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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 103J3950
版次 REV.NO:	C0
日期 DATE:	2026-08-08

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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 ① 103 ② J ③ 3950 ④

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

② 103：25℃的零功率电阻值 10kΩ（Zero Power Resistance at 25℃ is 10kΩ）

③ J：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 3950：$B_{25/50}$ 值 3950K（$B_{25/50}$:3950K）

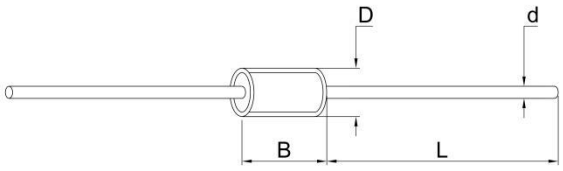
2、电气性能 Electrical characteristics

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	10kΩ±5%
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	3950K±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 103J3950		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}：10kΩ±5% (Zero Power Resistance: R_{25}：10kΩ±5%)；
2) $B_{25/50}$ 数值：3950K±1% (B-value:$B_{25/50}$: 3950K±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

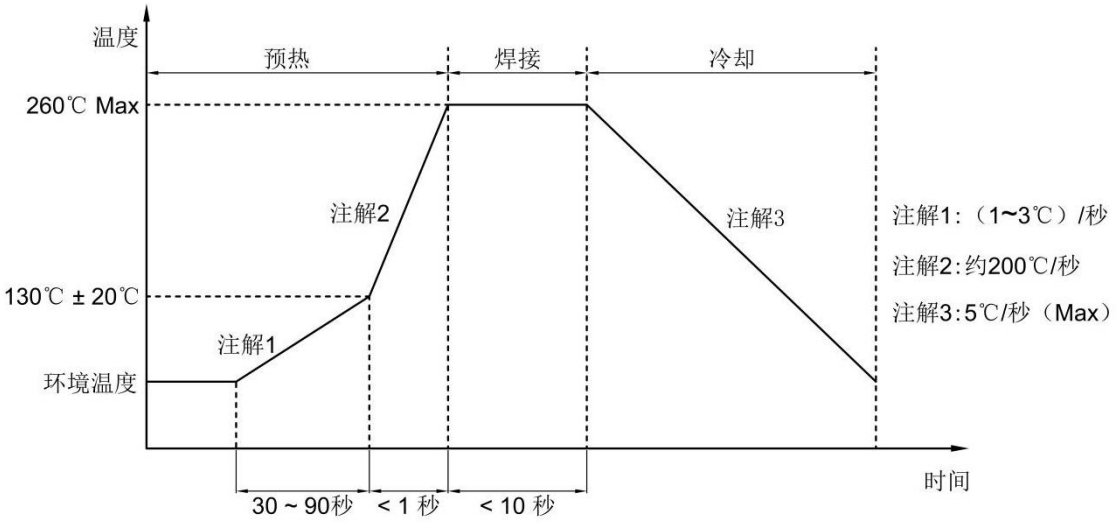
No.	名称 Name	材料规格 Material specifications	数量 Quantity	备注 note
1	核心元件 Core element	热敏电阻芯片 10kΩ	1	
2	包封类 Coating material	玻壳	1	
3	电极 Electrode	镀锡电极	2	
4	引线 Lead	铁镍合金	2	

4、可靠性 Reliability

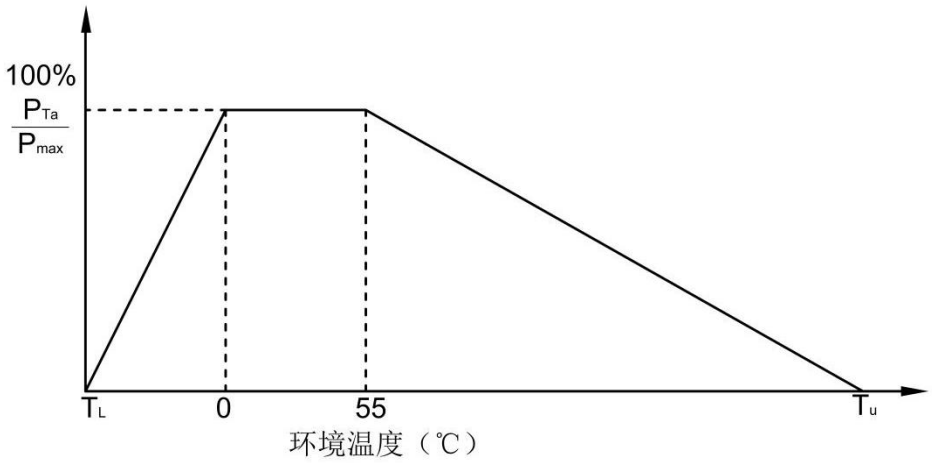
No.	项目 Test Item	试验标准 Test Standard	试验条件及方法 Test Conditions / Methods	性能要求 Acceptance Criteria
4.1	引出端强度 Tensile Strength of Terminals	IEC60068-2-21	固定电阻端，拉力：10N±1 N，时间：10±1 秒 Keep the unit fixed, apply 10 ± 1 N for 10 ± 1 seconds.	无可见性损伤 No Visible damage|Δ R_{25}/R_{25}|≤2%
4.2	可焊性 Solder ability	IEC60068-2-20	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℃

