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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 503J3950
版次 REV.NO：	C0
日期 DATE：	2026-07-25

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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	503	J	3950
①	②	③	④

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

② 503：25℃的零功率电阻值 50kΩ（Zero Power Resistance at 25℃ is 50kΩ）

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）

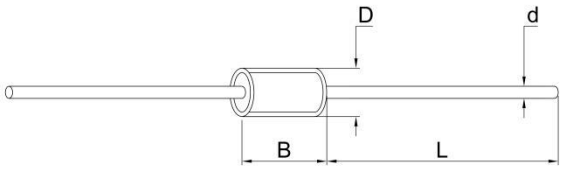
2、电气性能 Electrical characteristics

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	50kΩ±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 503J3950		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}：50kΩ ±5% (Zero Power Resistance: R_{25}：50kΩ ±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 50kΩ	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

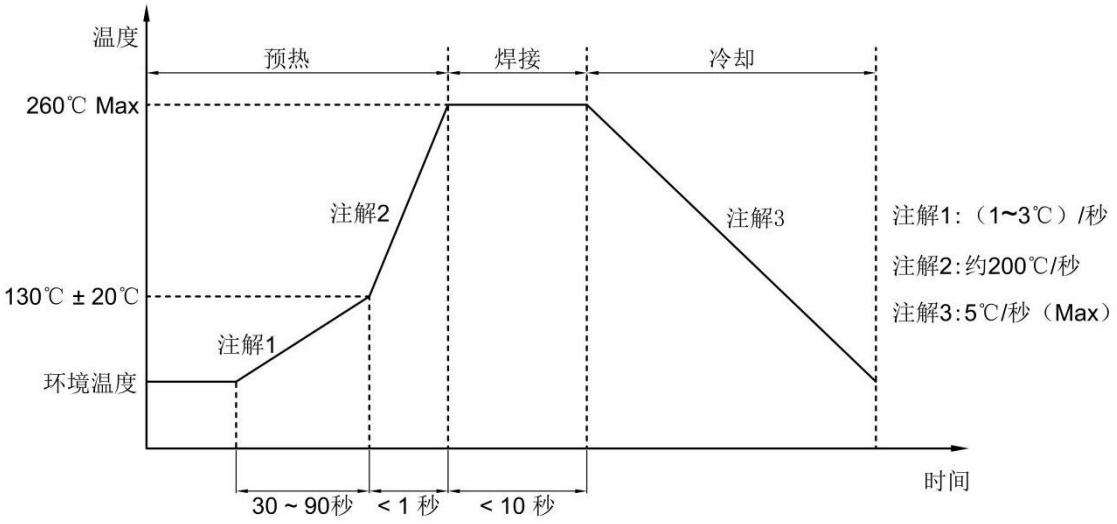
No.	项目 Test Item	试验标准 Test Standard	试验条件及方法 Test Conditions / Methods	性能要求 Acceptance Criteria
4.1	引出端强度 Tensile Strength of Terminals	IEC60068-2-21	固定电阻端，拉力：10N±1 N，时间：10±1 秒 Keep the unit fixed, apply 10 ± 1 N for 10 ± 1 seconds.	无可见性损伤 No Visible damage| Δ R_{25}/R_{25}|≤2%
4.2	可焊性 Solder ability	IEC60068-2-20	温度：245℃±5℃，时间：2-3 秒 Temperature: 245℃ ± 5℃ 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℃±5℃,浸入深度距电阻体 6mm，时间：5±1 秒 Temperature of solder bath: 260℃ ± 5℃, insertion depth: 6 mm from resistor body, duration: 5 ± 1 seconds.	无可见性损伤 No Visible damage | Δ R_{25}/R_{25}|≤2%
4.4	稳态湿热 Damp heat, Steady State	IEC60068-2-78	温度：40℃±2℃,湿度：93%RH±2%RH,时间：500h Temperature: 40℃ ± 2℃, 93% RH ± 2% RH, 500 hrs.	无可见性损伤 No Visible damage | Δ 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 | Δ R_{25}/R_{25}|≤2%

