

Cheemi Technology Co., Ltd**规格承认书****APPROVAL SHEET**

客户名称 CUSTOMER :

CMNTCA测温型 NTC 热敏电阻器CMNTCA
Series Temp Measurement NTC Thermistor

产品名称 PART NAME :

产品规格 PART NUMBER :

CMNTCA 103F395003W

产品编号 PRODUCTCODE:

版次 REV.NO:

B0

日期 DATE:

2023-9-6**确认****CONFIRM**

客户 CLIENT		供货商/制造商 MANUFACTOR	
品保部 Quality Dep.		规格书制作 Design	刘星月
制造部 Production Dep.		业务部审核 Checked by sales	
工程部 Engineering Dep.		技术部审核 Checked by R&D	程鹏
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1、产品型号说明 Product model specification

CMNTC A 103 F 3950 03W
 ① ② ③ ④ ⑤ ⑥

- ① CMNTC: 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 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 3950: B25/50 值 3950K (B25/50:3950K)
- ⑥ 03W: 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℃	$R_{25^{\circ}\text{C}}$	$T_a=25\pm0.01^{\circ}\text{C}$ Test Power $\leq 0.1\text{mW}$	KΩ	$10\text{K}\Omega\pm 1\%$
2.2	B 值 B-value	$B_{25/50}$	$B=[(T_a\times T_b)/(T_b-T_a)]\times \ln(R_a/R_b)$ $T_a=25\pm0.01^{\circ}\text{C}$ $T_b=50^{\circ}\text{C}\pm 0.01^{\circ}\text{C}$	K	$3950\pm 1\%$
2.3	耗散系数 Thermal dissipation Coefficient	δ	静止空气中 In still air	mW/℃	约 2
2.4	时间常数 Thermal time constant	τ	静止空气中 In still air	sec	约 7
2.5	绝缘电阻 Insulation resistance	/	100V/DC 1min	MΩ	≥ 100
2.6	工作温度范围 Operating temperature range	/	/	℃	$-55^{\circ}\text{C}\sim 125^{\circ}\text{C}$
2.7	最大额定功率 Maximum rated power	Pmax	/	mW	100
2.8	阻温特性 R&T-table	/	/	/	见附表 I See attached table I
2.9	阻值误差&B 值误差 Resistance tolerance& B-value tolerance	/	/	/	见附表 II See attached table II

产品图纸

客户
确认
Customer
confirm

确认
Confirm

日期
DATE

CMNTCA 103F395003W

审核
Approve:

日期
DATE

(Unit: mm)



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

- 1) 零功率阻值: R25: $10\text{K}\Omega \pm 1\%$ (Zero Power Resistance: R25: $10\text{K}\Omega \pm 1\%$);
- 2) B25/50 数值: $3950\text{K} \pm 1\%$ (B-value: B25/50: $3950\text{K} \pm 1\%$);
- 3) 线材: $\phi 0.3$ 镀锡铜包钢线 ($\Phi 0.3$ tinned copper-weld steel wire);
- 4) 封装: 黑色改性环氧树脂包封 (Black function improvement Epoxy resin);
- 5) 符合 RoHS 环保要求 (Meet environmental protection requirements: RoHS)。

