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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：	MF52 测温型 NTC 热敏电阻器 MF52 Series Temp Measurement NTC Thermistor
产品型号 PART NUMBER：	MF52B 103F343530Z0100
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

MF52	B	103	F	3435	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)

③ 103：25°C的零功率电阻值 10kΩ (Zero Power Resistance at 25°Cis 10kΩ)

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 3435：$B_{25/85}$ 值 3435K ($B_{25/85}$:3435K)

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)

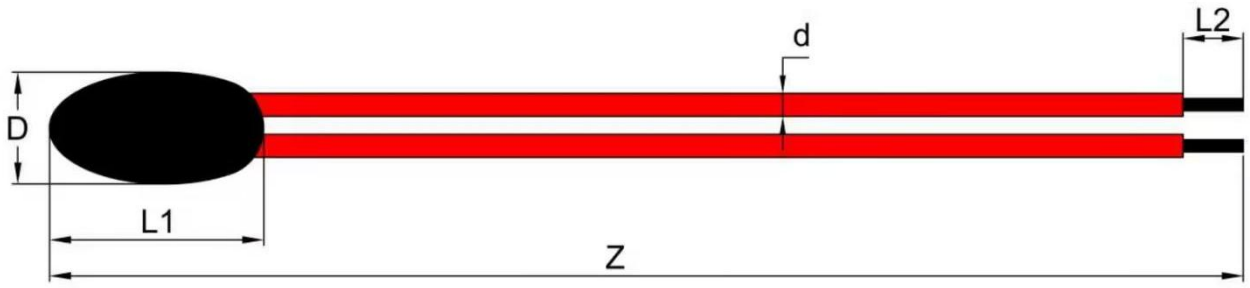
2、电气性能 Electrical characteristics

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	10kΩ±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=85±0.01°C	K	3435K±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 103F343530Z0100		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}：10kΩ±1% (Zero Power Resistance: R_{25}：10kΩ±1%)；
2) $B_{25/85}$ 数值：3435K±1% (B-value:$B_{25/85}$: 3435K±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

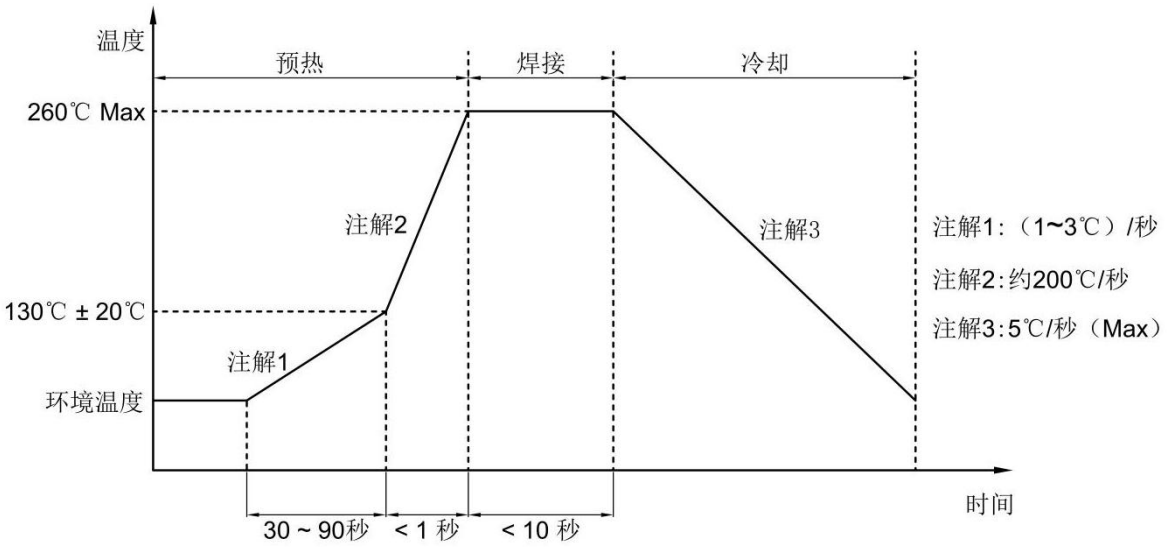
No.	名称 Name	材料规格 Material specifications	数量 Quantity	备注 note
1	核心元件 Core element	热敏电阻芯片 10kΩ	1	
2	包封类 Coating material	环氧树脂	/	黑色 Black
3	导线 Conducting wire	φ0.27/外径 0.3 红色漆包钢线	2	红色 Red