步骤 Step	温度 Temperature (℃)	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

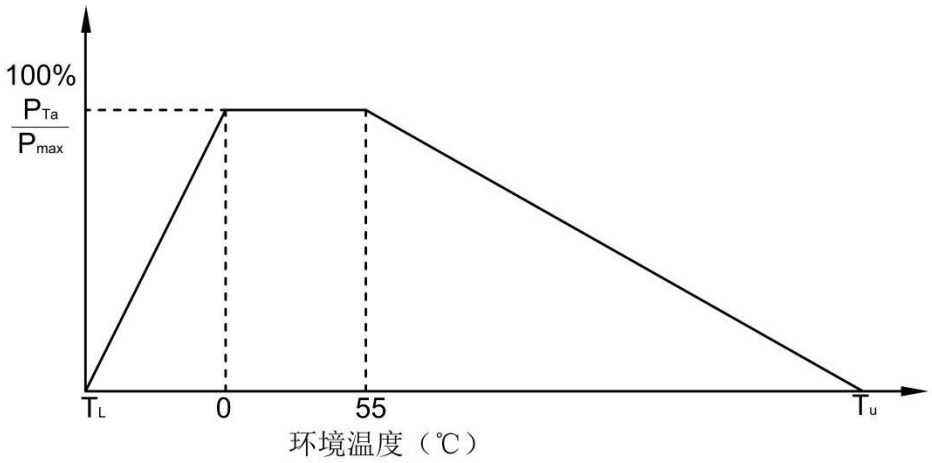
4.6	高温储存 High temperature storage	IEC60068-2-2	温度：250℃±2℃，时间：1000h Temperature: 250℃ ± 2℃, Duration: 1000 hrs.	无可见性损伤 No Visible damage | Δ R_{25}/R_{25}|≤2%
4.7	低温储存 Low temperature storage	IEC60068-2-1	温度：-55℃±2℃，时间：1000h Temperature: －55℃ ± 2℃, Duration: 1000 hrs.	无可见性损伤 No Visible damage | Δ R_{25}/R_{25}|≤2%

▲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 f or 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}=50kΩ 精度:±5%　　$B_{25/50}$=3950K 精度:±1%（P214-9）

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	3451.47	3807	4162.52	9.338	-9.338	1.261	-1.261
-54	3135.19	3454.42	3773.65	9.241	-9.241	1.266	-1.266
-53	2877.02	3166.92	3456.82	9.153	-9.153	1.27	-1.27
-52	2661.76	2927.42	3193.09	9.075	-9.075	1.273	-1.273
-51	2478.44	2723.64	2968.85	9.002	-9.002	1.275	-1.275
-50	2319.12	2546.68	2774.23	8.935	-8.935	1.276	-1.276
-49	2177.98	2390.02	2602.05	8.871	-8.871	1.276	-1.276
-48	2050.76	2248.91	2447.05	8.81	-8.81	1.276	-1.276
-47	1934.36	2119.88	2305.4	8.751	-8.751	1.275	-1.275
-46	1826.53	2000.43	2174.34	8.693	-8.693	1.274	-1.274
-45	1725.65	1888.75	2051.86	8.635	-8.635	1.273	-1.273
-44	1630.58	1783.58	1936.58	8.578	-8.578	1.272	-1.272
-43	1540.53	1684.02	1827.51	8.52	-8.52	1.271	-1.271
-42	1454.96	1589.48	1723.99	8.462	-8.462	1.27	-1.27
-41	1373.53	1499.56	1625.59	8.404	-8.404	1.269	-1.269
-40	1295.99	1414	1532	8.345	-8.345	1.269	-1.269
-39	1222.19	1332.61	1443.04	8.286	-8.286	1.268	-1.268
-38	1152.03	1255.29	1358.56	8.226	-8.226	1.268	-1.268
-37	1085.42	1181.94	1278.45	8.165	-8.165	1.267	-1.267
-36	1022.3	1112.46	1202.63	8.105	-8.105	1.267	-1.267
-35	962.586	1046.79	1130.99	8.044	-8.044	1.267	-1.267
-34	906.2	984.819	1063.43	7.983	-7.983	1.267	-1.267
-33	853.048	926.44	999.831	7.921	-7.921	1.267	-1.267
-32	803.029	871.537	940.046	7.86	-7.86	1.267	-1.267
-31	756.024	819.979	883.934	7.799	-7.799	1.268	-1.268
-30	711.91	771.623	831.337	7.738	-7.738	1.268	-1.268
-29	670.553	726.321	782.088	7.678	-7.678	1.268	-1.268
-28	631.816	683.915	736.015	7.617	-7.617	1.269	-1.269
-27	595.557	644.249	692.941	7.557	-7.557	1.269	-1.269
-26	561.634	607.163	652.691	7.498	-7.498	1.269	-1.269
-25	529.907	572.5	615.092	7.439	-7.439	1.269	-1.269
-24	500.238	540.105	579.972	7.381	-7.381	1.27	-1.27
-23	472.492	509.83	547.168	7.323	-7.323	1.27	-1.27
-22	446.541	481.531	516.521	7.266	-7.266	1.27	-1.27
-21	422.26	455.07	487.88	7.209	-7.209	1.27	-1.27
-20	399.534	430.318	461.103	7.153	-7.153	1.269	-1.269
-19	378.251	407.153	436.054	7.098	-7.098	1.269	-1.269

