



南京时恒电子科技有限公司

## 规格承认书

### APPROVAL SHEET

客户名称:

CUSTOMER \_\_\_\_\_

产品名称:

PART NAME MF52 珠状测温型 NTC 热敏电阻器

产品规格:

PART NUMBER MF52 A 104 J 3950 (A1)(UL:E240991)

日期:

DATE 2017 年 07 月 20 日

确 认

CONFIRM

客户

品保部: \_\_\_\_\_

制造部: \_\_\_\_\_

工程部: \_\_\_\_\_

供货商/制造商

规格书制作: 鞠晓丽

技术部审核: \_\_\_\_\_

品质部审核: \_\_\_\_\_

生产部审核: \_\_\_\_\_

南京时恒电子科技有限公司

地址: 南京市江宁区湖熟镇金阳路 18 号

TEL: 025-52121868

Http: //www.shiheng.com.cn

邮编: 211121

FAX: 025-52122373

[E-MAIL:sales@shiheng.com.cn](mailto:sales@shiheng.com.cn)





南京时恒电子科技有限公司

# MF52 珠状测温型 NTC 热敏电阻器

型号: MF52A 104J3950(A1)

本规格书提供了南京时恒电子科技有限公司生产的 MF52A 系列 NTC 热敏电阻的结构尺寸、产品性能、试验条件、使用要求的描述, 敬请贵司确认。  
对本规格书产生疑问时, 请速与我们取得联系 (025-52121868), 若无疑义请确认回传, 若无回传, 我司将视为默认。  
贵公司改变使用用途, 作用方法时, 请与我们联系。

|          |     |     |
|----------|-----|-----|
| 客户名称:    |     |     |
| 客户<br>确认 | 确认: | 时间: |
|          | 审核: | 时间: |

## 1. 电气性能

| 项目  | 符号                       | 测试条件  | 单位                     | 性能要求   |
|-----|--------------------------|---|------------------------|--|
| 1.1 | $R_{25^{\circ}\text{C}}$ | $T_a=25\pm 0.05^{\circ}\text{C}$ 测试功率 $\leq 0.1\text{mW}$   | K $\Omega$             | $100\text{K}\Omega \pm 5\%$                    |
| 1.2 | B 值                      | $B=[(T_a \times T_b)/(T_b - T_a)] \times \ln(R_a/R_b)$<br>$T_b=50^{\circ}\text{C} \pm 0.01^{\circ}\text{C}$ | K                      | $3950 \pm 1\%$                                 |
| 1.3 | 耗散系数                     | 静止空气中   | mW/ $^{\circ}\text{C}$ | $\geq 2$                                       |
| 1.4 | 时间常数                     | 静止空气中   | sec                    | $\leq 7$                                       |
| 1.5 | 绝缘电阻                     | 100V/DC 1min  | M $\Omega$             | $\geq 100$                                     |
| 1.6 | 工作温度范围                   | /   | $^{\circ}\text{C}$     | $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ |
| 1.7 | 最大额定功率                   | Pmax  | mW                     | 50   |
| 1.8 | 阻温特性                     | /   | /                      | 见附表 1  |
| 1.9 | 阻值误差                     | /   | /                      | 见附表 2  |

## 2. 可靠性

| 项目         | 测试条件及方法  | 技术要求                                       |
|------------|--|--|
| 2.1 引出端强度  | 固定电阻端, 拉力: $5 \pm 1\text{N}$ , 时间: $10 \pm 1$ 秒  | 无可见性损伤<br>$R_{25} \Delta R/R \leq \pm 2\%$ |
| 2.2 可焊性    | 温度 $245 \pm 5^{\circ}\text{C}$ 时间 2-3 秒  | 着锡面积 $\geq 95\%$                           |
| 2.3 耐焊接热   | 锡锅温度: $260 \pm 5^{\circ}\text{C}$ , 浸入深度距电阻体 6mm, 时间 $5 \pm 1$ 秒   | $R_{25} \Delta R/R \leq \pm 2\%$           |
| 2.4 稳态湿热   | 温度: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , 湿度: $93 \pm 2\%$ , 时间: 500 小时   | $R_{25} \Delta R/R \leq \pm 2\%$           |
| 2.5 温度快速变化 | $-55^{\circ}\text{C} 30\text{min} \rightarrow 25^{\circ}\text{C} 5\text{min} \rightarrow 125^{\circ}\text{C} 30\text{min} \rightarrow 25^{\circ}\text{C} 5\text{min}$ , 反复 5 次 | $R_{25} \Delta R/R \leq \pm 2\%$           |
| 2.6 高温储存   | 温度: $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$<br>时间: 1000 小时   | $R_{25} \Delta R/R \leq \pm 2\%$           |
| 2.7 低温储存   | 温度: $-55^{\circ}\text{C}$ 时间: 1000 小时  | $R_{25} \Delta R/R \leq \pm 2\%$           |