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4、可靠性 Reliability

No.	项目 Item	试验标准	试验条件及方法 Test conditions and methods	性能要求 Requirements
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} \leq \pm 2\%$
4.2	可焊性 Solderability	IEC60068-2-20	温度 $245 \pm 5^\circ\text{C}$ 时间 2-3 秒 temperature : $245 \pm 5^\circ\text{C}$ for 2-3sec	着锡面积 $\geq 95\%$ Coverage area $\geq 95\%$.
4.3	耐焊接热 Withstand weiling temp	IEC60068-2-20	锡锅温度: $260 \pm 5^\circ\text{C}$, 浸入深度距电阻体 6mm, 时间 5 ± 1 秒 Temperature of tin pot: $260 \pm 5^\circ\text{C}$, insert depth from body of resistance 6mm, time 5 ± 1 seconds	$ \Delta R_{25}/R_{25} \leq \pm 2\%$
4.3	稳态湿热 Steady humidity and heat	IEC60068-2-78	温度: $40^\circ\text{C} \pm 2^\circ\text{C}$, 湿度: $93 \pm 2\%$, 时间: 500 小时 Temp: $40^\circ\text{C} \pm 2^\circ\text{C}$, humidity: $93 \pm 2\%$, Time : 500hrs	$ \Delta R_{25}/R_{25} \leq \pm 2\%$
4.4	温度快速变化 Rapid changes in temperature	IEC60068-2-14	-55°C 30min $\rightarrow$ 25°C 5min $\rightarrow$ 125°C 30min $\rightarrow$ 25°C 5min, 5cycles	$ \Delta R_{25}/R_{25} \leq \pm 2\%$
4.5	高温储存 High temperature storage	IEC60068-2-2	温度: $125^\circ\text{C} \pm 5^\circ\text{C}$ 时间: 1000 小时 Temp : $125^\circ\text{C} \pm 5^\circ\text{C}$, Time : 1000hrs	$ \Delta R_{25}/R_{25} \leq \pm 2\%$
4.6	低温储存 Low temperature storage	IEC60068-2-1	温度: -55°C 时间: 1000 小时 Temp : -55°C , Time : 1000hrs	$ \Delta R_{25}/R_{25} \leq \pm 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) 高温存储及低温存储结束后, 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 - and low-temperature storage is complete, and then take it out for performance test when the test environment naturally regain to normal temperature.

5、产品包装 Product packaging

5.1 包装方式 Packing Type

■ 散装方式 Bulk Type □ 编带方式 Reel Type

5.2 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) $W \times H = 11\text{mm} \times 12\text{mm}$	500

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

6.1 本产品的用途：温度测量与控制；application:test and control for temperature

6.2 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.

6.3 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 welded by soldering iron,weld spot should be 2mm at least from head,weld temperature should be under 360℃,time<3ses

6.4 储存温度：-10℃ ~ 40℃；储存湿度：≤75% RH；storage temp:-10℃ ~ 40℃；storage humidity:≤75% RH

6.5 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

6.6 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.

6.7 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；

In case of useing heat-shrink tube,hair drier is prohibited.we suggest that put the product with heat shrink into constant-temperature box and heat shrink under 110℃/10-12min

7、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	环保检测报告 Environmental test report	RoHS 2.0
8.4	CQC 认证 (CQC07001019008) CQC certificate (CQC07001019008)	
8.5	江苏省高新技术产品认证 High-tech product certificate in Jiangsu Province	
8.6	UL 认证 (E240993) UL certificate (E240993)	
8.7	TUV 认证 (R50245893) TUV certificate (R50245893)	
8.8	产品通过 AEC-Q200 测试 Passed by AECQ-200	20172050557G

附表 I (Attachment I)

Cheemi Technology Co., Ltd (Resistance Thermometer)

