编码(Coding)：JK/JXD260327001

# 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<br>MF52 Series Temp Measurement NTC Thermistor |
| 产品型号 PART NUMBER： | MF52A 104F3950(A1) |
| 版次 REV.NO: | C0 |
| 日期 DATE: | 2026-03-27 |

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# 变更登记表

## REVISED RECORD SHEET

| 版次<br>REV. NO | 变更日期<br>REV.DATE | 变更内容<br>CHANGE CONTENT | 申请人<br>APPLICANT | 批准人<br>APPROVED |
|---|---|---|---|---|
| A0 | 2015/10/11 | 版本制定。<br>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。<br>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。<br>Update for version form of data sheet, Remove: Change history table on this page of the product drawing. | 刘星月 | 李少媛 |
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## 1、产品型号说明 Product model specification

| MF52 | A | 104 | F | 3950 | (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)

③ 104：25℃的零功率电阻值 100kΩ (Zero Power Resistance at 25℃is 100kΩ)

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

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

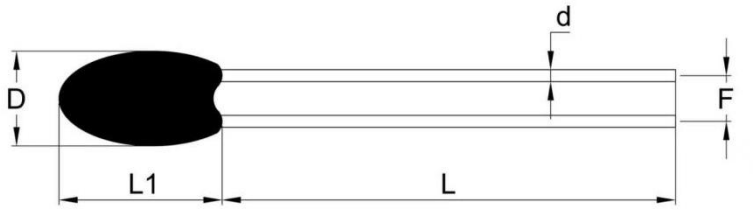
## 2、电气性能 Electrical Characteristics

| 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 | 100kΩ±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±0.01℃ $T_b$=50±0.01℃ | K | 3950K±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 104F3950(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：$R_{25}$：100kΩ±1% (Zero Power Resistance: $R_{25}$：100kΩ±1%)；
2) $B_{25/50}$ 数值：3950K±1% (B-value:$B_{25/50}$: 3950K±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°C，时间：2-3 秒 temperature: 245±5°C, 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°C，浸入深度距电阻体 6mm，时间 5±1 秒 Temperature of tin pot: 260±5°C, 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°C±2°C，湿度：93±2%，时间：500 小时 Temp: 40°C±2°C, 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°C 30min→25°C 5min→125°C 30min→25°C 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°C±5°C 时间：1000 小时 Temp: 125°C±5°C, 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°C，时间：1000 小时 Temp: -55°C, Time: 1000 hrs | 无可见性损伤 No obvious damage $\|\Delta R_{25}/R_{25}\| \leqslant 2\%$ |

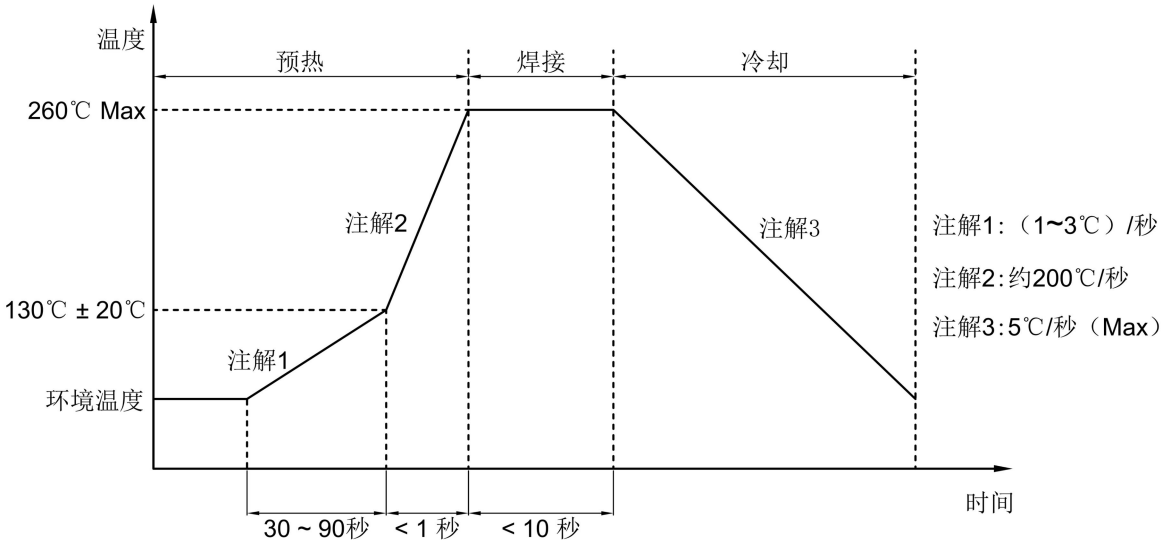
▲注： 1）稳态湿热及温度快速变化试验结束后，样品需在常温环境下静置 2 小时后再做性能测试；

