编码(Coding)：JK/JXD2600407003

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：	MF52A 103J3435（A1）
版次 REV.NO：	C0
日期 DATE：	2026-4-7

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

变更登记表

REVISED RECORD SHEET

版次 REV. NO	变更日期 REV.DATE	变更内容 CHANGE CONTENT	申请人 APPLICANT	批准人 APPROVED
A0	2015/10/11	版本制定。 Version formulation.	鞠晓丽	李少媛
B0	2022/4/1	更新规格书版本格式，增加版次管控，细化规格纸。 Update for version form of data sheet, add to management and control for number of edition, refine to PN and draw.	吴迎丽	李少媛
C0	2025/12/01	更新规格书版本格式，去掉：产品图纸此一页的变更履历表。 Update for version form of data sheet, 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	A	103	J	3435	(A1)
①	②	③	④	⑤	⑥

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

② A：指引线为镀锡线 (Refers to tinned lead)

③ 103：25℃的零功率电阻值 10kΩ (Zero Power Resistance at 25℃is 10kΩ)

④ 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%)

⑤ 3435：$B_{25/85}$ 值 3435K ($B_{25/85}$:3435K)

⑥ (A1)：线材规格：引线外径Φ0.3mm (Wire dimension: The outer diameter of lead wire is Φ0.3mm)

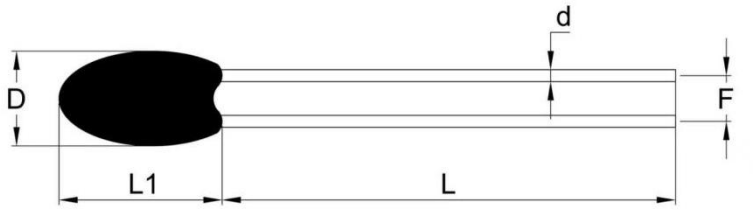
2、电气性能 Electrical Characteristics

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℃ (测试功率≤0.1mW 油槽中测试) (Test Power≤0.1mW，In the oil tank)	kΩ	10KΩ±5%
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℃ T_b=85±0.01℃	K	3435±1%
2.5	耗散系数 Thermal dissipation Coefficient	δ	静止空气中 In still air	mW/℃	约 2
2.6	时间常数 Thermal time constant	τ	静止空气中 In still air	sec	约 12
2.8	绝缘电阻 Insulation resistance	/	100V/DC 1min	MΩ	≥100
2.9	工作温度范围 Operating temperature range	/	/	℃	-55 ~ 125
2.10	最大额定功率 Maximum rated power	Pmax	/	mW	50
2.11	阻温特性 R&T-table	/	/	/	见附表 I See attached table I
2.12	阻值误差&B 值误差 Resistance tolerance& B-value 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.	MF52A 103J3435(A1)		审核 Approve:		日期 DATE	

尺寸 Dimensions： （Unit：mm）



DMax	L1Max	LMin	d±0.05	F±0.5
2.5	4.0	25	0.3	1.7

技术要求 Technical requirements：

1) 零功率阻值：R_{25}：10kΩ±5% (Zero Power Resistance: R_{25}：10kΩ±5%)；
2) $B_{25/85}$ 数值：3435K±1% (B-value:$B_{25/85}$: 3435K±1%)；
3) 线材：φ0.3 镀锡铜包钢线 (Φ0.3 tinned copper-weld steel 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)。