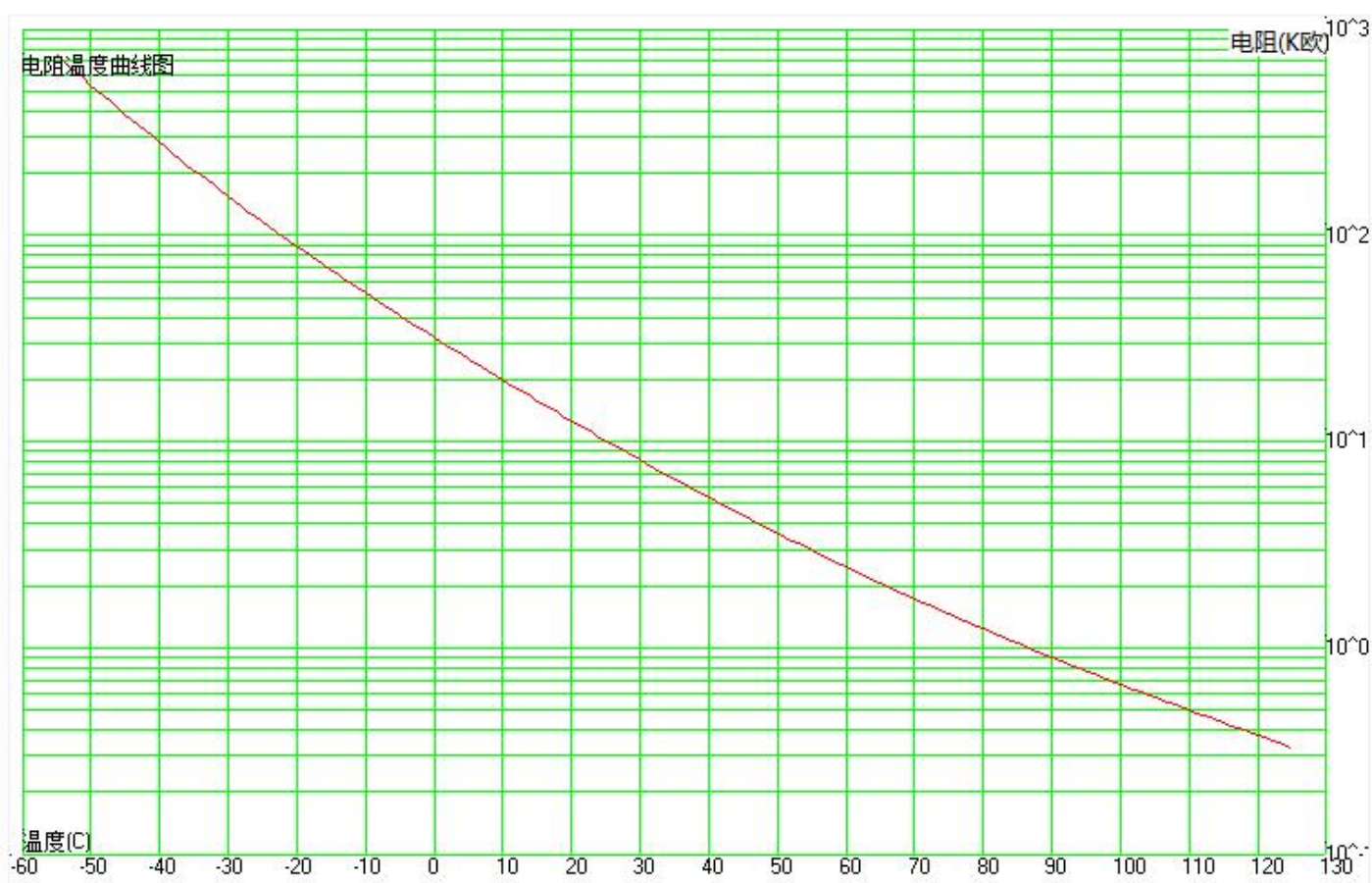
R25=10K Ω 精度:±1% B25/50=3950K 精度:±1%(P477-4B)							
温度(°C) TEMP(°C)	电阻(K Ω) RESISTANCE(K Ω)			电阻精度(%) RESIST-TOL(%)		温度精度(°C) TEMP-TOL(°C)	
	最小值	中心值	最大值	ΔR	$-\Delta R$	ΔT	$-\Delta T$
-55	709.352	749.200	789.047	5.318	-5.318	0.721	-0.721
-54	662.784	699.508	736.232	5.249	-5.249	0.717	-0.717
-53	619.595	653.455	687.316	5.181	-5.181	0.714	-0.714
-52	579.499	610.733	641.966	5.114	-5.114	0.710	-0.710
-51	542.246	571.067	599.888	5.046	-5.046	0.706	-0.706
-50	507.611	534.215	560.819	4.980	-4.980	0.702	-0.702
-49	475.391	499.957	524.524	4.913	-4.913	0.698	-0.698
-48	445.403	468.095	490.787	4.847	-4.847	0.694	-0.694
-47	417.480	438.448	459.415	4.782	-4.782	0.690	-0.690
-46	391.470	410.851	430.232	4.717	-4.717	0.686	-0.686
-45	367.234	385.154	403.073	4.652	-4.652	0.682	-0.682
-44	344.643	361.217	377.791	4.588	-4.588	0.678	-0.678
-43	323.579	338.913	354.247	4.524	-4.524	0.674	-0.674
-42	303.931	318.123	332.315	4.461	-4.461	0.669	-0.669
-41	285.600	298.739	311.878	4.398	-4.398	0.665	-0.665
-40	268.491	280.660	292.828	4.335	-4.335	0.660	-0.660
-39	252.517	263.791	275.064	4.273	-4.273	0.656	-0.656
-38	237.598	248.046	258.494	4.212	-4.212	0.651	-0.651
-37	223.660	233.346	243.032	4.150	-4.150	0.647	-0.647
-36	210.632	219.615	228.598	4.090	-4.090	0.642	-0.642
-35	198.452	206.785	215.119	4.030	-4.030	0.637	-0.637
-34	187.058	194.792	202.525	3.970	-3.970	0.632	-0.632
-33	176.396	183.576	190.755	3.910	-3.910	0.627	-0.627
-32	166.415	173.082	179.749	3.851	-3.851	0.622	-0.622
-31	157.067	163.260	169.453	3.793	-3.793	0.617	-0.617
-30	148.307	154.062	159.817	3.735	-3.735	0.612	-0.612
-29	140.096	145.446	150.795	3.677	-3.677	0.607	-0.607
-28	132.395	137.369	142.343	3.620	-3.620	0.602	-0.602
-27	125.169	129.795	134.421	3.563	-3.563	0.596	-0.596
-26	118.386	122.689	126.993	3.507	-3.507	0.591	-0.591
-25	112.015	116.020	120.024	3.451	-3.451	0.586	-0.586
-24	106.028	109.756	113.483	3.396	-3.396	0.580	-0.580
-23	100.400	103.870	107.341	3.341	-3.341	0.574	-0.574
-22	95.106	98.338	101.570	3.286	-3.286	0.569	-0.569
-21	90.125	93.135	96.145	3.231	-3.231	0.563	-0.563
-20	85.434	88.238	91.043	3.177	-3.177	0.557	-0.557
-19	81.017	83.629	86.242	3.124	-3.124	0.551	-0.551