▲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；

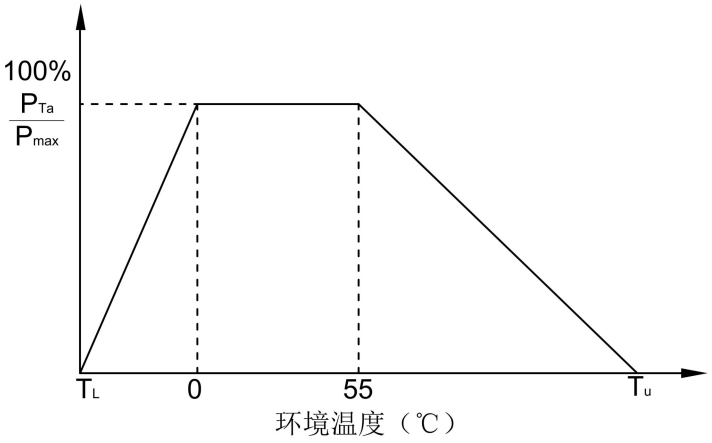
2）高温存储结束后，需随测试环境自然恢复至常温，再取出做性能测试。

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<br>Packing specification | 包装材料、尺寸<br>Packing material, size | 产品数量<br>Quantity |
|---|---|---|---|
| 1 | 包装袋 Packing bag | 自封口袋(self sealing bag)<br>W×H=11cm×12cm | |
| 2 | 编编带包装盒<br>reel packing box | 包装盒 packing box<br>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<br>Projects | 产品认证<br>Product certification |
|---|---|---|
| 8.1 | 质量管理体系认证<br>Quality Management System Certification | ISO9001:2015 |
| | | IATF16949：2016 |
| 8.2 | 环境管理体系认证<br>Environmental Management System Certification | ISO14001:2015 |
| 8.3 | 知识产权管理体系认证<br>Intellectual Property Management System Certification | GB/T29490-2013 |
| 8.4 | 环保检测报告<br>Environmental test report | RoHS 2.0 |
| 8.5 | CQC 认证（CQC07001019009）<br>CQC certificate（CQC07001019009） | |
| 8.6 | TUV 认证（R50245892）<br>TUV certificate（R50245892） | |
| 8.7 | UL/cUL 认证（E240991）<br>UL/cUL certificate（E240991） | |
| | | |