-18	358.309	385.459	412.609	7.043	-7.043	1.269	-1.269
-17	339.609	365.129	390.649	6.989	-6.989	1.268	-1.268
-16	322.061	346.063	370.065	6.935	-6.935	1.267	-1.267
-15	305.583	328.169	350.755	6.882	-6.882	1.266	-1.266
-14	290.095	311.361	332.627	6.829	-6.829	1.265	-1.265
-13	275.528	295.56	315.592	6.777	-6.777	1.264	-1.264
-12	261.814	280.693	299.573	6.726	-6.726	1.263	-1.263
-11	248.892	266.694	284.495	6.674	-6.674	1.262	-1.262
-10	236.707	253.5	270.292	6.624	-6.624	1.26	-1.26
-9	225.208	241.054	256.901	6.573	-6.573	1.258	-1.258
-8	214.348	229.307	244.266	6.523	-6.523	1.257	-1.257
-7	204.082	218.209	232.336	6.474	-6.474	1.255	-1.255
-6	194.372	207.717	221.062	6.424	-6.424	1.253	-1.253
-5	185.18	197.791	210.401	6.375	-6.375	1.25	-1.25
-4	176.475	188.394	200.314	6.326	-6.326	1.248	-1.248
-3	168.224	179.493	190.763	6.278	-6.278	1.246	-1.246
-2	160.399	171.057	181.714	6.23	-6.23	1.243	-1.243
-1	152.975	163.056	173.137	6.182	-6.182	1.241	-1.241
0	145.928	155.466	165.003	6.134	-6.134	1.238	-1.238
1	139.235	148.26	157.285	6.087	-6.087	1.235	-1.235
2	132.876	141.418	149.959	6.039	-6.039	1.233	-1.233
3	126.832	134.918	143.003	5.992	-5.992	1.23	-1.23
4	121.085	128.74	136.395	5.946	-5.946	1.227	-1.227
5	115.62	122.868	130.116	5.899	-5.899	1.224	-1.224
6	110.42	117.284	124.149	5.852	-5.852	1.221	-1.221
7	105.471	111.973	118.475	5.806	-5.806	1.218	-1.218
8	100.761	106.92	113.079	5.76	-5.76	1.214	-1.214
9	96.277	102.112	107.947	5.714	-5.714	1.211	-1.211
10	91.788	97.302	102.815	5.665	-5.665	1.212	-1.212
11	87.941	93.18	98.419	5.622	-5.622	1.205	-1.205
12	84.067	89.033	93.998	5.577	-5.577	1.201	-1.201
13	80.377	85.083	89.79	5.531	-5.531	1.198	-1.198
14	76.861	81.322	85.784	5.486	-5.486	1.194	-1.194
15	73.51	77.74	81.97	5.441	-5.441	1.191	-1.191
16	70.316	74.328	78.339	5.396	-5.396	1.188	-1.188
17	67.273	71.076	74.88	5.351	-5.351	1.184	-1.184
18	64.371	67.979	71.586	5.307	-5.307	1.181	-1.181
19	61.605	65.027	68.449	5.262	-5.262	1.177	-1.177
20	58.967	62.213	65.46	5.218	-5.218	1.173	-1.173
21	56.451	59.532	62.612	5.174	-5.174	1.17	-1.17
22	54.053	56.976	59.899	5.13	-5.13	1.166	-1.166
23	51.765	54.539	57.313	5.086	-5.086	1.162	-1.162