最高工作温度（T_U）=250℃

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

环境温度（T_a）= -10℃

最低工作温度（T_L）= -55℃

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	热封口袋(Heat sealing bag) W×H＝110mm×130mm	500
2	内包装盒 Inner box	纸箱(Carton) L×W×H=282mm×193mm×72mm	

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）	

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R_{25}=10kΩ 精度:±5%　　$B_{25/50}$=3950K 精度:±1%（P390-7A）

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	708.672	781.9	855.127	9.365	-9.365	1.257	-1.257
-54	662.323	730.208	798.093	9.296	-9.296	1.258	-1.258
-53	619.436	682.415	745.393	9.228	-9.228	1.258	-1.258
-52	579.702	638.168	696.634	9.161	-9.161	1.259	-1.259
-51	542.844	597.155	651.465	9.094	-9.094	1.259	-1.259
-50	508.619	559.1	609.58	9.028	-9.028	1.259	-1.259
-49	476.812	523.758	570.705	8.963	-8.963	1.259	-1.259
-48	447.229	490.913	534.597	8.898	-8.898	1.259	-1.259
-47	419.7	460.37	501.039	8.834	-8.834	1.259	-1.259
-46	394.069	431.952	469.835	8.77	-8.77	1.259	-1.259
-45	370.193	405.5	440.806	8.706	-8.706	1.259	-1.259
-44	347.943	380.865	413.787	8.643	-8.643	1.259	-1.259
-43	327.199	357.915	388.63	8.581	-8.581	1.259	-1.259
-42	307.85	336.522	365.193	8.519	-8.519	1.258	-1.258
-41	289.793	316.571	343.348	8.458	-8.458	1.258	-1.258
-40	272.774	297.78	322.785	8.397	-8.397	1.257	-1.257
-39	257.179	280.572	303.965	8.337	-8.337	1.256	-1.256
-38	242.451	264.332	286.213	8.277	-8.277	1.256	-1.256
-37	228.671	249.148	269.624	8.218	-8.218	1.255	-1.255
-36	215.77	234.94	254.111	8.159	-8.159	1.254	-1.254
-35	203.681	221.637	239.592	8.101	-8.101	1.253	-1.253
-34	192.345	209.17	225.994	8.043	-8.043	1.251	-1.251
-33	181.707	197.477	213.247	7.985	-7.985	1.25	-1.25
-32	171.715	186.502	201.289	7.928	-7.928	1.249	-1.249
-31	162.324	176.193	190.061	7.871	-7.871	1.247	-1.247
-30	153.489	166.501	179.513	7.814	-7.814	1.246	-1.246
-29	145.173	157.384	169.594	7.758	-7.758	1.244	-1.244
-28	137.34	148.801	160.262	7.702	-7.702	1.243	-1.243
-27	129.956	140.716	151.475	7.646	-7.646	1.241	-1.241
-26	122.993	133.095	143.198	7.59	-7.59	1.239	-1.239
-25	116.422	125.91	135.397	7.534	-7.534	1.237	-1.237
-24	110.22	119.13	128.04	7.479	-7.479	1.236	-1.236
-23	104.362	112.731	121.101	7.424	-7.424	1.234	-1.234
-22	98.828	106.69	114.552	7.368	-7.368	1.232	-1.232
-21	93.598	100.984	108.37	7.313	-7.313	1.23	-1.23
-20	88.655	95.595	102.534	7.259	-7.259	1.228	-1.228
-19	83.983	90.503	97.023	7.204	-7.204	1.226	-1.226

-18	79.564	85.691	91.817	7.149	-7.149	1.224	-1.224
-17	75.386	81.143	86.9	7.094	-7.094	1.222	-1.222
-16	71.435	76.846	82.256	7.04	-7.04	1.22	-1.22
-15	67.699	72.784	77.868	6.986	-6.986	1.218	-1.218
-14	64.166	68.945	73.724	6.931	-6.931	1.217	-1.217
-13	60.824	65.317	69.809	6.877	-6.877	1.215	-1.215
-12	57.665	61.888	66.111	6.823	-6.823	1.213	-1.213
-11	54.677	58.647	62.617	6.769	-6.769	1.211	-1.211
-10	51.564	55.274	58.983	6.71	-6.71	1.212	-1.212
-9	49.181	52.691	56.202	6.662	-6.662	1.207	-1.207
-8	46.655	49.957	53.259	6.609	-6.609	1.205	-1.205
-7	44.268	47.374	50.48	6.556	-6.556	1.203	-1.203
-6	42.011	44.933	47.855	6.503	-6.503	1.202	-1.202
-5	39.877	42.627	45.377	6.45	-6.45	1.2	-1.2
-4	37.86	40.448	43.036	6.397	-6.397	1.198	-1.198
-3	35.954	38.39	40.826	6.345	-6.345	1.196	-1.196
-2	34.151	36.445	38.739	6.293	-6.293	1.194	-1.194
-1	32.447	34.608	36.768	6.241	-6.241	1.193	-1.193
0	30.837	32.872	34.906	6.19	-6.19	1.191	-1.191
1	29.314	31.231	33.148	6.139	-6.139	1.189	-1.189
2	27.873	29.68	31.487	6.088	-6.088	1.187	-1.187
3	26.511	28.215	29.919	6.037	-6.037	1.186	-1.186
4	25.223	26.83	28.436	5.987	-5.987	1.184	-1.184
5	24.005	25.52	27.035	5.937	-5.937	1.182	-1.182
6	22.852	24.282	25.711	5.887	-5.887	1.18	-1.18
7	21.761	23.11	24.46	5.837	-5.837	1.178	-1.178
8	20.729	22.002	23.276	5.788	-5.788	1.176	-1.176
9	19.751	20.954	22.157	5.739	-5.739	1.174	-1.174
10	18.48	19.592	20.703	5.672	-5.672	1.201	-1.201
11	17.949	19.023	20.096	5.643	-5.643	1.17	-1.17
12	17.118	18.133	19.148	5.595	-5.595	1.168	-1.168
13	16.331	17.291	18.25	5.547	-5.547	1.166	-1.166
14	15.585	16.492	17.399	5.5	-5.5	1.164	-1.164
15	14.878	15.736	16.594	5.453	-5.453	1.162	-1.162
16	14.206	15.018	15.83	5.406	-5.406	1.16	-1.16
17	13.57	14.338	15.107	5.36	-5.36	1.158	-1.158
18	12.965	13.693	14.421	5.314	-5.314	1.155	-1.155
19	12.391	13.08	13.77	5.268	-5.268	1.153	-1.153
20	11.846	12.499	13.152	5.223	-5.223	1.15	-1.15
21	11.328	11.947	12.565	5.177	-5.177	1.148	-1.148
22	10.836	11.422	12.009	5.133	-5.133	1.145	-1.145
23	10.368	10.924	11.48	5.088	-5.088	1.143	-1.143