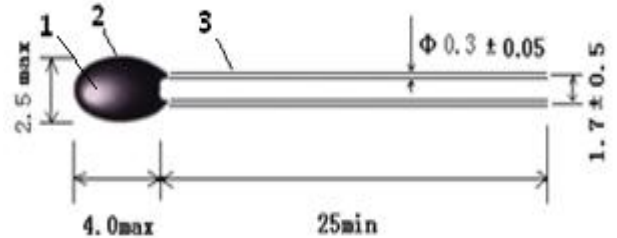
## 3. 使用注意事项

- 3.1 本产品的用途: 温度测量与控制;
- 3.2 避免流过热敏电阻芯片的电流引起元件自身发热而产生测量误差;
- 3.3 烙铁焊接时, 焊接处距涂装层距离至少 2mm, 焊接温度应低于  $300^{\circ}\text{C}$ , 焊接时间  $< 3\text{ses}$ ;
- 3.4 储存温度:  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ; 储存湿度:  $\leq 75\% \text{RH}$ ;
- 3.5 避免存放在具有腐蚀性气体及光照的环境下;
- 3.6 包装打开后需重新密封保存。

## 4. 认证

- 4.1 质量管理体系认证 ISO9001:2008 (01115Q20270R5M)  
ISO/TS16949: 2009 (0192416)
- 4.2 环境管理体系认证 ISO14001:2004 (01113E20060R2M)
- 4.3 环保检测报告 ROHS
- 4.4 产品 CQC 认证 (CQC10001052282)
- 4.5 江苏省高新技术产品认证 (120115G0179N)
- 4.6 UL 1434 认证 (File # E240991)

## 5. 外形尺寸: (单位: mm)



| 序号 | 名称   | 材料规格     | 数量 | 备注 |
|----|------|----------|----|----|
| 1  | 元件   | NTC 热敏电阻 | 1  |    |
| 2  | 改性树脂 | 封装类树脂    | 1  | 黑色 |
| 3  | 导线   | 镀锡铜包钢线   | 2  | 银色 |

## 6. 产品型号说明

MF52 A 104 J 3950 A1  
① ② ③ ④ ⑤ ⑥

- ① MF52: 珠状精密性 NTC 热敏电阻
- ② A: 引线为镀锡铜包钢线
- ③ 104:  $25^{\circ}\text{C}$  的零功率电阻值  $100\text{K}\Omega$
- ④ J: 阻值精度代码 F $\pm 1\%$  G $\pm 2\%$  H $\pm 3\%$  J $\pm 5\%$
- ⑤ 3950: B<sub>25/50</sub> 值 3950K
- ⑥ A1: 小头

电话: 025-52121868  
传真: 025-52122373  
邮编: 211121

地址: 南京市江宁区湖熟镇金阳路 18 号  
邮箱: sales@shiheng.com.cn  
网址: Http://www.shiheng.com.cn



附表 1

## 南京时恒阻温特性表

R25=100K  $\Omega$  精度:±5% B25/50=3950K B25/85=4035K 精度:±1%(P209-15A)