-18	76.853	79.288	81.723	3.070	-3.070	0.545	-0.545
-17	72.928	75.197	77.467	3.017	-3.017	0.539	-0.539
-16	69.226	71.341	73.456	2.965	-2.965	0.533	-0.533
-15	65.732	67.704	69.676	2.912	-2.912	0.527	-0.527
-14	62.433	64.272	66.111	2.860	-2.860	0.521	-0.521
-13	59.318	61.032	62.747	2.809	-2.809	0.514	-0.514
-12	56.374	57.972	59.571	2.757	-2.757	0.508	-0.508
-11	53.591	55.082	56.572	2.706	-2.706	0.502	-0.502
-10	50.959	52.350	53.740	2.655	-2.655	0.495	-0.495
-9	48.470	49.766	51.062	2.604	-2.604	0.488	-0.488
-8	46.113	47.322	48.531	2.554	-2.554	0.482	-0.482
-7	43.883	45.010	46.137	2.504	-2.504	0.475	-0.475
-6	41.770	42.821	43.872	2.454	-2.454	0.468	-0.468
-5	39.768	40.748	41.728	2.404	-2.404	0.461	-0.461
-4	37.871	38.785	39.699	2.355	-2.355	0.454	-0.454
-3	36.073	36.925	37.776	2.306	-2.306	0.447	-0.447
-2	34.368	35.161	35.955	2.257	-2.257	0.440	-0.440
-1	32.750	33.489	34.229	2.208	-2.208	0.433	-0.433
0	31.356	32.049	32.743	2.164	-2.164	0.425	-0.425
1	29.757	30.399	31.041	2.111	-2.111	0.419	-0.419
2	28.374	28.972	29.570	2.063	-2.063	0.411	-0.411
3	27.060	27.617	28.174	2.015	-2.015	0.404	-0.404
4	25.812	26.330	26.849	1.968	-1.968	0.396	-0.396
5	24.627	25.109	25.591	1.920	-1.920	0.389	-0.389
6	23.500	23.948	24.397	1.873	-1.873	0.381	-0.381
7	22.429	22.846	23.263	1.826	-1.826	0.373	-0.373
8	21.410	21.798	22.186	1.779	-1.779	0.366	-0.366
9	20.442	20.802	21.163	1.732	-1.732	0.358	-0.358
10	19.521	19.856	20.190	1.685	-1.685	0.350	-0.350
11	18.644	18.955	19.266	1.639	-1.639	0.342	-0.342
12	17.811	18.099	18.388	1.593	-1.593	0.333	-0.333
13	17.017	17.285	17.552	1.547	-1.547	0.325	-0.325
14	16.262	16.510	16.758	1.501	-1.501	0.317	-0.317
15	15.543	15.773	16.002	1.455	-1.455	0.308	-0.308
16	14.858	15.071	15.284	1.410	-1.410	0.300	-0.300
17	14.207	14.403	14.600	1.364	-1.364	0.291	-0.291
18	13.586	13.767	13.949	1.319	-1.319	0.282	-0.282
19	12.994	13.162	13.330	1.274	-1.274	0.272	-0.272
20	12.431	12.585	12.740	1.229	-1.229	0.262	-0.262
21	11.894	12.036	12.179	1.185	-1.185	0.252	-0.252
22	11.382	11.513	11.645	1.140	-1.140	0.240	-0.240
23	10.894	11.015	11.136	1.096	-1.096	0.225	-0.225
24	10.429	10.540	10.651	1.052	-1.052	0.199	-0.199
25	9.900	10.000	10.100	1.000	-1.000	0.190	-0.190