24	49.582	52.215	54.849	5.043	-5.043	1.159	-1.159
25	47.5	50	52.5	5	-5	1.156	-1.156
26	45.471	47.886	50.301	5.043	-5.043	1.171	-1.171
27	43.537	45.871	48.204	5.086	-5.086	1.188	-1.188
28	41.694	43.948	46.202	5.129	-5.129	1.204	-1.204
29	39.935	42.113	44.291	5.171	-5.171	1.221	-1.221
30	38.258	40.362	42.467	5.214	-5.214	1.238	-1.238
31	36.658	38.691	40.725	5.256	-5.256	1.254	-1.254
32	35.131	37.096	39.062	5.298	-5.298	1.271	-1.271
33	33.674	35.574	37.474	5.34	-5.34	1.288	-1.288
34	32.284	34.12	35.956	5.382	-5.382	1.305	-1.305
35	30.956	32.732	34.507	5.423	-5.423	1.323	-1.323
36	29.689	31.405	33.122	5.465	-5.465	1.34	-1.34
37	28.479	30.139	31.798	5.506	-5.506	1.357	-1.357
38	27.323	28.928	30.533	5.547	-5.547	1.375	-1.375
39	26.219	27.771	29.323	5.588	-5.588	1.392	-1.392
40	25.165	26.666	28.167	5.628	-5.628	1.41	-1.41
41	24.157	25.609	27.061	5.669	-5.669	1.428	-1.428
42	23.194	24.598	26.003	5.709	-5.709	1.446	-1.446
43	22.273	23.632	24.991	5.749	-5.749	1.464	-1.464
44	21.393	22.707	24.022	5.789	-5.789	1.482	-1.482
45	20.551	21.823	23.095	5.829	-5.829	1.5	-1.5
46	19.746	20.977	22.208	5.868	-5.868	1.518	-1.518
47	18.976	20.167	21.359	5.908	-5.908	1.537	-1.537
48	18.239	19.392	20.545	5.947	-5.947	1.555	-1.555
49	17.534	18.65	19.767	5.986	-5.986	1.574	-1.574
50	16.859	17.94	19.02	6.025	-6.025	1.592	-1.592
51	16.212	17.259	18.306	6.063	-6.063	1.611	-1.611
52	15.594	16.607	17.621	6.102	-6.102	1.63	-1.63
53	15.001	15.983	16.964	6.14	-6.14	1.649	-1.649
54	14.434	15.385	16.335	6.179	-6.179	1.668	-1.668
55	13.89	14.811	15.732	6.217	-6.217	1.687	-1.687
56	13.369	14.262	15.154	6.254	-6.254	1.706	-1.706
57	12.87	13.735	14.599	6.292	-6.292	1.725	-1.725
58	12.392	13.229	14.067	6.33	-6.33	1.745	-1.745
59	11.933	12.745	13.557	6.367	-6.367	1.764	-1.764
60	11.494	12.28	13.067	6.404	-6.404	1.784	-1.784
61	11.072	11.835	12.597	6.441	-6.441	1.803	-1.803
62	10.668	11.407	12.146	6.478	-6.478	1.823	-1.823
63	10.28	10.997	11.713	6.515	-6.515	1.843	-1.843
64	9.908	10.603	11.297	6.551	-6.551	1.863	-1.863
65	9.551	10.225	10.898	6.587	-6.587	1.883	-1.883