24	9.923	10.45	10.977	5.044	-5.044	1.14	-1.14
25	9.5	10	10.5	5	-5	1.138	-1.138
26	9.088	9.571	10.054	5.043	-5.043	1.155	-1.155
27	8.697	9.163	9.629	5.087	-5.087	1.172	-1.172
28	8.325	8.775	9.225	5.13	-5.13	1.19	-1.19
29	7.97	8.405	8.84	5.173	-5.173	1.207	-1.207
30	7.633	8.053	8.473	5.216	-5.216	1.225	-1.225
31	7.312	7.718	8.124	5.259	-5.259	1.242	-1.242
32	7.006	7.398	7.79	5.301	-5.301	1.26	-1.26
33	6.714	7.093	7.472	5.343	-5.343	1.278	-1.278
34	6.436	6.803	7.169	5.385	-5.385	1.296	-1.296
35	6.171	6.525	6.88	5.426	-5.426	1.314	-1.314
36	5.919	6.261	6.603	5.468	-5.468	1.332	-1.332
37	5.677	6.009	6.34	5.509	-5.509	1.35	-1.35
38	5.447	5.768	6.088	5.55	-5.55	1.368	-1.368
39	5.228	5.537	5.847	5.591	-5.591	1.386	-1.386
40	5.018	5.318	5.617	5.631	-5.631	1.405	-1.405
41	4.818	5.108	5.398	5.671	-5.671	1.423	-1.423
42	4.627	4.907	5.188	5.711	-5.711	1.442	-1.442
43	4.444	4.715	4.987	5.751	-5.751	1.46	-1.46
44	4.27	4.532	4.795	5.791	-5.791	1.479	-1.479
45	4.103	4.357	4.611	5.83	-5.83	1.498	-1.498
46	3.943	4.189	4.435	5.87	-5.87	1.516	-1.516
47	3.791	4.029	4.267	5.909	-5.909	1.535	-1.535
48	3.645	3.876	4.106	5.947	-5.947	1.554	-1.554
49	3.506	3.729	3.952	5.986	-5.986	1.573	-1.573
50	3.372	3.589	3.805	6.024	-6.024	1.593	-1.593
51	3.245	3.454	3.664	6.063	-6.063	1.612	-1.612
52	3.122	3.325	3.528	6.101	-6.101	1.631	-1.631
53	3.005	3.202	3.399	6.138	-6.138	1.651	-1.651
54	2.894	3.084	3.275	6.176	-6.176	1.671	-1.671
55	2.786	2.971	3.156	6.213	-6.213	1.69	-1.69
56	2.684	2.863	3.042	6.251	-6.251	1.71	-1.71
57	2.585	2.759	2.932	6.288	-6.288	1.73	-1.73
58	2.491	2.659	2.828	6.324	-6.324	1.75	-1.75
59	2.401	2.564	2.727	6.361	-6.361	1.77	-1.77
60	2.314	2.473	2.631	6.397	-6.397	1.79	-1.79
61	2.231	2.385	2.538	6.433	-6.433	1.811	-1.811
62	2.152	2.301	2.45	6.469	-6.469	1.831	-1.831
63	2.076	2.22	2.365	6.505	-6.505	1.852	-1.852
64	2.003	2.143	2.283	6.54	-6.54	1.872	-1.872
65	1.933	2.069	2.205	6.576	-6.576	1.893	-1.893