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 Terminal strength	IEC60068-2-21	固定电阻端，拉力：5±1 N，时间：10±1 秒 Fixed resistor end, Pull strength: 5±1 N, time: 10±1 sec	无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
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 sec	着锡面积≥95% Coverage area≥95%
4.3	耐焊接热 Withstand weiling temp	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 tin pot: 260±5℃, insert deepth from body of resistance 6mm, time 5±1 senconds	无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.4	稳态湿热 Steady humidity and heat	IEC60068-2-78	温度：40℃±2℃，湿度：93±2%，时间：500 小时 Temp: 40℃±2℃, humidity: 93±2%, Time: 500 hrs	无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.5	温度快速变化 Rapid changes in temperature	IEC60068-2-14	-55℃ 30min→25℃ 5min→125℃ 30min→25℃ 5min, 5 cycles	无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.6	高温储存 High temperature storage	IEC60068-2-2	温度：125℃±5℃ 时间：1000 小时 Temp: 125℃±5℃, Time: 1000 hrs	无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$
4.7	低温储存 Low temperature storage	IEC60068-2-1	温度：-55℃，时间：1000 小时 Temp: -55℃, Time: 1000 hrs	无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\|\leqslant 2\%$

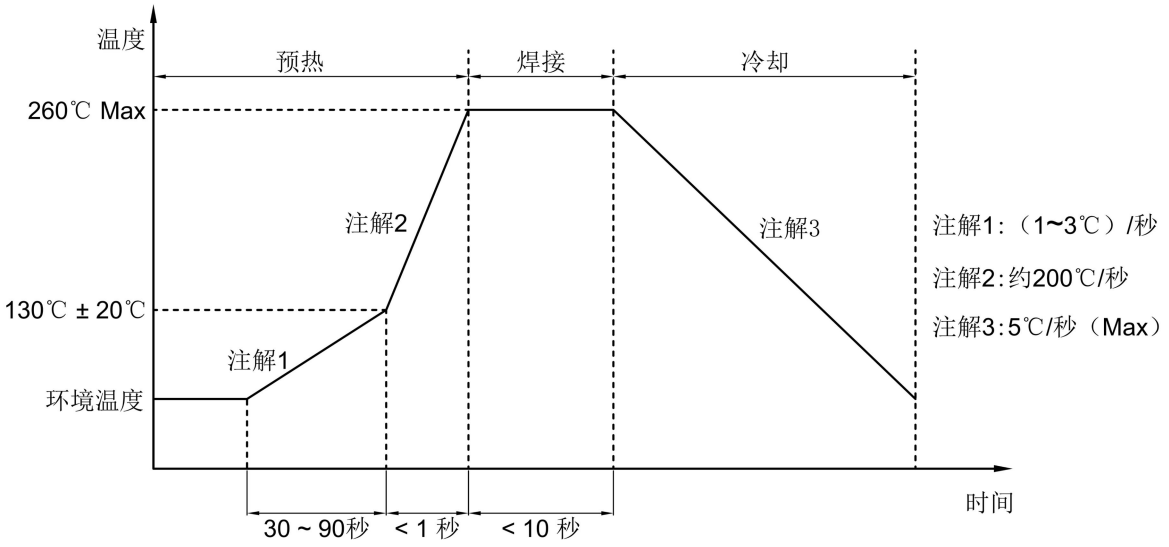
▲注： 1）稳态湿热及温度快速变化试验结束后，样品需在常温环境下静置 2 小时后再做性能测试；

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

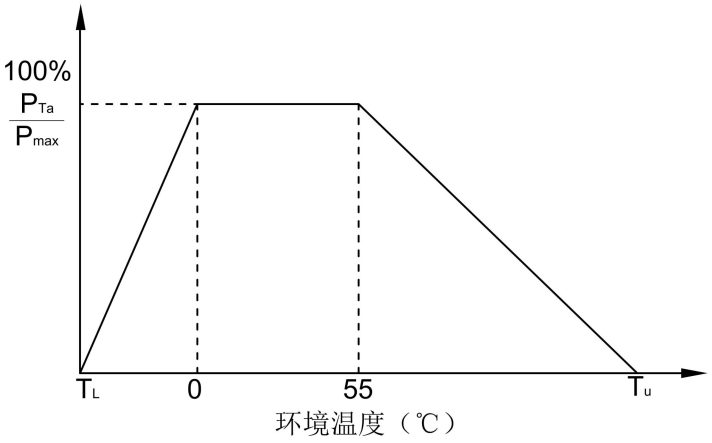
2）高温存储结束后，需随测试环境自然恢复至常温，再取出做性能测试。

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

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



6、降功耗曲线 Power Derating Curve



例如：
环境温度（T_a）=90℃
最大工作温度(T_u)=125℃
For example:
Ambient temperature（T_a）=90℃
Maximum operating temperature（T_u）=125℃

$$P_{Ta} = \frac{T_u - T_a}{T_u - 55} \times P_{max} = 50\%P_{max}$$

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=11cm×12cm	
2	编编带包装盒 reel packing box	包装盒 packing box W×G×H=335mm×240mm×50mm	