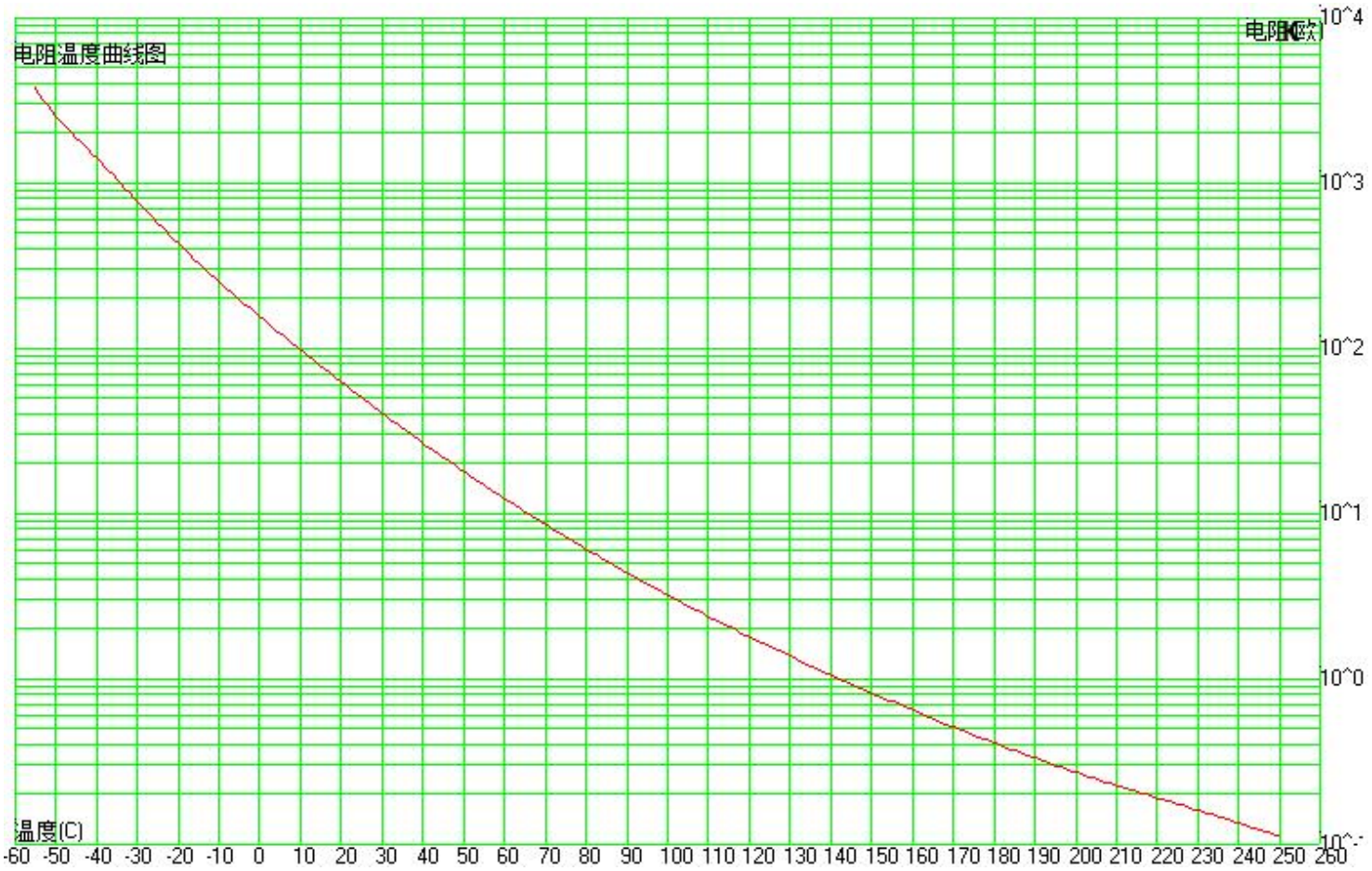
66	9.208	9.862	10.515	6.624	-6.624	1.903	-1.903
67	8.88	9.513	10.147	6.66	-6.66	1.923	-1.923
68	8.564	9.179	9.793	6.695	-6.695	1.943	-1.943
69	8.261	8.857	9.454	6.731	-6.731	1.963	-1.963
70	7.97	8.549	9.127	6.767	-6.767	1.984	-1.984
71	7.691	8.252	8.813	6.802	-6.802	2.004	-2.004
72	7.422	7.967	8.512	6.837	-6.837	2.025	-2.025
73	7.164	7.693	8.222	6.872	-6.872	2.046	-2.046
74	6.917	7.43	7.943	6.907	-6.907	2.067	-2.067
75	6.679	7.177	7.675	6.942	-6.942	2.088	-2.088
76	6.45	6.934	7.418	6.976	-6.976	2.109	-2.109
77	6.23	6.7	7.17	7.01	-7.01	2.13	-2.13
78	6.019	6.475	6.931	7.045	-7.045	2.151	-2.151
79	5.816	6.259	6.702	7.079	-7.079	2.172	-2.172
80	5.62	6.051	6.481	7.113	-7.113	2.194	-2.194
81	5.432	5.851	6.269	7.146	-7.146	2.215	-2.215
82	5.252	5.658	6.064	7.18	-7.18	2.237	-2.237
83	5.078	5.473	5.867	7.213	-7.213	2.259	-2.259
84	4.911	5.294	5.678	7.246	-7.246	2.281	-2.281
85	4.75	5.123	5.495	7.279	-7.279	2.302	-2.302
86	4.595	4.957	5.32	7.312	-7.312	2.325	-2.325
87	4.446	4.798	5.15	7.345	-7.345	2.347	-2.347
88	4.302	4.645	4.987	7.377	-7.377	2.369	-2.369
89	4.164	4.497	4.83	7.41	-7.41	2.391	-2.391
90	4.031	4.355	4.679	7.442	-7.442	2.414	-2.414
91	3.903	4.218	4.533	7.474	-7.474	2.436	-2.436
92	3.779	4.086	4.393	7.506	-7.506	2.459	-2.459
93	3.66	3.959	4.257	7.537	-7.537	2.482	-2.482
94	3.545	3.836	4.126	7.569	-7.569	2.505	-2.505
95	3.435	3.718	4	7.6	-7.6	2.527	-2.527
96	3.329	3.604	3.879	7.631	-7.631	2.551	-2.551
97	3.226	3.494	3.761	7.663	-7.663	2.574	-2.574
98	3.127	3.388	3.648	7.693	-7.693	2.597	-2.597
99	3.031	3.285	3.539	7.724	-7.724	2.62	-2.62
100	2.939	3.187	3.434	7.755	-7.755	2.644	-2.644
101	2.851	3.091	3.332	7.785	-7.785	2.667	-2.667
102	2.765	2.999	3.234	7.815	-7.815	2.691	-2.691
103	2.682	2.91	3.139	7.845	-7.845	2.715	-2.715
104	2.602	2.825	3.047	7.875	-7.875	2.739	-2.739
105	2.525	2.742	2.959	7.905	-7.905	2.763	-2.763
106	2.451	2.662	2.873	7.935	-7.935	2.787	-2.787
107	2.379	2.585	2.791	7.964	-7.964	2.811	-2.811