26	9.556	9.656	9.756	1.034	-1.034	0.297	-0.297
27	9.145	9.245	9.345	1.078	-1.078	0.276	-0.276
28	8.754	8.853	8.953	1.121	-1.121	0.279	-0.279
29	8.381	8.479	8.578	1.164	-1.164	0.286	-0.286
30	8.025	8.123	8.221	1.207	-1.207	0.295	-0.295
31	7.686	7.783	7.880	1.250	-1.250	0.305	-0.305
32	7.362	7.459	7.555	1.293	-1.293	0.316	-0.316
33	7.054	7.149	7.245	1.335	-1.335	0.327	-0.327
34	6.760	6.854	6.949	1.377	-1.377	0.338	-0.338
35	6.479	6.573	6.666	1.419	-1.419	0.349	-0.349
36	6.212	6.304	6.396	1.461	-1.461	0.361	-0.361
37	5.956	6.047	6.138	1.502	-1.502	0.373	-0.373
38	5.712	5.802	5.892	1.544	-1.544	0.384	-0.384
39	5.480	5.568	5.656	1.585	-1.585	0.396	-0.396
40	5.258	5.345	5.432	1.626	-1.626	0.409	-0.409
41	5.046	5.131	5.217	1.667	-1.667	0.421	-0.421
42	4.843	4.927	5.011	1.707	-1.707	0.433	-0.433
43	4.650	4.733	4.815	1.748	-1.748	0.446	-0.446
44	4.465	4.546	4.628	1.788	-1.788	0.458	-0.458
45	4.289	4.368	4.448	1.828	-1.828	0.471	-0.471
46	4.120	4.198	4.277	1.867	-1.867	0.483	-0.483
47	3.959	4.036	4.113	1.907	-1.907	0.496	-0.496
48	3.805	3.880	3.956	1.946	-1.946	0.509	-0.509
49	3.658	3.732	3.806	1.985	-1.985	0.522	-0.522
50	3.517	3.590	3.662	2.024	-2.024	0.535	-0.535
51	3.382	3.453	3.525	2.063	-2.063	0.548	-0.548
52	3.253	3.323	3.393	2.101	-2.101	0.561	-0.561
53	3.130	3.199	3.267	2.139	-2.139	0.575	-0.575
54	3.012	3.079	3.147	2.177	-2.177	0.588	-0.588
55	2.900	2.965	3.031	2.215	-2.215	0.601	-0.601
56	2.792	2.856	2.920	2.253	-2.253	0.615	-0.615
57	2.688	2.751	2.814	2.290	-2.290	0.628	-0.628
58	2.589	2.651	2.713	2.327	-2.327	0.642	-0.642
59	2.494	2.555	2.615	2.364	-2.364	0.656	-0.656
60	2.404	2.463	2.522	2.401	-2.401	0.670	-0.670
61	2.317	2.375	2.432	2.437	-2.437	0.684	-0.684
62	2.233	2.290	2.347	2.473	-2.473	0.698	-0.698
63	2.153	2.209	2.264	2.510	-2.510	0.712	-0.712
64	2.077	2.131	2.185	2.545	-2.545	0.726	-0.726
65	2.003	2.056	2.110	2.581	-2.581	0.740	-0.740
66	1.933	1.985	2.037	2.616	-2.616	0.754	-0.754
67	1.865	1.916	1.967	2.652	-2.652	0.769	-0.769
68	1.800	1.850	1.900	2.687	-2.687	0.783	-0.783
69	1.738	1.787	1.836	2.722	-2.722	0.798	-0.798