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

8.1 本产品的用途：温度测量与控制；
Usage of this product: Temperature measurement and control；
8.2 避免过大的电流引起元件自身发热而产生测量误差；
To avoid of testing tolerance caused by huge current upon the self-heat of component；
8.3 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;
8.4 储存温度：-10℃～40℃；储存湿度：≤75% RH；
Storage temperature: -10℃～40℃; storage humidity: ≤75% RH；
8.5 避免存放在具有腐蚀性气体及光照的环境下；
To avoid of leaving with such environment as corrosive gases and illumination；
8.6 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；
The packing need to be resealed since opened, storage period 1 year once valid, it should be retest according to regulated of criterion and can be still used if meet the requirement；
8.7 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；
8.8 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；
8.9 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。

8、产品认证 Product certification

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

附表 I Attachment I

南京时恒电子科技有限公司

R_{25}=10kΩ 精度:±5% $B_{25/50}$=3380K B25/85=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	455.532	500.13	544.727	8.917	-8.917	1.334	-1.334
-54	430.15	471.961	513.772	8.858	-8.858	1.334	-1.334
-53	405.799	444.955	484.11	8.799	-8.799	1.335	-1.335
-52	382.553	419.191	455.829	8.74	-8.74	1.336	-1.336
-51	360.453	394.713	428.973	8.679	-8.679	1.337	-1.337
-50	339.511	371.534	403.557	8.619	-8.619	1.338	-1.338
-49	319.721	349.645	379.568	8.558	-8.558	1.339	-1.339
-48	301.062	329.02	356.978	8.497	-8.497	1.34	-1.34
-47	283.5	309.621	335.742	8.436	-8.436	1.342	-1.342
-46	266.995	291.402	315.809	8.375	-8.375	1.343	-1.343
-45	251.5	274.309	297.118	8.315	-8.315	1.344	-1.344
-44	236.966	258.287	279.608	8.254	-8.254	1.346	-1.346
-43	223.342	243.278	263.214	8.194	-8.194	1.347	-1.347
-42	210.576	229.223	247.871	8.135	-8.135	1.349	-1.349
-41	198.617	216.066	233.515	8.075	-8.075	1.35	-1.35
-40	187.415	203.75	220.084	8.017	-8.017	1.351	-1.351
-39	176.922	192.22	207.519	7.958	-7.958	1.353	-1.353
-38	167.093	181.427	195.761	7.9	-7.9	1.354	-1.354
-37	157.883	171.32	184.757	7.843	-7.843	1.355	-1.355
-36	149.251	161.854	174.456	7.786	-7.786	1.356	-1.356
-35	141.158	152.984	164.81	7.729	-7.729	1.358	-1.358
-34	133.568	144.67	155.772	7.673	-7.673	1.359	-1.359
-33	126.446	136.874	147.301	7.618	-7.618	1.36	-1.36
-32	119.76	129.559	139.359	7.563	-7.563	1.361	-1.361
-31	113.481	122.694	131.907	7.508	-7.508	1.362	-1.362
-30	107.581	116.247	124.913	7.454	-7.454	1.363	-1.363
-29	102.034	110.189	118.344	7.401	-7.401	1.363	-1.363