108	2.31	2.51	2.711	7.994	-7.994	2.835	-2.835
109	2.242	2.438	2.634	8.023	-8.023	2.859	-2.859
110	2.178	2.368	2.559	8.052	-8.052	2.884	-2.884
111	2.115	2.301	2.487	8.081	-8.081	2.908	-2.908
112	2.054	2.236	2.417	8.11	-8.11	2.933	-2.933
113	1.996	2.173	2.35	8.138	-8.138	2.958	-2.958
114	1.939	2.112	2.284	8.167	-8.167	2.982	-2.982
115	1.885	2.053	2.221	8.195	-8.195	3.007	-3.007
116	1.832	1.996	2.16	8.223	-8.223	3.032	-3.032
117	1.781	1.941	2.101	8.251	-8.251	3.057	-3.057
118	1.731	1.887	2.044	8.279	-8.279	3.083	-3.083
119	1.683	1.836	1.988	8.307	-8.307	3.108	-3.108
120	1.637	1.785	1.934	8.335	-8.335	3.133	-3.133
121	1.592	1.737	1.882	8.363	-8.363	3.159	-3.159
122	1.548	1.69	1.832	8.39	-8.39	3.184	-3.184
123	1.506	1.644	1.783	8.417	-8.417	3.21	-3.21
124	1.465	1.6	1.735	8.445	-8.445	3.236	-3.236
125	1.426	1.558	1.689	8.472	-8.472	3.261	-3.261
126	1.387	1.516	1.645	8.499	-8.499	3.287	-3.287
127	1.35	1.476	1.602	8.526	-8.526	3.313	-3.313
128	1.314	1.437	1.56	8.553	-8.553	3.339	-3.339
129	1.279	1.399	1.519	8.579	-8.579	3.365	-3.365
130	1.245	1.363	1.48	8.606	-8.606	3.392	-3.392
131	1.212	1.327	1.442	8.632	-8.632	3.418	-3.418
132	1.181	1.292	1.404	8.659	-8.659	3.444	-3.444
133	1.15	1.259	1.368	8.685	-8.685	3.471	-3.471
134	1.12	1.227	1.333	8.711	-8.711	3.497	-3.497
135	1.091	1.195	1.299	8.737	-8.737	3.524	-3.524
136	1.062	1.164	1.266	8.763	-8.763	3.55	-3.55
137	1.035	1.135	1.234	8.789	-8.789	3.577	-3.577
138	1.008	1.106	1.203	8.815	-8.815	3.604	-3.604
139	0.982	1.078	1.173	8.841	-8.841	3.631	-3.631
140	0.957	1.051	1.144	8.866	-8.866	3.658	-3.658
141	0.933	1.024	1.115	8.892	-8.892	3.685	-3.685
142	0.909	0.999	1.088	8.917	-8.917	3.712	-3.712
143	0.886	0.974	1.061	8.943	-8.943	3.74	-3.74
144	0.864	0.949	1.034	8.968	-8.968	3.767	-3.767
145	0.842	0.926	1.009	8.993	-8.993	3.794	-3.794
146	0.821	0.903	0.984	9.018	-9.018	3.822	-3.822
147	0.801	0.881	0.96	9.043	-9.043	3.849	-3.849
148	0.781	0.859	0.937	9.068	-9.068	3.877	-3.877
149	0.762	0.838	0.914	9.093	-9.093	3.905	-3.905