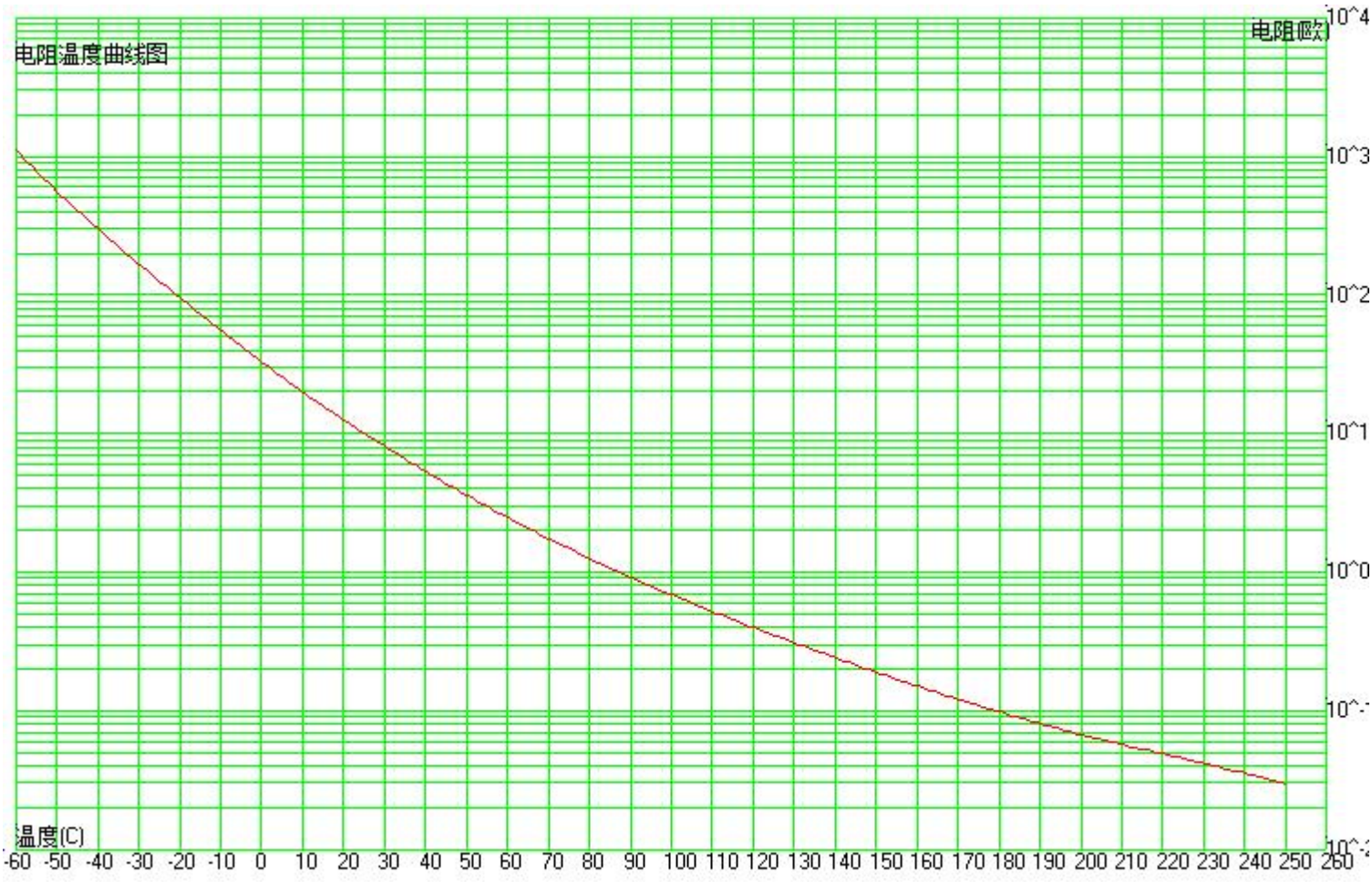
66	1.865	1.997	2.13	6.611	-6.611	1.914	-1.914
67	1.801	1.929	2.057	6.646	-6.646	1.935	-1.935
68	1.739	1.863	1.988	6.68	-6.68	1.956	-1.956
69	1.68	1.8	1.921	6.715	-6.715	1.977	-1.977
70	1.622	1.74	1.857	6.749	-6.749	1.999	-1.999
71	1.568	1.682	1.796	6.783	-6.783	2.02	-2.02
72	1.515	1.626	1.737	6.817	-6.817	2.042	-2.042
73	1.465	1.572	1.68	6.85	-6.85	2.063	-2.063
74	1.416	1.521	1.625	6.884	-6.884	2.085	-2.085
75	1.369	1.471	1.573	6.917	-6.917	2.107	-2.107
76	1.325	1.424	1.523	6.95	-6.95	2.129	-2.129
77	1.281	1.378	1.474	6.982	-6.982	2.151	-2.151
78	1.24	1.334	1.427	7.015	-7.015	2.174	-2.174
79	1.2	1.291	1.382	7.047	-7.047	2.196	-2.196
80	1.162	1.25	1.339	7.079	-7.079	2.218	-2.218
81	1.125	1.211	1.297	7.111	-7.111	2.241	-2.241
82	1.09	1.173	1.257	7.143	-7.143	2.264	-2.264
83	1.055	1.137	1.219	7.175	-7.175	2.286	-2.286
84	1.023	1.102	1.181	7.206	-7.206	2.309	-2.309
85	1	1.078	1.155	7.228	-7.228	2.339	-2.339
86	0.96	1.036	1.111	7.268	-7.268	2.355	-2.355
87	0.931	1.004	1.078	7.299	-7.299	2.379	-2.379
88	0.903	0.974	1.046	7.329	-7.329	2.402	-2.402
89	0.875	0.945	1.015	7.36	-7.36	2.425	-2.425
90	0.849	0.917	0.985	7.39	-7.39	2.449	-2.449
91	0.824	0.89	0.956	7.42	-7.42	2.473	-2.473
92	0.799	0.864	0.928	7.45	-7.45	2.496	-2.496
93	0.776	0.838	0.901	7.479	-7.479	2.52	-2.52
94	0.753	0.814	0.875	7.509	-7.509	2.544	-2.544
95	0.731	0.791	0.85	7.538	-7.538	2.568	-2.568
96	0.71	0.768	0.826	7.567	-7.567	2.592	-2.592
97	0.689	0.746	0.803	7.596	-7.596	2.616	-2.616
98	0.669	0.725	0.78	7.625	-7.625	2.641	-2.641
99	0.65	0.704	0.758	7.654	-7.654	2.665	-2.665
100	0.632	0.685	0.737	7.683	-7.683	2.69	-2.69
101	0.614	0.665	0.717	7.711	-7.711	2.714	-2.714
102	0.597	0.647	0.697	7.739	-7.739	2.739	-2.739
103	0.58	0.629	0.678	7.767	-7.767	2.764	-2.764
104	0.564	0.612	0.659	7.795	-7.795	2.788	-2.788
105	0.548	0.595	0.641	7.823	-7.823	2.813	-2.813
106	0.533	0.579	0.624	7.851	-7.851	2.838	-2.838
107	0.519	0.563	0.607	7.878	-7.878	2.863	-2.863