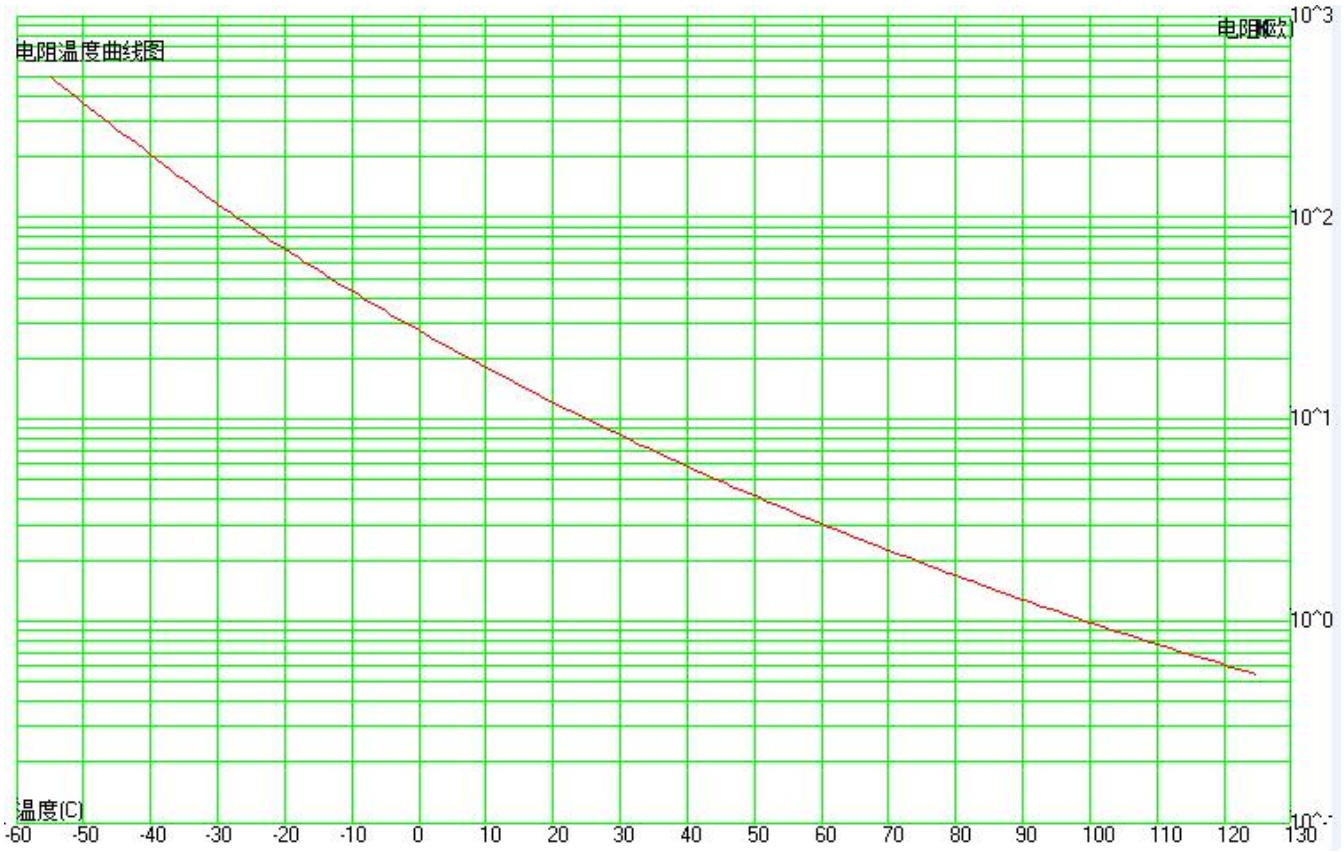
-28	96.816	104.494	112.173	7.348	-7.348	1.364	-1.364
-27	91.905	99.137	106.37	7.295	-7.295	1.365	-1.365
-26	87.281	94.096	100.912	7.243	-7.243	1.365	-1.365
-25	82.924	89.35	95.775	7.191	-7.191	1.366	-1.366
-24	78.817	84.877	90.938	7.139	-7.139	1.367	-1.367
-23	74.944	80.662	86.38	7.088	-7.088	1.367	-1.367
-22	71.289	76.687	82.084	7.038	-7.038	1.367	-1.367
-21	67.838	72.935	78.032	6.988	-6.988	1.368	-1.368
-20	64.579	69.394	74.209	6.938	-6.938	1.368	-1.368
-19	61.499	66.049	70.599	6.888	-6.888	1.368	-1.368
-18	58.587	62.888	67.189	6.839	-6.839	1.368	-1.368
-17	55.832	59.9	63.967	6.79	-6.79	1.368	-1.368
-16	53.225	57.073	60.921	6.742	-6.742	1.368	-1.368
-15	50.756	54.398	58.04	6.694	-6.694	1.368	-1.368
-14	48.419	51.866	55.314	6.646	-6.646	1.368	-1.368
-13	46.203	49.468	52.732	6.599	-6.599	1.368	-1.368
-12	44.103	47.196	50.288	6.552	-6.552	1.368	-1.368
-11	42.111	45.042	47.972	6.505	-6.505	1.368	-1.368
-10	40.222	43	45.777	6.459	-6.459	1.367	-1.367
-9	38.429	41.062	43.696	6.413	-6.413	1.367	-1.367
-8	36.726	39.224	41.721	6.367	-6.367	1.367	-1.367
-7	35.109	37.479	39.848	6.321	-6.321	1.366	-1.366
-6	33.573	35.822	38.07	6.276	-6.276	1.366	-1.366
-5	32.113	34.247	36.381	6.231	-6.231	1.365	-1.365
-4	30.725	32.751	34.778	6.186	-6.186	1.365	-1.365
-3	29.405	31.329	33.254	6.142	-6.142	1.364	-1.364
-2	28.149	29.977	31.806	6.098	-6.098	1.363	-1.363
-1	26.954	28.691	30.429	6.054	-6.054	1.363	-1.363
0	25.858	27.513	29.167	6.012	-6.012	1.36	-1.36
1	24.734	26.303	27.873	5.967	-5.967	1.361	-1.361
2	23.702	25.195	26.688	5.924	-5.924	1.36	-1.36
3	22.72	24.139	25.559	5.881	-5.881	1.359	-1.359
4	21.783	23.134	24.485	5.838	-5.838	1.358	-1.358
5	20.89	22.176	23.461	5.796	-5.796	1.357	-1.357