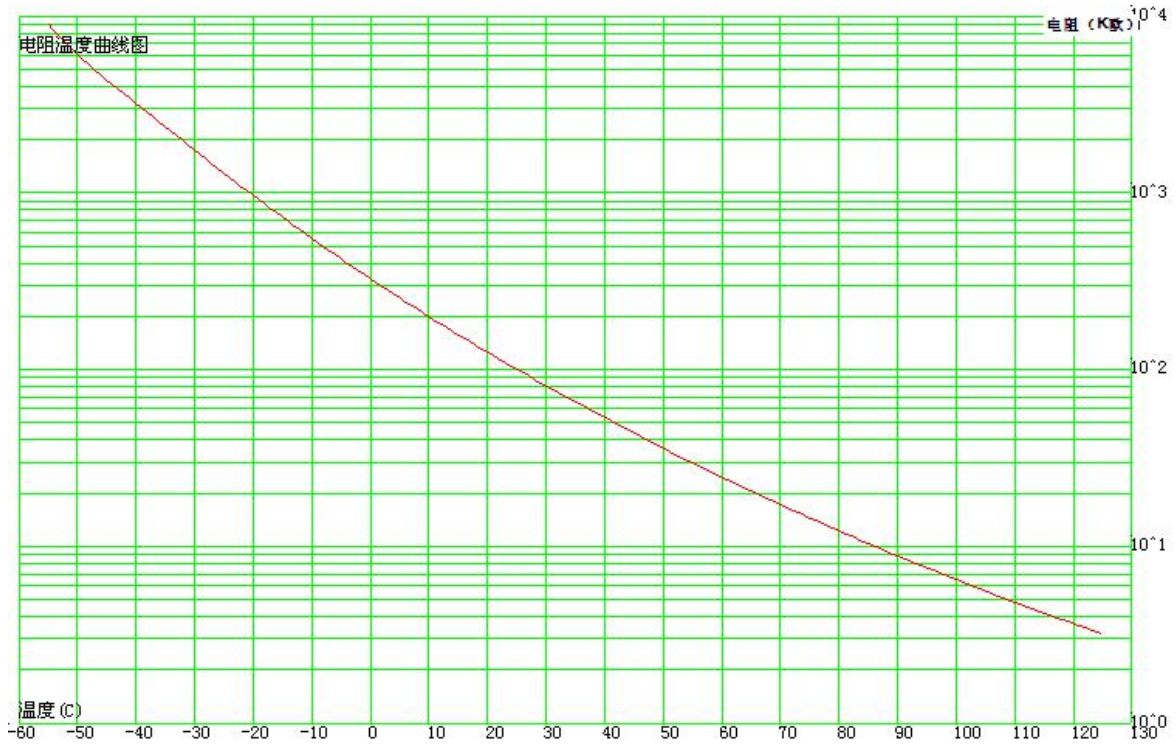
| 温度(°C) | 电阻(K $\Omega$ ) |          |          | 电阻精度(%)    |             | 温度精度(°C)   |             |
|--------|-----------------|----------|----------|------------|-------------|------------|-------------|
|        | 最小值             | 中心值      | 最大值      | $\Delta R$ | $-\Delta R$ | $\Delta T$ | $-\Delta T$ |
| -55    | 8163.900        | 8989.000 | 9872.740 | 9.831      | -9.178      | 1.279      | -1.194      |
| -54    | 7492.580        | 8242.680 | 9045.210 | 9.736      | -9.100      | 1.281      | -1.197      |
| -53    | 6907.660        | 7592.960 | 8325.390 | 9.646      | -9.025      | 1.283      | -1.200      |
| -52    | 6392.670        | 7021.380 | 7692.660 | 9.560      | -8.954      | 1.284      | -1.202      |
| -51    | 5934.940        | 6513.750 | 7131.140 | 9.478      | -8.885      | 1.285      | -1.204      |
| -50    | 5524.650        | 6059.060 | 6628.550 | 9.399      | -8.820      | 1.285      | -1.206      |
| -49    | 5154.070        | 5648.680 | 6175.260 | 9.322      | -8.756      | 1.285      | -1.207      |
| -48    | 4817.140        | 5275.800 | 5763.690 | 9.247      | -8.693      | 1.285      | -1.208      |
| -47    | 4508.990        | 4935.020 | 5387.790 | 9.174      | -8.632      | 1.285      | -1.209      |
| -46    | 4225.750        | 4621.990 | 5042.740 | 9.103      | -8.572      | 1.284      | -1.209      |
| -45    | 3964.290        | 4333.220 | 4724.630 | 9.032      | -8.513      | 1.283      | -1.210      |
| -44    | 3722.050        | 4065.840 | 4430.280 | 8.963      | -8.455      | 1.282      | -1.210      |
| -43    | 3496.930        | 3817.520 | 4157.080 | 8.894      | -8.397      | 1.281      | -1.210      |
| -42    | 3287.190        | 3586.310 | 3902.870 | 8.826      | -8.340      | 1.280      | -1.210      |
| -41    | 3091.390        | 3370.600 | 3665.840 | 8.759      | -8.283      | 1.279      | -1.210      |
| -40    | 2908.280        | 3169.000 | 3444.450 | 8.692      | -8.227      | 1.278      | -1.210      |
| -39    | 2736.820        | 2980.330 | 3237.410 | 8.625      | -8.170      | 1.277      | -1.209      |
| -38    | 2576.100        | 2803.600 | 3043.570 | 8.559      | -8.114      | 1.275      | -1.209      |