108	0.504	0.548	0.591	7.906	-7.906	2.889	-2.889
109	0.491	0.533	0.575	7.933	-7.933	2.914	-2.914
110	0.477	0.519	0.56	7.96	-7.96	2.939	-2.939
111	0.464	0.505	0.545	7.987	-7.987	2.965	-2.965
112	0.452	0.491	0.531	8.014	-8.014	2.99	-2.99
113	0.44	0.478	0.517	8.041	-8.041	3.016	-3.016
114	0.428	0.466	0.503	8.068	-8.068	3.041	-3.041
115	0.417	0.454	0.49	8.094	-8.094	3.067	-3.067
116	0.406	0.442	0.478	8.121	-8.121	3.093	-3.093
117	0.395	0.43	0.465	8.147	-8.147	3.119	-3.119
118	0.385	0.419	0.453	8.174	-8.174	3.144	-3.144
119	0.375	0.408	0.442	8.2	-8.2	3.17	-3.17
120	0.365	0.398	0.43	8.226	-8.226	3.197	-3.197
121	0.355	0.387	0.419	8.252	-8.252	3.223	-3.223
122	0.346	0.378	0.409	8.278	-8.278	3.249	-3.249
123	0.337	0.368	0.399	8.304	-8.304	3.275	-3.275
124	0.329	0.359	0.388	8.33	-8.33	3.302	-3.302
125	0.32	0.35	0.379	8.355	-8.355	3.328	-3.328
126	0.312	0.341	0.369	8.381	-8.381	3.354	-3.354
127	0.304	0.332	0.36	8.406	-8.406	3.381	-3.381
128	0.296	0.324	0.351	8.432	-8.432	3.408	-3.408
129	0.289	0.316	0.342	8.457	-8.457	3.434	-3.434
130	0.282	0.308	0.334	8.482	-8.482	3.461	-3.461
131	0.275	0.3	0.326	8.508	-8.508	3.488	-3.488
132	0.268	0.293	0.318	8.533	-8.533	3.515	-3.515
133	0.261	0.285	0.31	8.558	-8.558	3.542	-3.542
134	0.255	0.278	0.302	8.583	-8.583	3.569	-3.569
135	0.248	0.272	0.295	8.608	-8.608	3.596	-3.596
136	0.242	0.265	0.288	8.632	-8.632	3.623	-3.623
137	0.236	0.259	0.281	8.657	-8.657	3.651	-3.651
138	0.23	0.252	0.274	8.682	-8.682	3.678	-3.678
139	0.225	0.246	0.268	8.706	-8.706	3.705	-3.705
140	0.219	0.24	0.261	8.731	-8.731	3.733	-3.733
141	0.214	0.234	0.255	8.755	-8.755	3.76	-3.76
142	0.209	0.229	0.249	8.779	-8.779	3.788	-3.788
143	0.204	0.223	0.243	8.804	-8.804	3.816	-3.816
144	0.199	0.218	0.237	8.828	-8.828	3.844	-3.844
145	0.194	0.213	0.232	8.852	-8.852	3.871	-3.871
146	0.189	0.208	0.226	8.876	-8.876	3.899	-3.899
147	0.185	0.203	0.221	8.9	-8.9	3.927	-3.927
148	0.18	0.198	0.216	8.924	-8.924	3.956	-3.956
149	0.176	0.193	0.211	8.947	-8.947	3.984	-3.984