6	20.039	21.263	22.486	5.754	-5.754	1.356	-1.356
7	19.227	20.392	21.557	5.712	-5.712	1.355	-1.355
8	18.453	19.562	20.672	5.671	-5.671	1.354	-1.354
9	17.714	18.771	19.828	5.629	-5.629	1.353	-1.353
10	17.009	18.016	19.022	5.588	-5.588	1.352	-1.352
11	16.335	17.295	18.254	5.547	-5.547	1.351	-1.351
12	15.692	16.607	17.522	5.507	-5.507	1.349	-1.349
13	15.078	15.95	16.822	5.466	-5.466	1.348	-1.348
14	14.491	15.323	16.154	5.426	-5.426	1.347	-1.347
15	13.931	14.724	15.517	5.386	-5.386	1.345	-1.345
16	13.395	14.151	14.908	5.347	-5.347	1.344	-1.344
17	12.882	13.604	14.326	5.307	-5.307	1.342	-1.342
18	12.392	13.081	13.771	5.268	-5.268	1.34	-1.34
19	11.923	12.581	13.239	5.229	-5.229	1.338	-1.338
20	11.475	12.103	12.732	5.19	-5.19	1.336	-1.336
21	11.046	11.646	12.246	5.152	-5.152	1.334	-1.334
22	10.635	11.208	11.781	5.114	-5.114	1.331	-1.331
23	10.242	10.789	11.337	5.076	-5.076	1.326	-1.326
24	9.865	10.389	10.912	5.038	-5.038	1.315	-1.315
25	9.5	10	10.5	5	-5	1.314	-1.314
26	9.152	9.637	10.123	5.036	-5.036	1.369	-1.369
27	8.814	9.285	9.756	5.074	-5.074	1.378	-1.378
28	8.49	8.948	9.405	5.111	-5.111	1.393	-1.393
29	8.18	8.624	9.068	5.147	-5.147	1.41	-1.41
30	7.883	8.315	8.746	5.184	-5.184	1.428	-1.428
31	7.599	8.018	8.436	5.22	-5.22	1.446	-1.446
32	7.326	7.733	8.139	5.257	-5.257	1.465	-1.465
33	7.065	7.459	7.854	5.293	-5.293	1.483	-1.483
34	6.814	7.197	7.581	5.328	-5.328	1.502	-1.502
35	6.573	6.946	7.318	5.364	-5.364	1.521	-1.521
36	6.342	6.704	7.066	5.399	-5.399	1.54	-1.54
37	6.121	6.473	6.824	5.434	-5.434	1.559	-1.559
38	5.908	6.25	6.592	5.469	-5.469	1.579	-1.579
39	5.704	6.036	6.369	5.504	-5.504	1.598	-1.598