## 附表 I Attachment I

# 南京时恒阻温特性表 SHIHENG R-T Table

$R_{25}$=100kΩ 精度:±1%　$B_{25/50}$=3950K 精度:±1%（P209-15A）

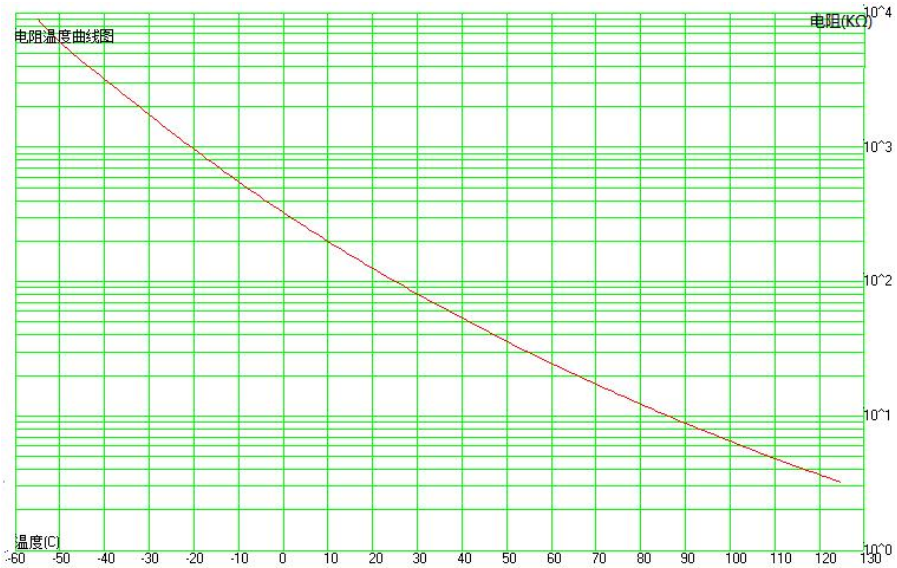
| 温度(℃) | 电阻(kΩ) | | | 电阻精度(%) | | 温度精度(℃) | |
|---|---|---|---|---|---|---|---|
| | 最小值 | 中心值 | 最大值 | △R | -△R | △T | -△T |
| -55 | 8494.5 | 8989 | 9483.49 | 5.501 | -5.501 | 0.715 | -0.715 |
| -54 | 7796.4 | 8242.68 | 8688.97 | 5.414 | -5.414 | 0.712 | -0.712 |
| -53 | 7188.1 | 7592.96 | 7997.83 | 5.332 | -5.332 | 0.709 | -0.709 |
| -52 | 6652.5 | 7021.38 | 7390.27 | 5.253 | -5.253 | 0.705 | -0.705 |
| -51 | 6176.43 | 6513.75 | 6851.07 | 5.178 | -5.178 | 0.702 | -0.702 |
| -50 | 5749.67 | 6059.06 | 6368.44 | 5.106 | -5.106 | 0.698 | -0.698 |
| -49 | 5364.21 | 5648.68 | 5933.14 | 5.035 | -5.035 | 0.694 | -0.694 |
| -48 | 5013.72 | 5275.8 | 5537.88 | 4.967 | -4.967 | 0.69 | -0.69 |
| -47 | 4693.17 | 4935.02 | 5176.87 | 4.9 | -4.9 | 0.686 | -0.686 |
| -46 | 4398.51 | 4621.99 | 4845.47 | 4.835 | -4.835 | 0.682 | -0.682 |
| -45 | 4126.5 | 4333.22 | 4539.93 | 4.77 | -4.77 | 0.678 | -0.678 |
| -44 | 3874.47 | 4065.84 | 4257.21 | 4.706 | -4.706 | 0.673 | -0.673 |
| -43 | 3640.25 | 3817.52 | 3994.79 | 4.643 | -4.643 | 0.669 | -0.669 |
| -42 | 3422.02 | 3586.31 | 3750.61 | 4.581 | -4.581 | 0.664 | -0.664 |
| -41 | 3218.28 | 3370.6 | 3522.91 | 4.519 | -4.519 | 0.66 | -0.66 |
| -40 | 3027.74 | 3169 | 3310.25 | 4.457 | -4.457 | 0.655 | -0.655 |
| -39 | 2849.32 | 2980.33 | 3111.35 | 4.395 | -4.395 | 0.65 | -0.65 |
| -38 | 2682.07 | 2803.6 | 2925.13 | 4.334 | -4.334 | 0.646 | -0.646 |
| -37 | 2525.17 | 2637.91 | 2750.64 | 4.273 | -4.273 | 0.641 | -0.641 |
| -36 | 2377.88 | 2482.47 | 2587.05 | 4.212 | -4.212 | 0.636 | -0.636 |
| -35 | 2239.56 | 2336.58 | 2433.6 | 4.152 | -4.152 | 0.631 | -0.631 |
| -34 | 2109.62 | 2199.62 | 2289.63 | 4.091 | -4.091 | 0.626 | -0.626 |
| -33 | 1987.52 | 2071.02 | 2154.51 | 4.031 | -4.031 | 0.621 | -0.621 |
| -32 | 1872.78 | 1950.23 | 2027.68 | 3.971 | -3.971 | 0.616 | -0.616 |
| -31 | 1764.94 | 1836.79 | 1908.63 | 3.911 | -3.911 | 0.611 | -0.611 |
| -30 | 1663.59 | 1730.23 | 1796.87 | 3.851 | -3.851 | 0.606 | -0.606 |