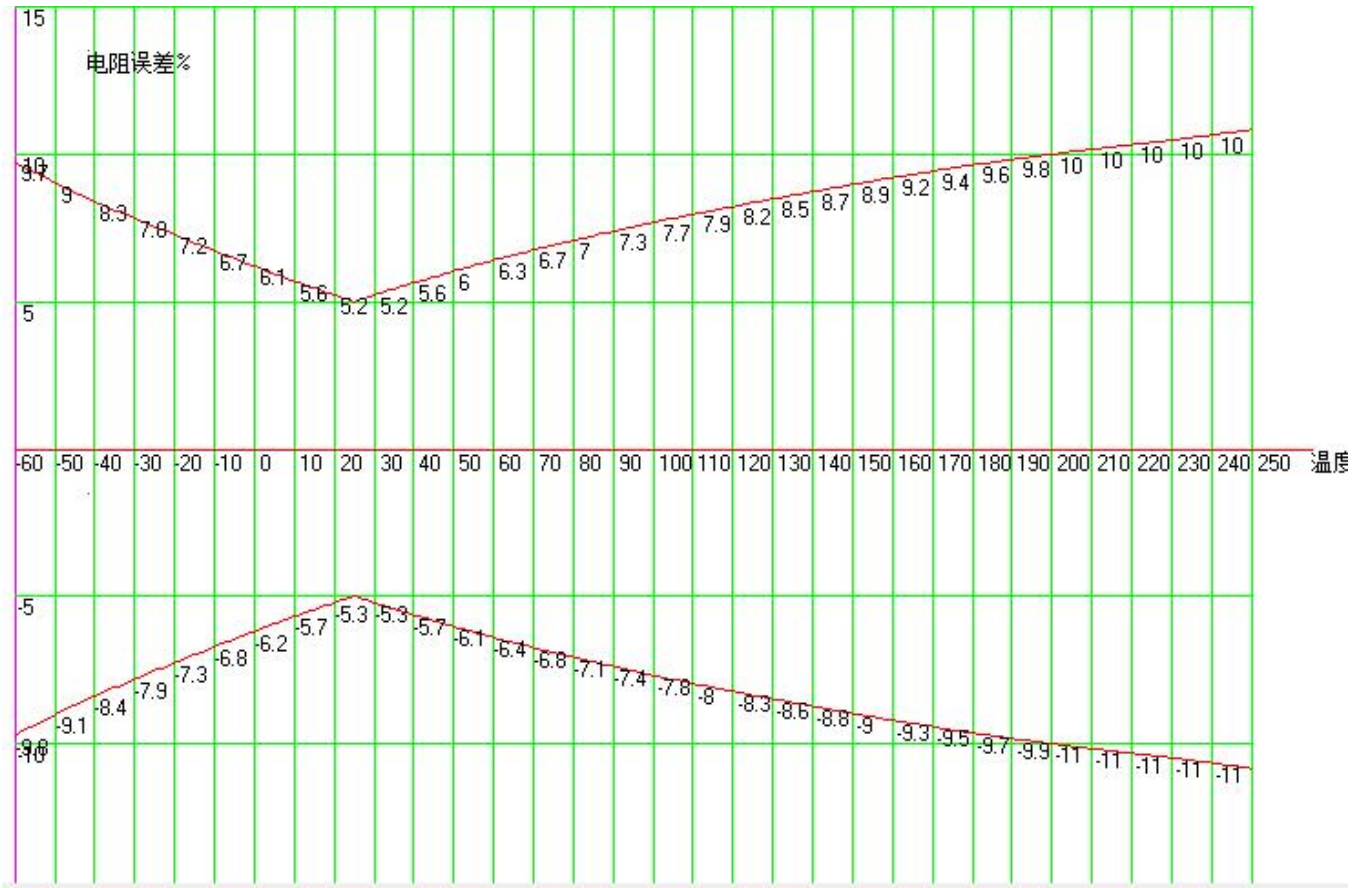
150	0.172	0.189	0.206	8.971	-8.971	4.012	-4.012
151	0.168	0.185	0.201	8.994	-8.994	4.04	-4.04
152	0.164	0.18	0.197	9.018	-9.018	4.069	-4.069
153	0.16	0.176	0.192	9.041	-9.041	4.098	-4.098
154	0.156	0.172	0.188	9.065	-9.065	4.126	-4.126
155	0.153	0.168	0.183	9.088	-9.088	4.155	-4.155
156	0.149	0.164	0.179	9.111	-9.111	4.184	-4.184
157	0.146	0.161	0.175	9.134	-9.134	4.213	-4.213
158	0.142	0.157	0.171	9.157	-9.157	4.242	-4.242
159	0.139	0.153	0.167	9.179	-9.179	4.271	-4.271
160	0.136	0.15	0.164	9.202	-9.202	4.3	-4.3
161	0.133	0.147	0.16	9.225	-9.225	4.329	-4.329
162	0.13	0.143	0.157	9.247	-9.247	4.359	-4.359
163	0.127	0.14	0.153	9.269	-9.269	4.388	-4.388
164	0.124	0.137	0.15	9.292	-9.292	4.418	-4.418
165	0.122	0.134	0.147	9.314	-9.314	4.448	-4.448
166	0.119	0.131	0.143	9.336	-9.336	4.477	-4.477
167	0.116	0.128	0.14	9.357	-9.357	4.507	-4.507
168	0.114	0.126	0.137	9.379	-9.379	4.537	-4.537
169	0.111	0.123	0.134	9.401	-9.401	4.567	-4.567
170	0.109	0.12	0.132	9.422	-9.422	4.598	-4.598
171	0.107	0.118	0.129	9.444	-9.444	4.628	-4.628
172	0.104	0.115	0.126	9.465	-9.465	4.659	-4.659
173	0.102	0.113	0.124	9.486	-9.486	4.689	-4.689
174	0.1	0.111	0.121	9.507	-9.507	4.72	-4.72
175	0.098	0.108	0.119	9.528	-9.528	4.751	-4.751
176	0.096	0.106	0.116	9.548	-9.548	4.782	-4.782
177	0.094	0.104	0.114	9.569	-9.569	4.813	-4.813
178	0.092	0.102	0.112	9.589	-9.589	4.844	-4.844
179	0.09	0.1	0.109	9.61	-9.61	4.875	-4.875
180	0.088	0.098	0.107	9.63	-9.63	4.907	-4.907
181	0.086	0.096	0.105	9.65	-9.65	4.938	-4.938
182	0.085	0.094	0.103	9.669	-9.669	4.97	-4.97
183	0.083	0.092	0.101	9.689	-9.689	5.002	-5.002
184	0.081	0.09	0.099	9.709	-9.709	5.034	-5.034
185	0.08	0.089	0.097	9.728	-9.728	5.066	-5.066
186	0.078	0.087	0.095	9.747	-9.747	5.098	-5.098
187	0.077	0.085	0.094	9.766	-9.766	5.13	-5.13
188	0.075	0.084	0.092	9.785	-9.785	5.163	-5.163
189	0.074	0.082	0.09	9.804	-9.804	5.195	-5.195
190	0.073	0.081	0.088	9.823	-9.823	5.228	-5.228
191	0.071	0.079	0.087	9.841	-9.841	5.261	-5.261