| -37    | 2425.330        | 2637.910 | 2861.940 | 8.493      | -8.058      | 1.274      | -1.209      |
| -36    | 2283.800        | 2482.470 | 2691.670 | 8.427      | -8.002      | 1.273      | -1.208      |
| -35    | 2150.890        | 2336.580 | 2531.960 | 8.361      | -7.947      | 1.271      | -1.208      |
| -34    | 2026.040        | 2199.620 | 2382.110 | 8.296      | -7.891      | 1.270      | -1.208      |
| -33    | 1908.730        | 2071.020 | 2241.480 | 8.230      | -7.835      | 1.268      | -1.207      |
| -32    | 1798.490        | 1950.230 | 2109.490 | 8.165      | -7.780      | 1.267      | -1.207      |
| -31    | 1694.890        | 1836.790 | 1985.590 | 8.101      | -7.725      | 1.265      | -1.207      |
| -30    | 1597.520        | 1730.230 | 1869.280 | 8.036      | -7.670      | 1.264      | -1.206      |
| -29    | 1506.010        | 1630.150 | 1760.100 | 7.972      | -7.615      | 1.262      | -1.206      |
| -28    | 1420.000        | 1536.140 | 1657.610 | 7.907      | -7.560      | 1.261      | -1.205      |
| -27    | 1339.170        | 1447.840 | 1561.410 | 7.844      | -7.505      | 1.259      | -1.205      |
| -26    | 1263.200        | 1364.900 | 1471.090 | 7.780      | -7.450      | 1.258      | -1.205      |
| -25    | 1191.800        | 1287.000 | 1386.320 | 7.717      | -7.396      | 1.257      | -1.204      |
| -24    | 1124.700        | 1213.820 | 1306.730 | 7.654      | -7.342      | 1.255      | -1.204      |
| -23    | 1061.640        | 1145.090 | 1232.020 | 7.591      | -7.288      | 1.253      | -1.203      |
| -22    | 1002.360        | 1080.530 | 1161.890 | 7.529      | -7.234      | 1.252      | -1.203      |
| -21    | 946.654         | 1019.890 | 1096.040 | 7.466      | -7.180      | 1.250      | -1.202      |
| -20    | 894.282         | 962.912  | 1034.210 | 7.405      | -7.127      | 1.249      | -1.202      |
| -19    | 845.047         | 909.379  | 976.161  | 7.343      | -7.074      | 1.247      | -1.201      |
| -18    | 798.756         | 859.074  | 921.638  | 7.282      | -7.021      | 1.246      | -1.201      |
| -17    | 755.226         | 811.797  | 870.425  | 7.221      | -6.968      | 1.244      | -1.200      |