| -29 | 1568.33 | 1630.15 | 1691.96 | 3.792 | -3.792 | 0.6 | -0.6 |
| -28 | 1478.8 | 1536.14 | 1593.47 | 3.732 | -3.732 | 0.595 | -0.595 |
| -27 | 1394.65 | 1447.84 | 1501.02 | 3.673 | -3.673 | 0.59 | -0.59 |
| -26 | 1315.56 | 1364.9 | 1414.23 | 3.614 | -3.614 | 0.584 | -0.584 |
| -25 | 1241.24 | 1287 | 1332.75 | 3.555 | -3.555 | 0.579 | -0.579 |
| -24 | 1171.38 | 1213.82 | 1256.27 | 3.496 | -3.496 | 0.573 | -0.573 |
| -23 | 1105.72 | 1145.09 | 1184.47 | 3.438 | -3.438 | 0.567 | -0.567 |
| -22 | 1044 | 1080.53 | 1117.06 | 3.38 | -3.38 | 0.562 | -0.562 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| -21 | 986.001 | 1019.89 | 1053.77 | 3.322 | -3.322 | 0.556 | -0.556 |
| -20 | 931.471 | 962.912 | 994.354 | 3.265 | -3.265 | 0.55 | -0.55 |
| -19 | 880.206 | 909.379 | 938.552 | 3.208 | -3.208 | 0.545 | -0.545 |
| -18 | 832.004 | 859.074 | 886.144 | 3.151 | -3.151 | 0.539 | -0.539 |
| -17 | 786.677 | 811.797 | 836.918 | 3.094 | -3.094 | 0.533 | -0.533 |
| -16 | 744.046 | 767.359 | 790.672 | 3.038 | -3.038 | 0.527 | -0.527 |
| -15 | 703.943 | 725.581 | 747.219 | 2.982 | -2.982 | 0.521 | -0.521 |
| -14 | 666.212 | 686.296 | 706.38 | 2.926 | -2.926 | 0.515 | -0.515 |
| -13 | 630.705 | 649.348 | 667.992 | 2.871 | -2.871 | 0.508 | -0.508 |
| -12 | 597.283 | 614.59 | 631.897 | 2.816 | -2.816 | 0.502 | -0.502 |
| -11 | 565.816 | 581.883 | 597.951 | 2.761 | -2.761 | 0.496 | -0.496 |
| -10 | 536.181 | 551.1 | 566.018 | 2.706 | -2.706 | 0.489 | -0.489 |
| -9 | 508.266 | 522.117 | 535.969 | 2.652 | -2.652 | 0.483 | -0.483 |
| -8 | 481.962 | 494.824 | 507.686 | 2.599 | -2.599 | 0.477 | -0.477 |
| -7 | 457.17 | 469.113 | 481.056 | 2.545 | -2.545 | 0.47 | -0.47 |
| -6 | 433.796 | 444.886 | 455.976 | 2.492 | -2.492 | 0.463 | -0.463 |
| -5 | 411.751 | 422.05 | 432.348 | 2.44 | -2.44 | 0.457 | -0.457 |
| -4 | 390.954 | 400.518 | 410.081 | 2.387 | -2.387 | 0.45 | -0.45 |
| -3 | 371.328 | 380.209 | 389.089 | 2.335 | -2.335 | 0.443 | -0.443 |
| -2 | 352.801 | 361.048 | 369.294 | 2.283 | -2.283 | 0.436 | -0.436 |
| -1 | 335.306 | 342.963 | 350.62 | 2.232 | -2.232 | 0.429 | -0.429 |
| 0 | 319.429 | 326.56 | 333.69 | 2.183 | -2.183 | 0.422 | -0.422 |