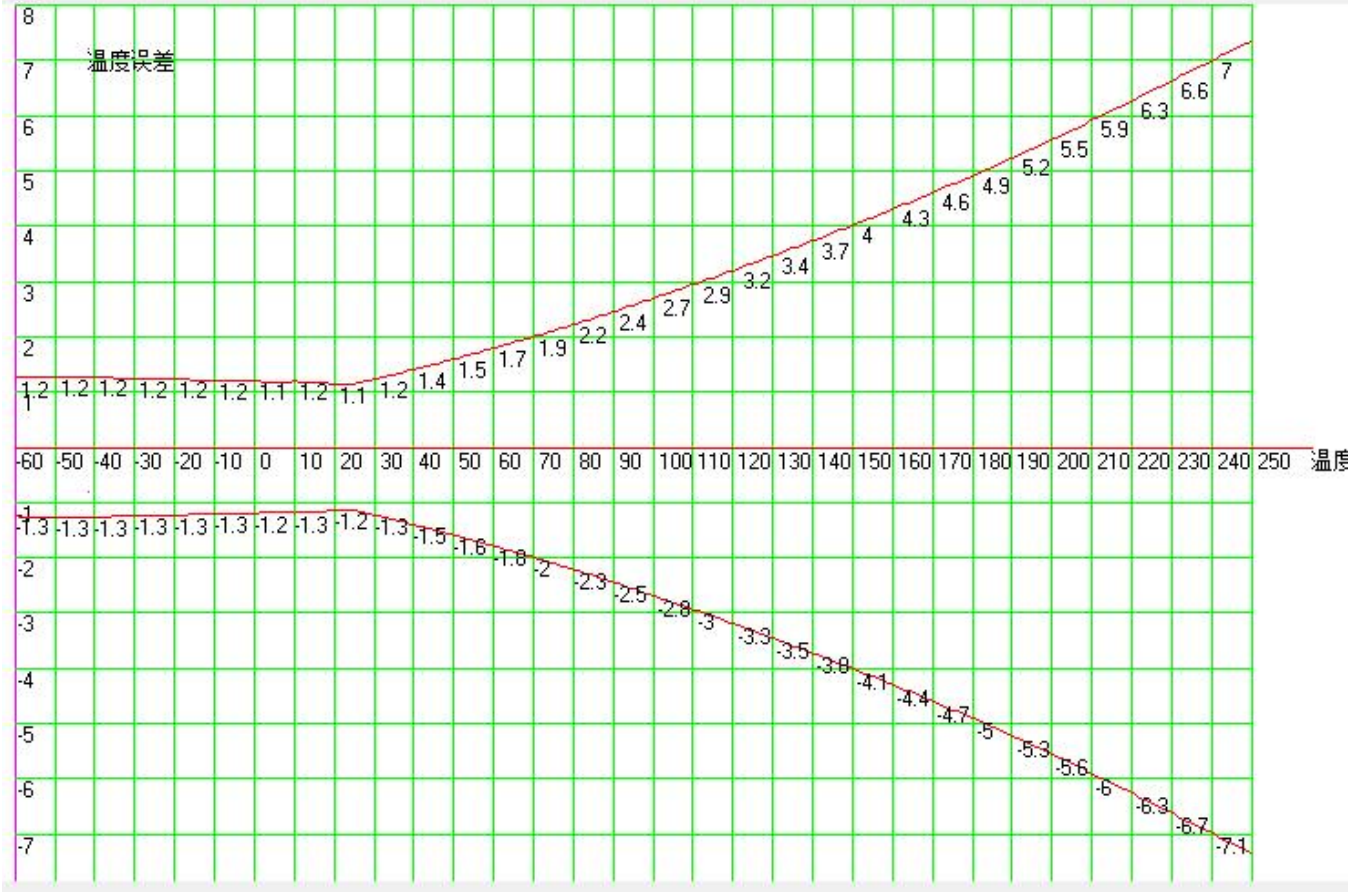
192	0.07	0.078	0.085	9.86	-9.86	5.294	-5.294
193	0.069	0.076	0.084	9.878	-9.878	5.327	-5.327
194	0.067	0.075	0.082	9.896	-9.896	5.36	-5.36
195	0.066	0.073	0.081	9.914	-9.914	5.393	-5.393
196	0.065	0.072	0.079	9.932	-9.932	5.427	-5.427
197	0.064	0.071	0.078	9.949	-9.949	5.46	-5.46
198	0.063	0.07	0.077	9.967	-9.967	5.494	-5.494
199	0.062	0.068	0.075	9.984	-9.984	5.528	-5.528
200	0.061	0.067	0.074	10	-10	5.562	-5.562
201	0.059	0.066	0.073	10.01	-10.01	5.596	-5.596
202	0.058	0.065	0.072	10.03	-10.03	5.63	-5.63
203	0.057	0.064	0.07	10.05	-10.05	5.665	-5.665
204	0.056	0.063	0.069	10.06	-10.06	5.699	-5.699
205	0.056	0.062	0.068	10.08	-10.08	5.733	-5.733
206	0.055	0.061	0.067	10.1	-10.1	5.768	-5.768
207	0.054	0.06	0.066	10.11	-10.11	5.803	-5.803
208	0.053	0.059	0.065	10.13	-10.13	5.838	-5.838
209	0.052	0.058	0.064	10.15	-10.15	5.873	-5.873
210	0.051	0.057	0.063	10.16	-10.16	5.908	-5.908
211	0.05	0.056	0.062	10.18	-10.18	5.943	-5.943
212	0.049	0.055	0.061	10.2	-10.2	5.978	-5.978
213	0.049	0.054	0.06	10.21	-10.21	6.014	-6.014
214	0.048	0.053	0.059	10.23	-10.23	6.049	-6.049
215	0.047	0.053	0.058	10.24	-10.24	6.085	-6.085
216	0.046	0.052	0.057	10.26	-10.26	6.121	-6.121
217	0.046	0.051	0.056	10.27	-10.27	6.156	-6.156
218	0.045	0.05	0.055	10.29	-10.29	6.192	-6.192
219	0.044	0.049	0.055	10.31	-10.31	6.228	-6.228
220	0.044	0.049	0.054	10.32	-10.32	6.264	-6.264
221	0.043	0.048	0.053	10.34	-10.34	6.3	-6.3
222	0.042	0.047	0.052	10.35	-10.35	6.336	-6.336
223	0.041	0.046	0.051	10.37	-10.37	6.372	-6.372
224	0.041	0.046	0.05	10.38	-10.38	6.408	-6.408
225	0.04	0.045	0.05	10.4	-10.4	6.445	-6.445
226	0.04	0.044	0.049	10.41	-10.41	6.481	-6.481
227	0.039	0.044	0.048	10.43	-10.43	6.517	-6.517
228	0.038	0.043	0.047	10.45	-10.45	6.553	-6.553
229	0.038	0.042	0.047	10.46	-10.46	6.59	-6.59
230	0.037	0.041	0.046	10.48	-10.48	6.626	-6.626
231	0.036	0.041	0.045	10.49	-10.49	6.663	-6.663
232	0.036	0.04	0.044	10.51	-10.51	6.699	-6.699
233	0.035	0.04	0.044	10.53	-10.53	6.735	-6.735