4、可靠性 Reliability

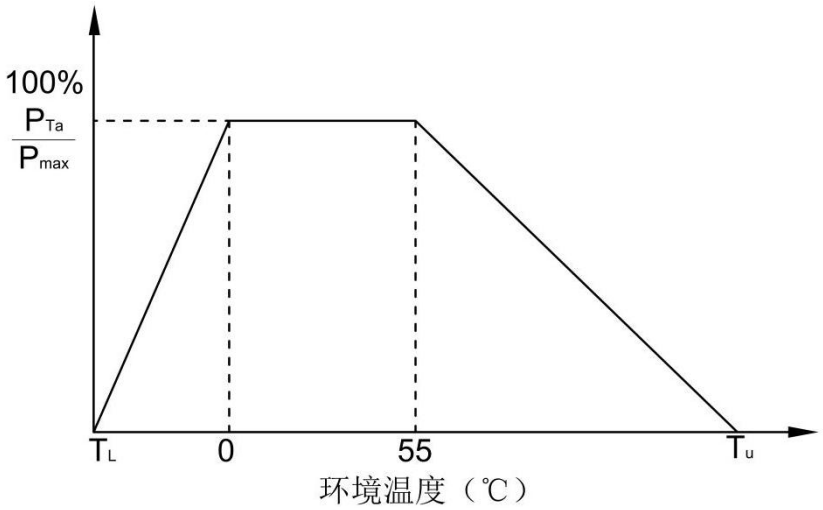
<table>
<tr><th>No.</th><th>项目
Test Item</th><th>试验标准
Test Standard</th><th>试验条件及方法
Test Conditions / Methods</th><th>性能要求
Acceptance Criteria</th></tr>
<tr><td>4.1</td><td>引出端强度
Tensile Strength of Terminals</td><td>IEC60068-2-21</td><td>固定电阻端，拉力：5±1 N，时间：10±1 秒
Keep the unit fixed, apply 5 ± 1 N for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

▲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}=10kΩ 精度:±1%　$B_{25/85}$=3435K 精度:±1% (P174-9A)