40	5.508	5.831	6.154	5.539	-5.539	1.618	-1.618
41	5.32	5.634	5.948	5.573	-5.573	1.637	-1.637
42	5.139	5.444	5.75	5.608	-5.608	1.657	-1.657
43	4.965	5.262	5.559	5.642	-5.642	1.677	-1.677
44	4.798	5.087	5.376	5.675	-5.675	1.697	-1.697
45	4.638	4.918	5.199	5.709	-5.709	1.717	-1.717
46	4.483	4.756	5.03	5.743	-5.743	1.737	-1.737
47	4.335	4.601	4.866	5.776	-5.776	1.757	-1.757
48	4.192	4.451	4.709	5.809	-5.809	1.778	-1.778
49	4.055	4.306	4.558	5.842	-5.842	1.798	-1.798
50	3.923	4.168	4.412	5.875	-5.875	1.819	-1.819
51	3.795	4.034	4.272	5.907	-5.907	1.839	-1.839
52	3.673	3.905	4.137	5.94	-5.94	1.86	-1.86
53	3.555	3.781	4.007	5.972	-5.972	1.881	-1.881
54	3.442	3.662	3.881	6.004	-6.004	1.902	-1.902
55	3.332	3.546	3.761	6.036	-6.036	1.923	-1.923
56	3.227	3.436	3.644	6.068	-6.068	1.944	-1.944
57	3.126	3.329	3.532	6.1	-6.1	1.965	-1.965
58	3.028	3.226	3.423	6.131	-6.131	1.986	-1.986
59	2.934	3.126	3.319	6.162	-6.162	2.007	-2.007
60	2.843	3.03	3.218	6.194	-6.194	2.029	-2.029
61	2.755	2.938	3.121	6.225	-6.225	2.05	-2.05
62	2.671	2.849	3.027	6.255	-6.255	2.072	-2.072
63	2.589	2.763	2.937	6.286	-6.286	2.094	-2.094
64	2.511	2.68	2.849	6.317	-6.317	2.115	-2.115
65	2.435	2.6	2.765	6.347	-6.347	2.137	-2.137
66	2.361	2.522	2.683	6.377	-6.377	2.159	-2.159
67	2.291	2.448	2.605	6.407	-6.407	2.181	-2.181
68	2.223	2.376	2.529	6.437	-6.437	2.204	-2.204
69	2.157	2.306	2.455	6.467	-6.467	2.226	-2.226
70	2.093	2.239	2.384	6.497	-6.497	2.248	-2.248
71	2.032	2.174	2.316	6.526	-6.526	2.271	-2.271
72	1.972	2.111	2.249	6.555	-6.555	2.293	-2.293
73	1.915	2.05	2.185	6.585	-6.585	2.316	-2.316