150	0.743	0.818	0.892	9.118	-9.118	3.933	-3.933
151	0.725	0.798	0.871	9.142	-9.142	3.96	-3.96
152	0.707	0.778	0.85	9.167	-9.167	3.988	-3.988
153	0.69	0.76	0.829	9.192	-9.192	4.017	-4.017
154	0.673	0.741	0.81	9.216	-9.216	4.045	-4.045
155	0.657	0.723	0.79	9.24	-9.24	4.073	-4.073
156	0.641	0.706	0.772	9.265	-9.265	4.101	-4.101
157	0.625	0.689	0.753	9.289	-9.289	4.13	-4.13
158	0.61	0.673	0.736	9.313	-9.313	4.158	-4.158
159	0.596	0.657	0.718	9.337	-9.337	4.187	-4.187
160	0.582	0.642	0.702	9.361	-9.361	4.215	-4.215
161	0.568	0.627	0.685	9.384	-9.384	4.244	-4.244
162	0.554	0.612	0.67	9.408	-9.408	4.273	-4.273
163	0.541	0.598	0.654	9.432	-9.432	4.302	-4.302
164	0.529	0.584	0.639	9.455	-9.455	4.331	-4.331
165	0.516	0.57	0.624	9.479	-9.479	4.36	-4.36
166	0.504	0.557	0.61	9.502	-9.502	4.389	-4.389
167	0.493	0.544	0.596	9.525	-9.525	4.418	-4.418
168	0.481	0.532	0.583	9.548	-9.548	4.448	-4.448
169	0.47	0.52	0.57	9.571	-9.571	4.477	-4.477
170	0.459	0.508	0.557	9.594	-9.594	4.507	-4.507
171	0.449	0.497	0.545	9.617	-9.617	4.536	-4.536
172	0.439	0.486	0.533	9.64	-9.64	4.566	-4.566
173	0.429	0.475	0.521	9.662	-9.662	4.596	-4.596
174	0.419	0.464	0.509	9.685	-9.685	4.626	-4.626
175	0.41	0.454	0.498	9.707	-9.707	4.656	-4.656
176	0.401	0.444	0.487	9.73	-9.73	4.686	-4.686
177	0.392	0.434	0.477	9.752	-9.752	4.716	-4.716
178	0.383	0.425	0.466	9.774	-9.774	4.747	-4.747
179	0.375	0.416	0.456	9.796	-9.796	4.777	-4.777
180	0.367	0.407	0.447	9.817	-9.817	4.808	-4.808
181	0.359	0.398	0.437	9.839	-9.839	4.838	-4.838
182	0.351	0.39	0.428	9.861	-9.861	4.869	-4.869
183	0.344	0.381	0.419	9.882	-9.882	4.9	-4.9
184	0.336	0.373	0.41	9.903	-9.903	4.931	-4.931
185	0.329	0.366	0.402	9.925	-9.925	4.962	-4.962
186	0.322	0.358	0.394	9.946	-9.946	4.993	-4.993
187	0.316	0.351	0.386	9.967	-9.967	5.025	-5.025
188	0.309	0.343	0.378	9.987	-9.987	5.056	-5.056
189	0.303	0.336	0.37	10	-10	5.088	-5.088
190	0.296	0.33	0.363	10.02	-10.02	5.12	-5.12
191	0.29	0.323	0.355	10.04	-10.04	5.151	-5.151