| 1 | 303.163 | 309.764 | 316.364 | 2.13 | -2.13 | 0.415 | -0.415 |
| 2 | 288.402 | 294.529 | 300.656 | 2.08 | -2.08 | 0.408 | -0.408 |
| 3 | 274.444 | 280.131 | 285.819 | 2.03 | -2.03 | 0.401 | -0.401 |
| 4 | 261.242 | 266.52 | 271.798 | 1.98 | -1.98 | 0.394 | -0.394 |
| 5 | 248.75 | 253.647 | 258.545 | 1.93 | -1.93 | 0.387 | -0.387 |
| 6 | 236.926 | 241.47 | 246.013 | 1.881 | -1.881 | 0.379 | -0.379 |
| 7 | 225.731 | 229.946 | 234.16 | 1.832 | -1.832 | 0.372 | -0.372 |
| 8 | 215.128 | 219.036 | 222.944 | 1.784 | -1.784 | 0.364 | -0.364 |
| 9 | 205.083 | 208.706 | 212.328 | 1.735 | -1.735 | 0.357 | -0.357 |
| 10 | 195.562 | 198.92 | 202.277 | 1.687 | -1.687 | 0.349 | -0.349 |
| 11 | 186.536 | 189.647 | 192.757 | 1.64 | -1.64 | 0.341 | -0.341 |
| 12 | 177.977 | 180.857 | 183.737 | 1.592 | -1.592 | 0.334 | -0.334 |
| 13 | 169.857 | 172.523 | 175.189 | 1.545 | -1.545 | 0.326 | -0.326 |
| 14 | 162.151 | 164.618 | 167.085 | 1.498 | -1.498 | 0.318 | -0.318 |
| 15 | 154.837 | 157.118 | 159.399 | 1.451 | -1.451 | 0.31 | -0.31 |
| 16 | 147.892 | 150 | 152.109 | 1.405 | -1.405 | 0.302 | -0.302 |
| 17 | 141.296 | 143.243 | 145.191 | 1.359 | -1.359 | 0.294 | -0.294 |
| 18 | 135.029 | 136.827 | 138.624 | 1.313 | -1.313 | 0.286 | -0.286 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | 129.074 | 130.731 | 132.389 | 1.267 | -1.267 | 0.278 | -0.278 |
| 20 | 123.412 | 124.94 | 126.467 | 1.222 | -1.222 | 0.269 | -0.269 |
| 21 | 118.029 | 119.435 | 120.842 | 1.177 | -1.177 | 0.261 | -0.261 |
| 22 | 112.908 | 114.202 | 115.495 | 1.132 | -1.132 | 0.253 | -0.253 |
| 23 | 108.036 | 109.225 | 110.413 | 1.088 | -1.088 | 0.244 | -0.244 |
| 24 | 103.4 | 104.491 | 105.581 | 1.043 | -1.043 | 0.236 | -0.236 |
| 25 | 99 | 100 | 101 | 1 | -1 | 0.228 | -0.228 |
| 26 | 94.7 | 95.699 | 96.698 | 1.043 | -1.043 | 0.238 | -0.238 |
| 27 | 90.621 | 91.617 | 92.614 | 1.087 | -1.087 | 0.25 | -0.25 |
| 28 | 86.738 | 87.731 | 88.723 | 1.13 | -1.13 | 0.261 | -0.261 |
| 29 | 83.042 | 84.028 | 85.015 | 1.174 | -1.174 | 0.273 | -0.273 |
| 30 | 79.522 | 80.501 | 81.481 | 1.216 | -1.216 | 0.285 | -0.285 |