74	1.86	1.992	2.123	6.614	-6.614	2.338	-2.338
75	1.806	1.935	2.063	6.643	-6.643	2.361	-2.361
76	1.755	1.88	2.005	6.671	-6.671	2.384	-2.384
77	1.705	1.827	1.949	6.7	-6.7	2.407	-2.407
78	1.656	1.776	1.895	6.728	-6.728	2.43	-2.43
79	1.609	1.726	1.843	6.757	-6.757	2.453	-2.453
80	1.564	1.678	1.792	6.785	-6.785	2.476	-2.476
81	1.52	1.632	1.743	6.813	-6.813	2.5	-2.5
82	1.478	1.587	1.695	6.841	-6.841	2.523	-2.523
83	1.437	1.543	1.649	6.869	-6.869	2.547	-2.547
84	1.398	1.501	1.605	6.896	-6.896	2.57	-2.57
85	1.359	1.461	1.562	6.924	-6.924	2.594	-2.594
86	1.322	1.421	1.52	6.951	-6.951	2.618	-2.618
87	1.286	1.383	1.479	6.979	-6.979	2.642	-2.642
88	1.252	1.346	1.44	7.006	-7.006	2.666	-2.666
89	1.218	1.31	1.402	7.033	-7.033	2.69	-2.69
90	1.185	1.275	1.366	7.06	-7.06	2.714	-2.714
91	1.154	1.242	1.33	7.086	-7.086	2.739	-2.739
92	1.123	1.209	1.295	7.113	-7.113	2.763	-2.763
93	1.094	1.178	1.262	7.139	-7.139	2.788	-2.788
94	1.065	1.147	1.229	7.166	-7.166	2.812	-2.812
95	1.037	1.118	1.198	7.192	-7.192	2.837	-2.837
96	1.01	1.089	1.167	7.218	-7.218	2.862	-2.862
97	0.984	1.061	1.138	7.244	-7.244	2.887	-2.887
98	0.959	1.034	1.109	7.27	-7.27	2.912	-2.912
99	0.934	1.008	1.081	7.295	-7.295	2.937	-2.937
100	0.911	0.983	1.054	7.321	-7.321	2.962	-2.962
101	0.887	0.958	1.028	7.346	-7.346	2.987	-2.987
102	0.865	0.934	1.003	7.371	-7.371	3.013	-3.013
103	0.843	0.911	0.978	7.397	-7.397	3.038	-3.038
104	0.822	0.888	0.954	7.421	-7.421	3.064	-3.064
105	0.802	0.867	0.931	7.446	-7.446	3.09	-3.09
106	0.782	0.846	0.909	7.471	-7.471	3.116	-3.116
107	0.763	0.825	0.887	7.496	-7.496	3.142	-3.142

108	0.745	0.805	0.866	7.52	-7.52	3.168	-3.168
109	0.727	0.786	0.845	7.544	-7.544	3.194	-3.194
110	0.709	0.767	0.825	7.568	-7.568	3.22	-3.22
111	0.692	0.749	0.806	7.592	-7.592	3.247	-3.247
112	0.676	0.731	0.787	7.616	-7.616	3.273	-3.273
113	0.66	0.714	0.769	7.64	-7.64	3.3	-3.3
114	0.644	0.698	0.751	7.664	-7.664	3.327	-3.327
115	0.629	0.681	0.734	7.687	-7.687	3.354	-3.354
116	0.614	0.666	0.717	7.71	-7.71	3.381	-3.381
117	0.6	0.651	0.701	7.733	-7.733	3.408	-3.408
118	0.586	0.636	0.685	7.756	-7.756	3.435	-3.435
119	0.573	0.621	0.67	7.779	-7.779	3.462	-3.462
120	0.56	0.607	0.655	7.802	-7.802	3.49	-3.49
121	0.547	0.594	0.64	7.825	-7.825	3.518	-3.518
122	0.535	0.581	0.626	7.847	-7.847	3.545	-3.545
123	0.523	0.568	0.613	7.869	-7.869	3.573	-3.573
124	0.512	0.556	0.599	7.891	-7.891	3.601	-3.601
125	0.5	0.544	0.587	7.913	-7.913	3.629	-3.629



附表 II Attachment II