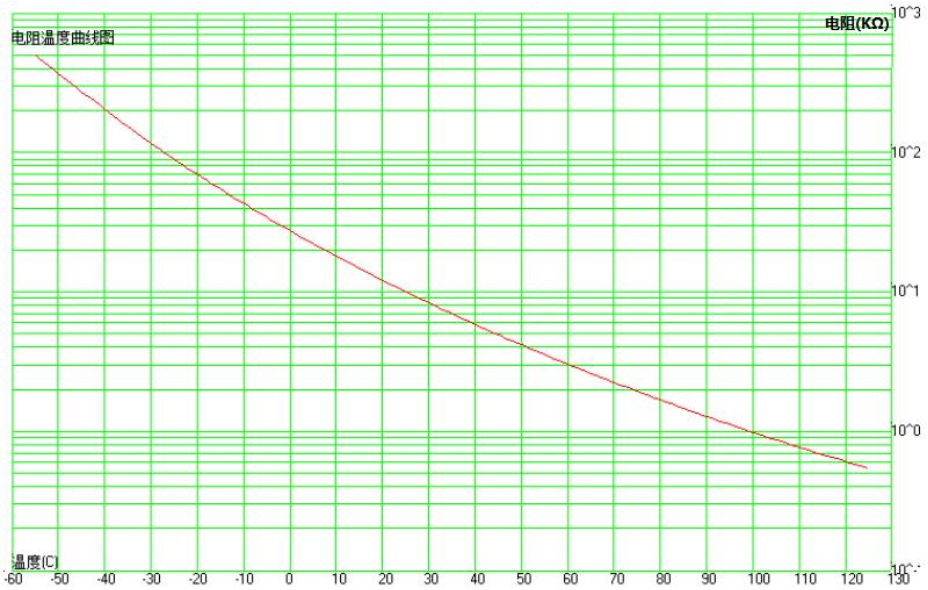
温度(℃)	电阻(kΩ)			电阻精度(%)		温度精度(℃)	
	最小值	中心值	最大值	△R	-△R	△T	-△T
-55	475.553	500.13	524.706	4.914	-4.914	0.735	-0.735
-54	449.042	471.961	494.879	4.856	-4.856	0.731	-0.731
-53	423.61	444.955	466.299	4.797	-4.797	0.727	-0.727
-52	399.333	419.191	439.05	4.737	-4.737	0.724	-0.724
-51	376.252	394.713	413.174	4.677	-4.677	0.72	-0.72
-50	354.382	371.534	388.686	4.616	-4.616	0.716	-0.716
-49	333.716	349.645	365.574	4.555	-4.555	0.713	-0.713
-48	314.231	329.02	343.809	4.494	-4.494	0.709	-0.709
-47	295.893	309.621	323.35	4.434	-4.434	0.705	-0.705
-46	278.658	291.402	304.146	4.373	-4.373	0.701	-0.701
-45	262.479	274.309	286.14	4.312	-4.312	0.697	-0.697
-44	247.303	258.287	269.271	4.252	-4.252	0.693	-0.693
-43	233.078	243.278	253.478	4.192	-4.192	0.689	-0.689
-42	219.749	229.223	238.697	4.133	-4.133	0.685	-0.685
-41	207.263	216.066	224.868	4.073	-4.073	0.681	-0.681
-40	195.568	203.75	211.931	4.015	-4.015	0.677	-0.677
-39	184.614	192.22	199.826	3.956	-3.956	0.672	-0.672
-38	174.353	181.427	188.501	3.899	-3.899	0.668	-0.668
-37	164.738	171.32	177.902	3.841	-3.841	0.664	-0.664
-36	155.728	161.854	167.98	3.784	-3.784	0.659	-0.659
-35	147.28	152.984	158.688	3.728	-3.728	0.655	-0.655
-34	139.357	144.67	149.983	3.672	-3.672	0.65	-0.65
-33	131.923	136.874	141.825	3.617	-3.617	0.645	-0.645
-32	124.944	129.559	134.175	3.562	-3.562	0.641	-0.641
-31	118.39	122.694	126.998	3.507	-3.507	0.636	-0.636
-30	112.232	116.247	120.262	3.453	-3.453	0.631	-0.631
-29	106.442	110.189	113.936	3.4	-3.4	0.626	-0.626
-28	100.997	104.494	107.992	3.347	-3.347	0.621	-0.621
-27	95.871	99.137	102.403	3.294	-3.294	0.616	-0.616
-26	91.046	94.096	97.147	3.242	-3.242	0.611	-0.611
-25	86.499	89.35	92.2	3.19	-3.19	0.606	-0.606
-24	82.213	84.877	87.542	3.139	-3.139	0.601	-0.601
-23	78.171	80.662	83.153	3.088	-3.088	0.595	-0.595
-22	74.357	76.687	79.016	3.037	-3.037	0.59	-0.59