192	0.285	0.316	0.348	10.06	-10.06	5.183	-5.183
193	0.279	0.31	0.341	10.08	-10.08	5.215	-5.215
194	0.273	0.304	0.335	10.1	-10.1	5.247	-5.247
195	0.268	0.298	0.328	10.12	-10.12	5.28	-5.28
196	0.263	0.292	0.322	10.14	-10.14	5.312	-5.312
197	0.257	0.287	0.316	10.16	-10.16	5.345	-5.345
198	0.252	0.281	0.31	10.18	-10.18	5.377	-5.377
199	0.248	0.276	0.304	10.2	-10.2	5.41	-5.41
200	0.243	0.271	0.298	10.22	-10.22	5.443	-5.443
201	0.238	0.265	0.293	10.24	-10.24	5.476	-5.476
202	0.234	0.26	0.287	10.26	-10.26	5.509	-5.509
203	0.229	0.256	0.282	10.28	-10.28	5.542	-5.542
204	0.225	0.251	0.277	10.3	-10.3	5.576	-5.576
205	0.221	0.246	0.272	10.32	-10.32	5.609	-5.609
206	0.217	0.242	0.267	10.33	-10.33	5.643	-5.643
207	0.213	0.237	0.262	10.35	-10.35	5.676	-5.676
208	0.209	0.233	0.257	10.37	-10.37	5.71	-5.71
209	0.205	0.229	0.253	10.39	-10.39	5.744	-5.744
210	0.201	0.225	0.248	10.41	-10.41	5.778	-5.778
211	0.198	0.221	0.244	10.42	-10.42	5.812	-5.812
212	0.194	0.217	0.24	10.44	-10.44	5.846	-5.846
213	0.191	0.213	0.236	10.46	-10.46	5.881	-5.881
214	0.188	0.21	0.232	10.48	-10.48	5.915	-5.915
215	0.184	0.206	0.228	10.49	-10.49	5.95	-5.95
216	0.181	0.202	0.224	10.51	-10.51	5.984	-5.984
217	0.178	0.199	0.22	10.53	-10.53	6.019	-6.019
218	0.175	0.196	0.216	10.55	-10.55	6.054	-6.054
219	0.172	0.192	0.213	10.56	-10.56	6.089	-6.089
220	0.169	0.189	0.209	10.58	-10.58	6.124	-6.124
221	0.166	0.186	0.206	10.6	-10.6	6.159	-6.159
222	0.163	0.183	0.202	10.61	-10.61	6.194	-6.194
223	0.16	0.18	0.199	10.63	-10.63	6.229	-6.229
224	0.158	0.177	0.195	10.65	-10.65	6.264	-6.264
225	0.155	0.174	0.192	10.67	-10.67	6.3	-6.3
226	0.152	0.171	0.189	10.68	-10.68	6.335	-6.335
227	0.15	0.168	0.186	10.7	-10.7	6.37	-6.37
228	0.147	0.165	0.183	10.72	-10.72	6.406	-6.406
229	0.145	0.162	0.18	10.73	-10.73	6.441	-6.441
230	0.142	0.16	0.177	10.75	-10.75	6.477	-6.477
231	0.14	0.157	0.174	10.77	-10.77	6.513	-6.513
232	0.137	0.154	0.171	10.79	-10.79	6.548	-6.548
233	0.135	0.151	0.168	10.8	-10.8	6.584	-6.584

234	0.133	0.149	0.165	10.82	-10.82	6.619	-6.619
235	0.13	0.146	0.162	10.84	-10.84	6.655	-6.655
236	0.128	0.144	0.159	10.86	-10.86	6.691	-6.691
237	0.126	0.141	0.157	10.87	-10.87	6.726	-6.726
238	0.124	0.139	0.154	10.89	-10.89	6.762	-6.762
239	0.121	0.136	0.151	10.91	-10.91	6.797	-6.797
240	0.119	0.134	0.148	10.93	-10.93	6.833	-6.833
241	0.117	0.131	0.146	10.95	-10.95	6.868	-6.868
242	0.115	0.129	0.143	10.97	-10.97	6.903	-6.903
243	0.112	0.126	0.14	10.98	-10.98	6.939	-6.939
244	0.11	0.124	0.138	11	-11	6.974	-6.974
245	0.108	0.122	0.135	11.02	-11.02	7.009	-7.009
246	0.106	0.119	0.132	11.04	-11.04	7.044	-7.044
247	0.104	0.117	0.13	11.06	-11.06	7.078	-7.078
248	0.102	0.114	0.127	11.08	-11.08	7.113	-7.113
249	0.099	0.112	0.124	11.11	-11.11	7.147	-7.147
250	0.097	0.11	0.122	11.13	-11.13	7.182	-7.182



附表 II Attachment II