|     |         |         |         |       |        |       |        |
|-----|---------|---------|---------|-------|--------|-------|--------|
| -16 | 714.286 | 767.359 | 822.314 | 7.161 | -6.916 | 1.242 | -1.200 |
| -15 | 675.776 | 725.581 | 777.109 | 7.101 | -6.864 | 1.241 | -1.199 |
| -14 | 639.544 | 686.296 | 734.626 | 7.042 | -6.812 | 1.239 | -1.198 |
| -13 | 605.448 | 649.348 | 694.691 | 6.982 | -6.760 | 1.237 | -1.198 |
| -12 | 573.354 | 614.590 | 657.144 | 6.923 | -6.709 | 1.235 | -1.197 |
| -11 | 543.139 | 581.883 | 621.833 | 6.865 | -6.658 | 1.233 | -1.196 |
| -10 | 514.685 | 551.100 | 588.615 | 6.807 | -6.607 | 1.232 | -1.195 |
| -9  | 487.881 | 522.117 | 557.359 | 6.749 | -6.557 | 1.230 | -1.195 |
| -8  | 462.626 | 494.824 | 527.940 | 6.692 | -6.507 | 1.228 | -1.194 |
| -7  | 438.822 | 469.113 | 500.241 | 6.635 | -6.457 | 1.226 | -1.193 |
| -6  | 416.380 | 444.886 | 474.155 | 6.579 | -6.407 | 1.224 | -1.192 |
| -5  | 395.215 | 422.050 | 449.580 | 6.522 | -6.358 | 1.222 | -1.191 |
| -4  | 375.249 | 400.518 | 426.420 | 6.467 | -6.309 | 1.220 | -1.190 |
| -3  | 356.406 | 380.209 | 404.587 | 6.411 | -6.260 | 1.217 | -1.189 |
| -2  | 338.620 | 361.048 | 383.998 | 6.356 | -6.211 | 1.215 | -1.188 |
| -1  | 321.824 | 342.963 | 364.577 | 6.302 | -6.163 | 1.213 | -1.186 |
| 0   | 306.582 | 326.560 | 346.969 | 6.249 | -6.117 | 1.209 | -1.183 |
| 1   | 290.967 | 309.764 | 328.950 | 6.193 | -6.068 | 1.208 | -1.184 |
| 2   | 276.796 | 294.529 | 312.614 | 6.140 | -6.020 | 1.206 | -1.183 |
| 3   | 263.398 | 280.131 | 297.184 | 6.087 | -5.973 | 1.204 | -1.181 |
| 4   | 250.724 | 266.520 | 282.603 | 6.034 | -5.926 | 1.201 | -1.180 |
| 5   | 238.733 | 253.647 | 268.820 | 5.981 | -5.880 | 1.199 | -1.178 |
| 6   | 227.383 | 241.470 | 255.788 | 5.929 | -5.833 | 1.196 | -1.177 |
| 7   | 216.637 | 229.946 | 243.462 | 5.877 | -5.787 | 1.193 | -1.175 |
| 8   | 206.459 | 219.036 | 231.798 | 5.826 | -5.741 | 1.191 | -1.173 |
| 9   | 196.817 | 208.706 | 220.759 | 5.775 | -5.696 | 1.188 | -1.172 |
| 10  | 187.678 | 198.920 | 210.307 | 5.724 | -5.651 | 1.185 | -1.170 |
| 11  | 179.015 | 189.647 | 200.407 | 5.674 | -5.606 | 1.182 | -1.168 |
| 12  | 170.799 | 180.857 | 191.028 | 5.624 | -5.561 | 1.180 | -1.166 |
| 13  | 163.005 | 172.523 | 182.139 | 5.574 | -5.516 | 1.177 | -1.165 |
| 14  | 155.609 | 164.618 | 173.713 | 5.524 | -5.472 | 1.174 | -1.163 |
| 15  | 148.589 | 157.118 | 165.721 | 5.475 | -5.428 | 1.171 | -1.161 |
| 16  | 141.924 | 150.000 | 158.140 | 5.426 | -5.384 | 1.168 | -1.159 |
| 17  | 135.593 | 143.243 | 150.947 | 5.378 | -5.340 | 1.165 | -1.156 |
| 18  | 129.578 | 136.827 | 144.119 | 5.329 | -5.297 | 1.161 | -1.154 |
| 19  | 123.862 | 130.731 | 137.636 | 5.281 | -5.254 | 1.158 | -1.152 |
| 20  | 118.429 | 124.940 | 131.479 | 5.234 | -5.211 | 1.155 | -1.150 |
| 21  | 113.262 | 119.435 | 125.630 | 5.186 | -5.168 | 1.152 | -1.148 |
| 22  | 108.348 | 114.202 | 120.071 | 5.139 | -5.126 | 1.149 | -1.146 |
| 23  | 103.672 | 109.225 | 114.787 | 5.092 | -5.083 | 1.146 | -1.144 |
| 24  | 99.222  | 104.491 | 109.763 | 5.046 | -5.041 | 1.144 | -1.143 |
| 25  | 95.000  | 100.000 | 105.000 | 5.000 | -5.000 | 1.141 | -1.141 |
| 26  | 90.874  | 95.699  | 100.528 | 5.046 | -5.041 | 1.151 | -1.150 |
| 27  | 86.960  | 91.617  | 96.282  | 5.091 | -5.083 | 1.171 | -1.169 |
| 28  | 83.235  | 87.731  | 92.238  | 5.137 | -5.124 | 1.189 | -1.186 |