70	1.679	1.726	1.774	2.756	-2.756	0.812	-0.812
71	1.621	1.668	1.714	2.791	-2.791	0.827	-0.827
72	1.566	1.612	1.657	2.825	-2.825	0.842	-0.842
73	1.513	1.558	1.602	2.859	-2.859	0.857	-0.857
74	1.462	1.506	1.550	2.893	-2.893	0.872	-0.872
75	1.414	1.456	1.499	2.926	-2.926	0.887	-0.887
76	1.367	1.408	1.450	2.960	-2.960	0.902	-0.902
77	1.322	1.362	1.403	2.993	-2.993	0.917	-0.917
78	1.278	1.318	1.358	3.026	-3.026	0.932	-0.932
79	1.237	1.276	1.315	3.059	-3.059	0.947	-0.947
80	1.196	1.235	1.273	3.091	-3.091	0.963	-0.963
81	1.158	1.195	1.233	3.124	-3.124	0.978	-0.978
82	1.121	1.157	1.194	3.156	-3.156	0.993	-0.993
83	1.085	1.121	1.156	3.188	-3.188	1.009	-1.009
84	1.050	1.085	1.120	3.220	-3.220	1.025	-1.025
85	1.017	1.052	1.086	3.252	-3.252	1.040	-1.040
86	0.985	1.019	1.052	3.283	-3.283	1.056	-1.056
87	0.955	0.987	1.020	3.315	-3.315	1.072	-1.072
88	0.925	0.957	0.989	3.346	-3.346	1.088	-1.088
89	0.896	0.928	0.959	3.377	-3.377	1.104	-1.104
90	0.869	0.899	0.930	3.408	-3.408	1.120	-1.120
91	0.842	0.872	0.902	3.439	-3.439	1.136	-1.136
92	0.816	0.846	0.875	3.469	-3.469	1.153	-1.153
93	0.792	0.820	0.849	3.500	-3.500	1.169	-1.169
94	0.768	0.796	0.824	3.530	-3.530	1.185	-1.185
95	0.745	0.772	0.800	3.560	-3.560	1.202	-1.202
96	0.723	0.749	0.776	3.590	-3.590	1.218	-1.218
97	0.701	0.727	0.754	3.620	-3.620	1.235	-1.235
98	0.680	0.706	0.732	3.650	-3.650	1.251	-1.251
99	0.660	0.685	0.711	3.680	-3.680	1.268	-1.268
100	0.641	0.666	0.690	3.709	-3.709	1.285	-1.285
101	0.622	0.646	0.670	3.739	-3.739	1.302	-1.302
102	0.604	0.628	0.651	3.768	-3.768	1.319	-1.319
103	0.586	0.610	0.633	3.797	-3.797	1.336	-1.336
104	0.569	0.592	0.615	3.826	-3.826	1.353	-1.353
105	0.553	0.575	0.597	3.855	-3.855	1.370	-1.370
106	0.537	0.559	0.581	3.884	-3.884	1.387	-1.387
107	0.522	0.543	0.564	3.912	-3.912	1.404	-1.404
108	0.507	0.528	0.549	3.941	-3.941	1.422	-1.422
109	0.493	0.513	0.533	3.969	-3.969	1.439	-1.439
110	0.479	0.499	0.519	3.998	-3.998	1.457	-1.457
111	0.465	0.485	0.504	4.026	-4.026	1.474	-1.474
112	0.452	0.471	0.490	4.054	-4.054	1.492	-1.492
113	0.439	0.458	0.477	4.083	-4.083	1.509	-1.509

114	0.427	0.445	0.464	4.111	-4.111	1.527	-1.527
115	0.415	0.433	0.451	4.139	-4.139	1.545	-1.545
116	0.404	0.421	0.439	4.167	-4.167	1.563	-1.563
117	0.392	0.410	0.427	4.194	-4.194	1.581	-1.581
118	0.382	0.398	0.415	4.222	-4.222	1.599	-1.599
119	0.371	0.388	0.404	4.250	-4.250	1.617	-1.617
120	0.361	0.377	0.393	4.278	-4.278	1.635	-1.635
121	0.351	0.367	0.383	4.305	-4.305	1.653	-1.653
122	0.341	0.357	0.372	4.333	-4.333	1.671	-1.671
123	0.332	0.347	0.362	4.360	-4.360	1.690	-1.690
124	0.323	0.338	0.352	4.388	-4.388	1.708	-1.708
125	0.314	0.329	0.343	4.415	-4.415	1.727	-1.727



附表 II (Attachment II)