-21	70.756	72.935	75.114	2.987	-2.987	0.584	-0.584
-20	67.355	69.394	71.432	2.937	-2.937	0.579	-0.579
-19	64.141	66.049	67.957	2.888	-2.888	0.573	-0.573
-18	61.103	62.888	64.673	2.839	-2.839	0.568	-0.568
-17	58.228	59.9	61.571	2.79	-2.79	0.562	-0.562
-16	55.508	57.073	58.638	2.741	-2.741	0.556	-0.556
-15	52.933	54.398	55.864	2.693	-2.693	0.55	-0.55
-14	50.494	51.866	53.239	2.646	-2.646	0.544	-0.544
-13	48.182	49.468	50.753	2.598	-2.598	0.539	-0.539
-12	45.991	47.196	48.4	2.551	-2.551	0.532	-0.532
-11	43.913	45.042	46.17	2.505	-2.505	0.526	-0.526
-10	41.942	43	44.057	2.458	-2.458	0.52	-0.52
-9	40.072	41.062	42.053	2.412	-2.412	0.514	-0.514
-8	38.295	39.224	40.152	2.366	-2.366	0.508	-0.508
-7	36.609	37.479	38.349	2.321	-2.321	0.501	-0.501
-6	35.006	35.822	36.637	2.276	-2.276	0.495	-0.495
-5	33.483	34.247	35.011	2.231	-2.231	0.489	-0.489
-4	32.035	32.751	33.468	2.186	-2.186	0.482	-0.482
-3	30.658	31.329	32.001	2.142	-2.142	0.475	-0.475
-2	29.349	29.977	30.606	2.097	-2.097	0.469	-0.469
-1	28.102	28.691	29.281	2.054	-2.054	0.462	-0.462
0	26.959	27.513	28.066	2.012	-2.012	0.455	-0.455
1	25.786	26.303	26.821	1.967	-1.967	0.448	-0.448
2	24.71	25.195	25.68	1.924	-1.924	0.441	-0.441
3	23.685	24.139	24.593	1.881	-1.881	0.434	-0.434
4	22.708	23.134	23.559	1.838	-1.838	0.427	-0.427
5	21.777	22.176	22.574	1.796	-1.796	0.42	-0.42
6	20.89	21.263	21.636	1.754	-1.754	0.413	-0.413
7	20.043	20.392	20.742	1.712	-1.712	0.406	-0.406
8	19.235	19.562	19.889	1.671	-1.671	0.399	-0.399
9	18.465	18.771	19.077	1.629	-1.629	0.391	-0.391
10	17.729	18.016	18.302	1.588	-1.588	0.384	-0.384
11	17.027	17.295	17.563	1.547	-1.547	0.376	-0.376
12	16.357	16.607	16.857	1.507	-1.507	0.369	-0.369
13	15.716	15.95	16.184	1.466	-1.466	0.361	-0.361
14	15.104	15.323	15.542	1.426	-1.426	0.354	-0.354
15	14.52	14.724	14.928	1.386	-1.386	0.346	-0.346
16	13.961	14.151	14.342	1.347	-1.347	0.338	-0.338
17	13.426	13.604	13.782	1.307	-1.307	0.33	-0.33
18	12.915	13.081	13.247	1.268	-1.268	0.322	-0.322