| 31 | 76.168 | 77.14 | 78.112 | 1.259 | -1.259 | 0.297 | -0.297 |
| 32 | 72.973 | 73.936 | 74.899 | 1.301 | -1.301 | 0.308 | -0.308 |
| 33 | 69.928 | 70.881 | 71.834 | 1.344 | -1.344 | 0.32 | -0.32 |
| 34 | 67.025 | 67.968 | 68.91 | 1.386 | -1.386 | 0.332 | -0.332 |
| 35 | 64.257 | 65.188 | 66.119 | 1.427 | -1.427 | 0.344 | -0.344 |
| 36 | 61.618 | 62.537 | 63.455 | 1.469 | -1.469 | 0.357 | -0.357 |
| 37 | 59.099 | 60.006 | 60.912 | 1.51 | -1.51 | 0.369 | -0.369 |
| 38 | 56.696 | 57.59 | 58.484 | 1.551 | -1.551 | 0.381 | -0.381 |
| 39 | 54.403 | 55.283 | 56.164 | 1.592 | -1.592 | 0.393 | -0.393 |
| 40 | 52.213 | 53.08 | 53.947 | 1.633 | -1.633 | 0.406 | -0.406 |
| 41 | 50.123 | 50.976 | 51.829 | 1.673 | -1.673 | 0.418 | -0.418 |
| 42 | 48.126 | 48.965 | 49.804 | 1.714 | -1.714 | 0.431 | -0.431 |
| 43 | 46.218 | 47.044 | 47.869 | 1.754 | -1.754 | 0.443 | -0.443 |
| 44 | 44.396 | 45.207 | 46.018 | 1.793 | -1.793 | 0.456 | -0.456 |
| 45 | 42.654 | 43.451 | 44.247 | 1.833 | -1.833 | 0.469 | -0.469 |
| 46 | 40.989 | 41.771 | 42.554 | 1.873 | -1.873 | 0.482 | -0.482 |
| 47 | 39.397 | 40.165 | 40.933 | 1.912 | -1.912 | 0.495 | -0.495 |
| 48 | 37.874 | 38.628 | 39.382 | 1.951 | -1.951 | 0.508 | -0.508 |
| 49 | 36.418 | 37.157 | 37.897 | 1.99 | -1.99 | 0.521 | -0.521 |
| 50 | 35.024 | 35.75 | 36.475 | 2.028 | -2.028 | 0.534 | -0.534 |
| 51 | 33.691 | 34.402 | 35.113 | 2.067 | -2.067 | 0.547 | -0.547 |
| 52 | 32.414 | 33.112 | 33.809 | 2.105 | -2.105 | 0.56 | -0.56 |
| 53 | 31.193 | 31.876 | 32.559 | 2.143 | -2.143 | 0.574 | -0.574 |
| 54 | 30.022 | 30.692 | 31.361 | 2.181 | -2.181 | 0.587 | -0.587 |
| 55 | 28.902 | 29.558 | 30.214 | 2.218 | -2.218 | 0.601 | -0.601 |
| 56 | 27.828 | 28.471 | 29.113 | 2.256 | -2.256 | 0.614 | -0.614 |
| 57 | 26.8 | 27.429 | 28.058 | 2.293 | -2.293 | 0.628 | -0.628 |
| 58 | 25.814 | 26.43 | 27.046 | 2.33 | -2.33 | 0.642 | -0.642 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 24.869 | 25.472 | 26.075 | 2.367 | -2.367 | 0.655 | -0.655 |
| 60 | 23.963 | 24.554 | 25.144 | 2.404 | -2.404 | 0.669 | -0.669 |
| 61 | 23.095 | 23.672 | 24.25 | 2.44 | -2.44 | 0.683 | -0.683 |