|    |        |        |        |       |        |       |        |
|----|--------|--------|--------|-------|--------|-------|--------|
| 29 | 79.688 | 84.028 | 88.384 | 5.182 | -5.165 | 1.207 | -1.203 |
| 30 | 76.311 | 80.501 | 84.710 | 5.227 | -5.205 | 1.225 | -1.220 |
| 31 | 73.093 | 77.140 | 81.208 | 5.272 | -5.246 | 1.243 | -1.237 |
| 32 | 70.027 | 73.936 | 77.868 | 5.317 | -5.286 | 1.261 | -1.254 |
| 33 | 67.106 | 70.881 | 74.682 | 5.361 | -5.326 | 1.279 | -1.271 |
| 34 | 64.320 | 67.968 | 71.642 | 5.406 | -5.366 | 1.298 | -1.288 |
| 35 | 61.664 | 65.188 | 68.741 | 5.450 | -5.405 | 1.316 | -1.305 |
| 36 | 59.131 | 62.537 | 65.972 | 5.494 | -5.444 | 1.334 | -1.323 |
| 37 | 56.715 | 60.006 | 63.329 | 5.537 | -5.483 | 1.353 | -1.340 |
| 38 | 54.409 | 57.590 | 60.804 | 5.581 | -5.522 | 1.372 | -1.357 |
| 39 | 52.209 | 55.283 | 58.392 | 5.624 | -5.561 | 1.390 | -1.375 |
| 40 | 50.108 | 53.080 | 56.088 | 5.667 | -5.599 | 1.409 | -1.392 |
| 41 | 48.102 | 50.976 | 53.887 | 5.709 | -5.637 | 1.428 | -1.410 |
| 42 | 46.186 | 48.965 | 51.782 | 5.752 | -5.675 | 1.447 | -1.428 |
| 43 | 44.356 | 47.044 | 49.770 | 5.794 | -5.713 | 1.466 | -1.446 |
| 44 | 42.607 | 45.207 | 47.845 | 5.836 | -5.751 | 1.485 | -1.464 |
| 45 | 40.935 | 43.451 | 46.005 | 5.878 | -5.788 | 1.505 | -1.482 |
| 46 | 39.338 | 41.771 | 44.244 | 5.920 | -5.825 | 1.524 | -1.500 |
| 47 | 37.810 | 40.165 | 42.559 | 5.962 | -5.862 | 1.544 | -1.518 |
| 48 | 36.349 | 38.628 | 40.947 | 6.003 | -5.899 | 1.563 | -1.536 |
| 49 | 34.952 | 37.157 | 39.403 | 6.044 | -5.935 | 1.583 | -1.554 |
| 50 | 33.614 | 35.750 | 37.925 | 6.085 | -5.972 | 1.603 | -1.573 |
| 51 | 32.335 | 34.402 | 36.510 | 6.126 | -6.008 | 1.622 | -1.591 |
| 52 | 31.110 | 33.112 | 35.154 | 6.166 | -6.044 | 1.642 | -1.610 |
| 53 | 29.938 | 31.876 | 33.854 | 6.207 | -6.079 | 1.662 | -1.628 |
| 54 | 28.815 | 30.692 | 32.609 | 6.247 | -6.115 | 1.683 | -1.647 |
| 55 | 27.740 | 29.558 | 31.416 | 6.287 | -6.150 | 1.703 | -1.666 |
| 56 | 26.709 | 28.471 | 30.272 | 6.327 | -6.185 | 1.723 | -1.685 |
| 57 | 25.722 | 27.429 | 29.175 | 6.367 | -6.220 | 1.744 | -1.704 |
| 58 | 24.777 | 26.430 | 28.123 | 6.406 | -6.255 | 1.764 | -1.723 |
| 59 | 23.870 | 25.472 | 27.114 | 6.445 | -6.290 | 1.785 | -1.742 |
| 60 | 23.001 | 24.554 | 26.146 | 6.484 | -6.324 | 1.806 | -1.761 |
| 61 | 22.167 | 23.672 | 25.217 | 6.523 | -6.358 | 1.826 | -1.780 |
| 62 | 21.368 | 22.827 | 24.325 | 6.562 | -6.393 | 1.847 | -1.799 |
| 63 | 20.601 | 22.016 | 23.469 | 6.601 | -6.426 | 1.868 | -1.819 |
| 64 | 19.865 | 21.237 | 22.647 | 6.639 | -6.460 | 1.889 | -1.838 |
| 65 | 19.159 | 20.489 | 21.858 | 6.677 | -6.494 | 1.911 | -1.858 |
| 66 | 18.481 | 19.771 | 21.099 | 6.715 | -6.527 | 1.932 | -1.878 |
| 67 | 17.830 | 19.082 | 20.371 | 6.753 | -6.560 | 1.953 | -1.897 |
| 68 | 17.205 | 18.420 | 19.671 | 6.791 | -6.593 | 1.975 | -1.917 |
| 69 | 16.605 | 17.784 | 18.998 | 6.828 | -6.626 | 1.996 | -1.937 |
| 70 | 16.029 | 17.172 | 18.351 | 6.866 | -6.659 | 2.018 | -1.957 |
| 71 | 15.475 | 16.585 | 17.730 | 6.903 | -6.691 | 2.040 | -1.977 |
| 72 | 14.943 | 16.020 | 17.132 | 6.940 | -6.723 | 2.062 | -1.997 |
| 73 | 14.431 | 15.477 | 16.557 | 6.977 | -6.756 | 2.084 | -2.017 |