19	12.427	12.581	12.736	1.229	-1.229	0.314	-0.314
20	11.959	12.103	12.247	1.19	-1.19	0.306	-0.306
21	11.512	11.646	11.78	1.152	-1.152	0.298	-0.298
22	11.083	11.208	11.333	1.114	-1.114	0.289	-0.289
23	10.673	10.789	10.906	1.076	-1.076	0.281	-0.281
24	10.281	10.389	10.496	1.038	-1.038	0.271	-0.271
25	9.9	10	10.1	1	-1	0.262	-0.262
26	9.537	9.637	9.737	1.036	-1.036	0.281	-0.281
27	9.185	9.285	9.385	1.074	-1.074	0.291	-0.291
28	8.848	8.948	9.047	1.111	-1.111	0.302	-0.302
29	8.525	8.624	8.723	1.147	-1.147	0.314	-0.314
30	8.216	8.315	8.413	1.184	-1.184	0.326	-0.326
31	7.92	8.018	8.115	1.22	-1.22	0.338	-0.338
32	7.635	7.733	7.83	1.257	-1.257	0.35	-0.35
33	7.363	7.459	7.556	1.293	-1.293	0.362	-0.362
34	7.102	7.197	7.293	1.328	-1.328	0.374	-0.374
35	6.851	6.946	7.041	1.364	-1.364	0.386	-0.386
36	6.61	6.704	6.798	1.399	-1.399	0.399	-0.399
37	6.38	6.473	6.565	1.434	-1.434	0.411	-0.411
38	6.158	6.25	6.342	1.469	-1.469	0.424	-0.424
39	5.945	6.036	6.127	1.504	-1.504	0.436	-0.436
40	5.741	5.831	5.921	1.539	-1.539	0.449	-0.449
41	5.545	5.634	5.722	1.573	-1.573	0.462	-0.462
42	5.357	5.444	5.532	1.607	-1.607	0.475	-0.475
43	5.176	5.262	5.348	1.641	-1.641	0.488	-0.488
44	5.002	5.087	5.172	1.675	-1.675	0.501	-0.501
45	4.834	4.918	5.003	1.709	-1.709	0.514	-0.514
46	4.674	4.756	4.839	1.743	-1.743	0.527	-0.527
47	4.519	4.601	4.682	1.776	-1.776	0.54	-0.54
48	4.37	4.451	4.531	1.809	-1.809	0.553	-0.553
49	4.227	4.306	4.386	1.842	-1.842	0.567	-0.567
50	4.089	4.168	4.246	1.875	-1.875	0.58	-0.58
51	3.957	4.034	4.111	1.907	-1.907	0.594	-0.594
52	3.829	3.905	3.981	1.94	-1.94	0.607	-0.607
53	3.706	3.781	3.856	1.972	-1.972	0.621	-0.621
54	3.588	3.662	3.735	2.004	-2.004	0.634	-0.634
55	3.474	3.546	3.619	2.036	-2.036	0.648	-0.648
56	3.364	3.436	3.507	2.068	-2.068	0.662	-0.662
57	3.259	3.329	3.399	2.099	-2.099	0.676	-0.676
58	3.157	3.226	3.294	2.131	-2.131	0.69	-0.69