| 62 | 22.261 | 22.827 | 23.392 | 2.477 | -2.477 | 0.697 | -0.697 |
| 63 | 21.462 | 22.016 | 22.569 | 2.513 | -2.513 | 0.711 | -0.711 |
| 64 | 20.695 | 21.237 | 21.778 | 2.549 | -2.549 | 0.725 | -0.725 |
| 65 | 19.96 | 20.489 | 21.019 | 2.585 | -2.585 | 0.739 | -0.739 |
| 66 | 19.253 | 19.771 | 20.29 | 2.621 | -2.621 | 0.754 | -0.754 |
| 67 | 18.575 | 19.082 | 19.589 | 2.656 | -2.656 | 0.768 | -0.768 |
| 68 | 17.924 | 18.42 | 18.916 | 2.691 | -2.691 | 0.782 | -0.782 |
| 69 | 17.299 | 17.784 | 18.269 | 2.727 | -2.727 | 0.797 | -0.797 |
| 70 | 16.698 | 17.172 | 17.647 | 2.762 | -2.762 | 0.811 | -0.811 |
| 71 | 16.121 | 16.585 | 17.049 | 2.796 | -2.796 | 0.826 | -0.826 |
| 72 | 15.566 | 16.02 | 16.474 | 2.831 | -2.831 | 0.841 | -0.841 |
| 73 | 15.033 | 15.477 | 15.921 | 2.866 | -2.866 | 0.856 | -0.856 |
| 74 | 14.521 | 14.955 | 15.389 | 2.9 | -2.9 | 0.87 | -0.87 |
| 75 | 14.029 | 14.453 | 14.877 | 2.934 | -2.934 | 0.885 | -0.885 |
| 76 | 13.555 | 13.97 | 14.384 | 2.968 | -2.968 | 0.9 | -0.9 |
| 77 | 13.1 | 13.505 | 13.911 | 3.002 | -3.002 | 0.915 | -0.915 |
| 78 | 12.661 | 13.058 | 13.454 | 3.036 | -3.036 | 0.93 | -0.93 |
| 79 | 12.24 | 12.628 | 13.015 | 3.069 | -3.069 | 0.946 | -0.946 |
| 80 | 11.834 | 12.213 | 12.592 | 3.102 | -3.102 | 0.961 | -0.961 |
| 81 | 11.444 | 11.815 | 12.185 | 3.136 | -3.136 | 0.976 | -0.976 |
| 82 | 11.068 | 11.431 | 11.793 | 3.169 | -3.169 | 0.992 | -0.992 |
| 83 | 10.707 | 11.061 | 11.415 | 3.202 | -3.202 | 1.007 | -1.007 |
| 84 | 10.358 | 10.705 | 11.051 | 3.234 | -3.234 | 1.023 | -1.023 |
| 85 | 10.023 | 10.362 | 10.7 | 3.267 | -3.267 | 1.038 | -1.038 |
| 86 | 9.7 | 10.031 | 10.362 | 3.299 | -3.299 | 1.054 | -1.054 |
| 87 | 9.389 | 9.712 | 10.036 | 3.332 | -3.332 | 1.07 | -1.07 |
| 88 | 9.089 | 9.405 | 9.722 | 3.364 | -3.364 | 1.086 | -1.086 |
| 89 | 8.8 | 9.11 | 9.419 | 3.396 | -3.396 | 1.102 | -1.102 |
| 90 | 8.522 | 8.824 | 9.127 | 3.428 | -3.428 | 1.118 | -1.118 |
| 91 | 8.254 | 8.549 | 8.845 | 3.459 | -3.459 | 1.134 | -1.134 |
| 92 | 7.995 | 8.284 | 8.573 | 3.491 | -3.491 | 1.15 | -1.15 |
| 93 | 7.746 | 8.028 | 8.311 | 3.522 | -3.522 | 1.166 | -1.166 |
| 94 | 7.505 | 7.782 | 8.058 | 3.553 | -3.553 | 1.182 | -1.182 |