|     |        |        |        |       |        |       |        |
|-----|--------|--------|--------|-------|--------|-------|--------|
| 74  | 13.940 | 14.955 | 16.004 | 7.014 | -6.788 | 2.106 | -2.038 |
| 75  | 13.467 | 14.453 | 15.472 | 7.050 | -6.819 | 2.128 | -2.058 |
| 76  | 13.013 | 13.970 | 14.960 | 7.087 | -6.851 | 2.150 | -2.079 |
| 77  | 12.575 | 13.505 | 14.467 | 7.123 | -6.883 | 2.172 | -2.099 |
| 78  | 12.155 | 13.058 | 13.993 | 7.159 | -6.914 | 2.195 | -2.120 |
| 79  | 11.750 | 12.628 | 13.536 | 7.195 | -6.945 | 2.217 | -2.140 |
| 80  | 11.361 | 12.213 | 13.096 | 7.231 | -6.976 | 2.240 | -2.161 |
| 81  | 10.987 | 11.815 | 12.673 | 7.266 | -7.007 | 2.263 | -2.182 |
| 82  | 10.626 | 11.431 | 12.265 | 7.302 | -7.038 | 2.285 | -2.203 |
| 83  | 10.279 | 11.061 | 11.872 | 7.337 | -7.068 | 2.308 | -2.224 |
| 84  | 9.945  | 10.705 | 11.494 | 7.372 | -7.099 | 2.331 | -2.245 |
| 85  | 9.623  | 10.362 | 11.129 | 7.407 | -7.129 | 2.355 | -2.266 |
| 86  | 9.313  | 10.031 | 10.778 | 7.442 | -7.159 | 2.378 | -2.287 |
| 87  | 9.014  | 9.712  | 10.439 | 7.477 | -7.189 | 2.401 | -2.309 |
| 88  | 8.726  | 9.405  | 10.112 | 7.511 | -7.219 | 2.424 | -2.330 |
| 89  | 8.449  | 9.110  | 9.797  | 7.545 | -7.248 | 2.448 | -2.352 |
| 90  | 8.182  | 8.824  | 9.493  | 7.580 | -7.278 | 2.472 | -2.373 |
| 91  | 7.925  | 8.549  | 9.200  | 7.614 | -7.307 | 2.495 | -2.395 |
| 92  | 7.676  | 8.284  | 8.918  | 7.648 | -7.337 | 2.519 | -2.417 |
| 93  | 7.437  | 8.028  | 8.645  | 7.681 | -7.366 | 2.543 | -2.438 |
| 94  | 7.206  | 7.782  | 8.382  | 7.715 | -7.394 | 2.567 | -2.460 |
| 95  | 6.984  | 7.544  | 8.128  | 7.748 | -7.423 | 2.591 | -2.482 |
| 96  | 6.769  | 7.314  | 7.883  | 7.782 | -7.452 | 2.615 | -2.504 |
| 97  | 6.562  | 7.093  | 7.647  | 7.815 | -7.480 | 2.640 | -2.527 |
| 98  | 6.362  | 6.879  | 7.419  | 7.848 | -7.509 | 2.664 | -2.549 |
| 99  | 6.170  | 6.673  | 7.199  | 7.881 | -7.537 | 2.689 | -2.571 |