59	3.059	3.126	3.194	2.162	-2.162	0.704	-0.704
60	2.964	3.03	3.097	2.193	-2.193	0.718	-0.718
61	2.873	2.938	3.003	2.224	-2.224	0.732	-0.732
62	2.785	2.849	2.913	2.255	-2.255	0.747	-0.747
63	2.7	2.763	2.826	2.286	-2.286	0.761	-0.761
64	2.618	2.68	2.742	2.316	-2.316	0.776	-0.776
65	2.539	2.6	2.661	2.347	-2.347	0.79	-0.79
66	2.462	2.522	2.582	2.377	-2.377	0.805	-0.805
67	2.389	2.448	2.507	2.407	-2.407	0.819	-0.819
68	2.318	2.376	2.434	2.437	-2.437	0.834	-0.834
69	2.249	2.306	2.363	2.467	-2.467	0.849	-0.849
70	2.183	2.239	2.295	2.496	-2.496	0.864	-0.864
71	2.119	2.174	2.229	2.526	-2.526	0.878	-0.878
72	2.057	2.111	2.165	2.555	-2.555	0.893	-0.893
73	1.997	2.05	2.103	2.584	-2.584	0.909	-0.909
74	1.939	1.992	2.044	2.613	-2.613	0.924	-0.924
75	1.884	1.935	1.986	2.642	-2.642	0.939	-0.939
76	1.83	1.88	1.93	2.671	-2.671	0.954	-0.954
77	1.778	1.827	1.876	2.699	-2.699	0.97	-0.97
78	1.727	1.776	1.824	2.728	-2.728	0.985	-0.985
79	1.679	1.726	1.774	2.756	-2.756	1.001	-1.001
80	1.631	1.678	1.725	2.784	-2.784	1.016	-1.016
81	1.586	1.632	1.678	2.812	-2.812	1.032	-1.032
82	1.542	1.587	1.632	2.84	-2.84	1.047	-1.047
83	1.499	1.543	1.588	2.868	-2.868	1.063	-1.063
84	1.458	1.501	1.545	2.896	-2.896	1.079	-1.079
85	1.418	1.461	1.503	2.923	-2.923	1.095	-1.095
86	1.379	1.421	1.463	2.951	-2.951	1.111	-1.111
87	1.342	1.383	1.424	2.978	-2.978	1.127	-1.127
88	1.305	1.346	1.386	3.005	-3.005	1.143	-1.143
89	1.27	1.31	1.35	3.032	-3.032	1.16	-1.16
90	1.236	1.275	1.314	3.059	-3.059	1.176	-1.176
91	1.203	1.242	1.28	3.085	-3.085	1.192	-1.192
92	1.172	1.209	1.247	3.112	-3.112	1.209	-1.209
93	1.141	1.178	1.215	3.138	-3.138	1.225	-1.225
94	1.111	1.147	1.183	3.165	-3.165	1.242	-1.242
95	1.082	1.118	1.153	3.191	-3.191	1.259	-1.259
96	1.054	1.089	1.124	3.217	-3.217	1.275	-1.275
97	1.027	1.061	1.095	3.243	-3.243	1.292	-1.292
98	1	1.034	1.068	3.269	-3.269	1.309	-1.309

99	0.975	1.008	1.041	3.294	-3.294	1.326	-1.326
100	0.95	0.983	1.015	3.32	-3.32	1.343	-1.343
101	0.926	0.958	0.99	3.345	-3.345	1.36	-1.36
102	0.903	0.934	0.966	3.37	-3.37	1.377	-1.377
103	0.88	0.911	0.942	3.395	-3.395	1.395	-1.395
104	0.858	0.888	0.919	3.42	-3.42	1.412	-1.412
105	0.837	0.867	0.897	3.445	-3.445	1.429	-1.429
106	0.816	0.846	0.875	3.47	-3.47	1.447	-1.447
107	0.796	0.825	0.854	3.494	-3.494	1.464	-1.464
108	0.777	0.805	0.834	3.519	-3.519	1.482	-1.482
109	0.758	0.786	0.814	3.543	-3.543	1.5	-1.5
110	0.74	0.767	0.795	3.567	-3.567	1.518	-1.518
111	0.722	0.749	0.776	3.591	-3.591	1.535	-1.535
112	0.705	0.731	0.758	3.615	-3.615	1.553	-1.553
113	0.688	0.714	0.74	3.639	-3.639	1.571	-1.571
114	0.672	0.698	0.723	3.662	-3.662	1.59	-1.59
115	0.656	0.681	0.707	3.686	-3.686	1.608	-1.608
116	0.641	0.666	0.69	3.709	-3.709	1.626	-1.626
117	0.626	0.651	0.675	3.732	-3.732	1.644	-1.644
118	0.612	0.636	0.66	3.755	-3.755	1.663	-1.663
119	0.598	0.621	0.645	3.778	-3.778	1.681	-1.681
120	0.584	0.607	0.631	3.8	-3.8	1.7	-1.7
121	0.571	0.594	0.617	3.823	-3.823	1.719	-1.719
122	0.558	0.581	0.603	3.845	-3.845	1.737	-1.737
123	0.546	0.568	0.59	3.868	-3.868	1.756	-1.756
124	0.534	0.556	0.577	3.89	-3.89	1.775	-1.775
125	0.522	0.544	0.565	3.912	-3.912	1.794	-1.794



附表 II Attachment II