| 95 | 7.273 | 7.544 | 7.814 | 3.585 | -3.585 | 1.199 | -1.199 |
| 96 | 7.05 | 7.314 | 7.579 | 3.615 | -3.615 | 1.215 | -1.215 |
| 97 | 6.834 | 7.093 | 7.351 | 3.646 | -3.646 | 1.231 | -1.231 |
| 98 | 6.626 | 6.879 | 7.132 | 3.677 | -3.677 | 1.248 | -1.248 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 99 | 6.425 | 6.673 | 6.92 | 3.707 | -3.707 | 1.265 | -1.265 |
| 100 | 6.231 | 6.474 | 6.716 | 3.738 | -3.738 | 1.281 | -1.281 |
| 101 | 6.045 | 6.281 | 6.518 | 3.768 | -3.768 | 1.298 | -1.298 |
| 102 | 5.864 | 6.096 | 6.327 | 3.798 | -3.798 | 1.315 | -1.315 |
| 103 | 5.69 | 5.916 | 6.143 | 3.828 | -3.828 | 1.332 | -1.332 |
| 104 | 5.522 | 5.743 | 5.965 | 3.857 | -3.857 | 1.349 | -1.349 |
| 105 | 5.36 | 5.576 | 5.793 | 3.887 | -3.887 | 1.366 | -1.366 |
| 106 | 5.203 | 5.415 | 5.627 | 3.916 | -3.916 | 1.383 | -1.383 |
| 107 | 5.051 | 5.259 | 5.467 | 3.945 | -3.945 | 1.4 | -1.4 |
| 108 | 4.905 | 5.108 | 5.312 | 3.975 | -3.975 | 1.418 | -1.418 |
| 109 | 4.764 | 4.963 | 5.162 | 4.003 | -4.003 | 1.435 | -1.435 |
| 110 | 4.628 | 4.822 | 5.017 | 4.032 | -4.032 | 1.452 | -1.452 |
| 111 | 4.496 | 4.687 | 4.877 | 4.061 | -4.061 | 1.47 | -1.47 |
| 112 | 4.369 | 4.555 | 4.742 | 4.089 | -4.089 | 1.488 | -1.488 |
| 113 | 4.246 | 4.428 | 4.611 | 4.118 | -4.118 | 1.505 | -1.505 |
| 114 | 4.127 | 4.306 | 4.484 | 4.146 | -4.146 | 1.523 | -1.523 |
| 115 | 4.012 | 4.187 | 4.362 | 4.174 | -4.174 | 1.541 | -1.541 |
| 116 | 3.902 | 4.073 | 4.244 | 4.201 | -4.201 | 1.559 | -1.559 |
| 117 | 3.794 | 3.962 | 4.13 | 4.229 | -4.229 | 1.577 | -1.577 |
| 118 | 3.691 | 3.855 | 4.019 | 4.256 | -4.256 | 1.595 | -1.595 |
| 119 | 3.591 | 3.751 | 3.912 | 4.284 | -4.284 | 1.613 | -1.613 |
| 120 | 3.494 | 3.651 | 3.809 | 4.311 | -4.311 | 1.631 | -1.631 |
| 121 | 3.4 | 3.555 | 3.709 | 4.337 | -4.337 | 1.649 | -1.649 |
| 122 | 3.31 | 3.461 | 3.612 | 4.364 | -4.364 | 1.668 | -1.668 |
| 123 | 3.223 | 3.371 | 3.519 | 4.391 | -4.391 | 1.686 | -1.686 |
| 124 | 3.138 | 3.283 | 3.428 | 4.417 | -4.417 | 1.705 | -1.705 |
| 125 | 3.056 | 3.199 | 3.341 | 4.443 | -4.443 | 1.723 | -1.723 |



## 附表 II Attachment II

