0.0671	0.0708	0.0746	5.258	-5.258	2.668	-2.668
184	0.0659	0.0696	0.0732	5.276	-5.276	2.689	-2.689
185	0.0647	0.0683	0.072	5.294	-5.294	2.71	-2.71
186	0.0636	0.0671	0.0707	5.311	-5.311	2.732	-2.732
187	0.0624	0.066	0.0695	5.329	-5.329	2.753	-2.753
188	0.0614	0.0648	0.0683	5.347	-5.347	2.775	-2.775
189	0.0603	0.0637	0.0671	5.364	-5.364	2.797	-2.797
190	0.0592	0.0626	0.066	5.381	-5.381	2.818	-2.818
191	0.0582	0.0615	0.0649	5.399	-5.399	2.84	-2.84
192	0.0572	0.0605	0.0638	5.416	-5.416	2.862	-2.862
193	0.0562	0.0595	0.0627	5.433	-5.433	2.884	-2.884
194	0.0553	0.0585	0.0617	5.45	-5.45	2.906	-2.906
195	0.0544	0.0575	0.0607	5.466	-5.466	2.928	-2.928
196	0.0535	0.0566	0.0597	5.483	-5.483	2.951	-2.951
197	0.0526	0.0556	0.0587	5.5	-5.5	2.973	-2.973
198	0.0517	0.0547	0.0577	5.516	-5.516	2.995	-2.995
199	0.0508	0.0538	0.0568	5.533	-5.533	3.018	-3.018
200	0.05	0.053	0.0559	5.549	-5.549	3.04	-3.04
201	0.0492	0.0521	0.055	5.565	-5.565	3.063	-3.063
202	0.0484	0.0513	0.0541	5.581	-5.581	3.086	-3.086
203	0.0476	0.0504	0.0533	5.597	-5.597	3.108	-3.108
204	0.0469	0.0496	0.0524	5.613	-5.613	3.131	-3.131
205	0.0461	0.0489	0.0516	5.629	-5.629	3.154	-3.154
206	0.0454	0.0481	0.0508	5.645	-5.645	3.177	-3.177
207	0.0447	0.0473	0.05	5.661	-5.661	3.2	-3.2
208	0.044	0.0466	0.0493	5.677	-5.677	3.223	-3.223
209	0.0433	0.0459	0.0485	5.692	-5.692	3.246	-3.246

210	0.0426	0.0452	0.0478	5.708	-5.708	3.27	-3.27
211	0.0419	0.0445	0.047	5.723	-5.723	3.293	-3.293
212	0.0413	0.0438	0.0463	5.739	-5.739	3.316	-3.316
213	0.0406	0.0431	0.0456	5.754	-5.754	3.34	-3.34
214	0.04	0.0425	0.0449	5.77	-5.77	3.363	-3.363
215	0.0394	0.0418	0.0442	5.785	-5.785	3.387	-3.387
216	0.0388	0.0412	0.0436	5.8	-5.8	3.411	-3.411
217	0.0382	0.0406	0.0429	5.816	-5.816	3.435	-3.435
218	0.0376	0.04	0.0423	5.831	-5.831	3.458	-3.458
219	0.037	0.0394	0.0417	5.846	-5.846	3.482	-3.482
220	0.0365	0.0388	0.041	5.861	-5.861	3.506	-3.506
221	0.0359	0.0382	0.0404	5.876	-5.876	3.53	-3.53
222	0.0354	0.0376	0.0398	5.891	-5.891	3.554	-3.554
223	0.0348	0.037	0.0392	5.907	-5.907	3.579	-3.579
224	0.0343	0.0365	0.0386	5.922	-5.922	3.603	-3.603
225	0.0338	0.0359	0.0381	5.937	-5.937	3.627	-3.627
226	0.0333	0.0354	0.0375	5.952	-5.952	3.651	-3.651
227	0.0328	0.0349	0.0369	5.967	-5.967	3.676	-3.676
228	0.0323	0.0343	0.0364	5.982	-5.982	3.7	-3.7
229	0.0318	0.0338	0.0358	5.998	-5.998	3.725	-3.725
230	0.0313	0.0333	0.0353	6.013	-6.013	3.749	-3.749
231	0.0308	0.0328	0.0348	6.028	-6.028	3.774	-3.774
232	0.0303	0.0323	0.0342	6.044	-6.044	3.799	-3.799
233	0.0299	0.0318	0.0337	6.059	-6.059	3.824	-3.824
234	0.0294	0.0313	0.0332	6.075	-6.075	3.848	-3.848
235	0.0289	0.0308	0.0327	6.09	-6.09	3.873	-3.873
236	0.0285	0.0303	0.0322	6.106	-6.106	3.898	-3.898
237	0.028	0.0299	0.0317	6.122	-6.122	3.923	-3.923
238	0.0276	0.0294	0.0312	6.137	-6.137	3.948	-3.948
239	0.0272	0.0289	0.0307	6.153	-6.153	3.973	-3.973
240	0.0267	0.0285	0.0302	6.169	-6.169	3.999	-3.999
241	0.0263	0.028	0.0298	6.186	-6.186	4.024	-4.024
242	0.0259	0.0276	0.0293	6.202	-6.202	4.049	-4.049
243	0.0254	0.0271	0.0288	6.218	-6.218	4.074	-4.074

244	0.025	0.0267	0.0283	6.235	-6.235	4.1	-4.1
245	0.0246	0.0262	0.0279	6.252	-6.252	4.125	-4.125
246	0.0242	0.0258	0.0274	6.269	-6.269	4.151	-4.151
247	0.0238	0.0253	0.0269	6.286	-6.286	4.176	-4.176
248	0.0233	0.0249	0.0265	6.303	-6.303	4.202	-4.202
249	0.0229	0.0245	0.026	6.321	-6.321	4.227	-4.227
250	0.0225	0.0241	0.0256	6.338	-6.338	4.253	-4.253



附表 II Attachment II


电阻误差%
温度
温度误差
温度