| 100 | 5.984  | 6.474  | 6.986  | 7.913 | -7.565 | 2.713 | -2.594 |
| 101 | 5.804  | 6.281  | 6.780  | 7.946 | -7.593 | 2.738 | -2.616 |
| 102 | 5.631  | 6.096  | 6.582  | 7.978 | -7.620 | 2.763 | -2.639 |
| 103 | 5.464  | 5.916  | 6.391  | 8.011 | -7.648 | 2.788 | -2.662 |
| 104 | 5.303  | 5.743  | 6.205  | 8.043 | -7.675 | 2.813 | -2.684 |
| 105 | 5.147  | 5.576  | 6.027  | 8.075 | -7.703 | 2.838 | -2.707 |
| 106 | 4.996  | 5.415  | 5.854  | 8.106 | -7.730 | 2.863 | -2.730 |
| 107 | 4.851  | 5.259  | 5.687  | 8.138 | -7.757 | 2.889 | -2.753 |
| 108 | 4.711  | 5.108  | 5.526  | 8.169 | -7.783 | 2.914 | -2.776 |
| 109 | 4.575  | 4.963  | 5.370  | 8.201 | -7.810 | 2.940 | -2.800 |
| 110 | 4.444  | 4.822  | 5.219  | 8.232 | -7.836 | 2.965 | -2.823 |
| 111 | 4.318  | 4.687  | 5.074  | 8.263 | -7.863 | 2.991 | -2.847 |
| 112 | 4.196  | 4.555  | 4.933  | 8.293 | -7.889 | 3.017 | -2.870 |
| 113 | 4.078  | 4.428  | 4.797  | 8.324 | -7.915 | 3.043 | -2.894 |
| 114 | 3.964  | 4.306  | 4.666  | 8.354 | -7.941 | 3.069 | -2.918 |
| 115 | 3.854  | 4.187  | 4.538  | 8.385 | -7.967 | 3.096 | -2.941 |
| 116 | 3.747  | 4.073  | 4.415  | 8.415 | -7.992 | 3.122 | -2.965 |
| 117 | 3.644  | 3.962  | 4.297  | 8.445 | -8.017 | 3.149 | -2.990 |
| 118 | 3.545  | 3.855  | 4.182  | 8.474 | -8.043 | 3.175 | -3.014 |

|     |       |       |       |       |        |       |        |
|-----|-------|-------|-------|-------|--------|-------|--------|
| 119 | 3.449 | 3.751 | 4.071 | 8.504 | -8.068 | 3.202 | -3.038 |
| 120 | 3.356 | 3.651 | 3.963 | 8.533 | -8.092 | 3.229 | -3.062 |
| 121 | 3.266 | 3.555 | 3.859 | 8.562 | -8.117 | 3.256 | -3.087 |
| 122 | 3.179 | 3.461 | 3.758 | 8.591 | -8.142 | 3.283 | -3.112 |
| 123 | 3.095 | 3.371 | 3.661 | 8.620 | -8.166 | 3.311 | -3.136 |
| 124 | 3.014 | 3.283 | 3.567 | 8.649 | -8.190 | 3.338 | -3.161 |
| 125 | 2.936 | 3.199 | 3.476 | 8.677 | -8.214 | 3.366 | -3.186 |



南京时恒阻值误差曲线图