234	0.035	0.039	0.043	10.54	-10.54	6.772	-6.772
235	0.034	0.038	0.042	10.56	-10.56	6.808	-6.808
236	0.034	0.038	0.042	10.58	-10.58	6.844	-6.844
237	0.033	0.037	0.041	10.59	-10.59	6.88	-6.88
238	0.032	0.036	0.04	10.61	-10.61	6.917	-6.917
239	0.032	0.036	0.04	10.63	-10.63	6.953	-6.953
240	0.031	0.035	0.039	10.64	-10.64	6.989	-6.989
241	0.031	0.034	0.038	10.66	-10.66	7.025	-7.025
242	0.03	0.034	0.038	10.68	-10.68	7.061	-7.061
243	0.03	0.033	0.037	10.7	-10.7	7.096	-7.096
244	0.029	0.033	0.036	10.72	-10.72	7.132	-7.132
245	0.029	0.032	0.036	10.73	-10.73	7.168	-7.168
246	0.028	0.031	0.035	10.75	-10.75	7.203	-7.203
247	0.027	0.031	0.034	10.77	-10.77	7.239	-7.239
248	0.027	0.03	0.034	10.79	-10.79	7.274	-7.274
249	0.026	0.03	0.033	10.81	-10.81	7.309	-7.309
250	0.026	0.029	0.032	10.83	-10.83	7.344	-7.344



附表 II Attachment II


电阻误差%
温度


温度误差
温度