



# 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 系列测温型 NTC 热敏电阻器

产品规格:

PART NUMBER MF52A1 103G3380(UL:E240991)

日期:

DATE 2021 年 04 月 22 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: 王月婷

业务员审核: \_\_\_\_\_

技术部审核: 程鹏

品质部审核: 李竹媛

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南京时恒电子科技有限公司

# MF52 系列测温型 NTC 热敏电阻器

型号: MF52A1 103G3380

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、使用要求等参数, 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, 请与我们取得联系!

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

## 1. 电气性能

| 项目  | 项目           | 符号                       | 测试条件   | 单位                     | 性能要求   |
|-----|--------------|--------------------------|--|------------------------|--|
| 1.1 | 25°C 的零功率电阻值 | $R_{25^{\circ}\text{C}}$ | $T_a=25\pm 0.01^{\circ}\text{C}$ 测试功率 $\leq 0.1\text{mW}$  | K $\Omega$             | $10\text{K}\Omega \pm 2\%$                     |
| 1.2 | B 值          | $B_{25/50}$              | $B=[(T_a \times T_b)/(T_b - T_a)] \times \ln(R_a/R_b)$<br>$T_a=25\pm 0.01^{\circ}\text{C}$ $T_b=50^{\circ}\text{C} \pm 0.01^{\circ}\text{C}$ | K                      | $3380 \pm 1\%$                                 |
| 1.3 | 耗散系数         | $\delta$                 | 静止空气中  | mW/ $^{\circ}\text{C}$ | $\geq 2$                                       |
| 1.4 | 时间常数         | $\tau$                   | 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       | $P_{\text{max}}$         | /  | 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  | $R_{25} \Delta R/R \leq \pm 2\%$           |

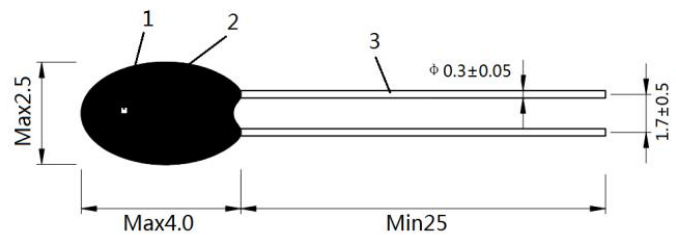
## 3. 使用注意事项

- 本产品的用途: 温度测量与控制;
- 避免过大的电流引起元件自身发热而产生测量误差;
- 烙铁焊接时, 焊接处距密封头部距离至少 2mm, 焊接温度应低于  $360^{\circ}\text{C}$ , 焊接时间  $< 3\text{ses}$ ;
- 储存温度:  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ; 储存湿度:  $\leq 75\% \text{RH}$ ;
- 避免存放在具有腐蚀性气体及光照的环境下;
- 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;
- 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  $110^{\circ}\text{C}/10-12\text{min}$  进行热缩;

## 4. 认证

- 质量管理体系认证 ISO9001:2015  
IATF16949:2016
- 环境管理体系认证 ISO14001:2015
- NTC 核心元件通过 UL 认证
- 环保检测报告 ROHS
- 产品 CQC 认证
- 江苏省高新技术产品认证
- 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 (芯片) | 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 A1 103 G 3380

①

②

③

④

⑤

① MF52: 系列测温型 NTC 热敏电阻

② A1: 引线为镀锡铜包钢线

③ 103: 25°C 的零功率电阻值 10K $\Omega$

④ G: 阻值精度代码 F- $\pm 1\%$  G- $\pm 2\%$  H- $\pm 3\%$  J- $\pm 5\%$

⑤ 3380: B<sub>25/50</sub> 值 3380K

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附表 1

## 南京时恒阻温特性表

R25=10K $\Omega$  精度:±2% B25/50=3380K B25/85=3435K 精度:±1%(P174-9A)

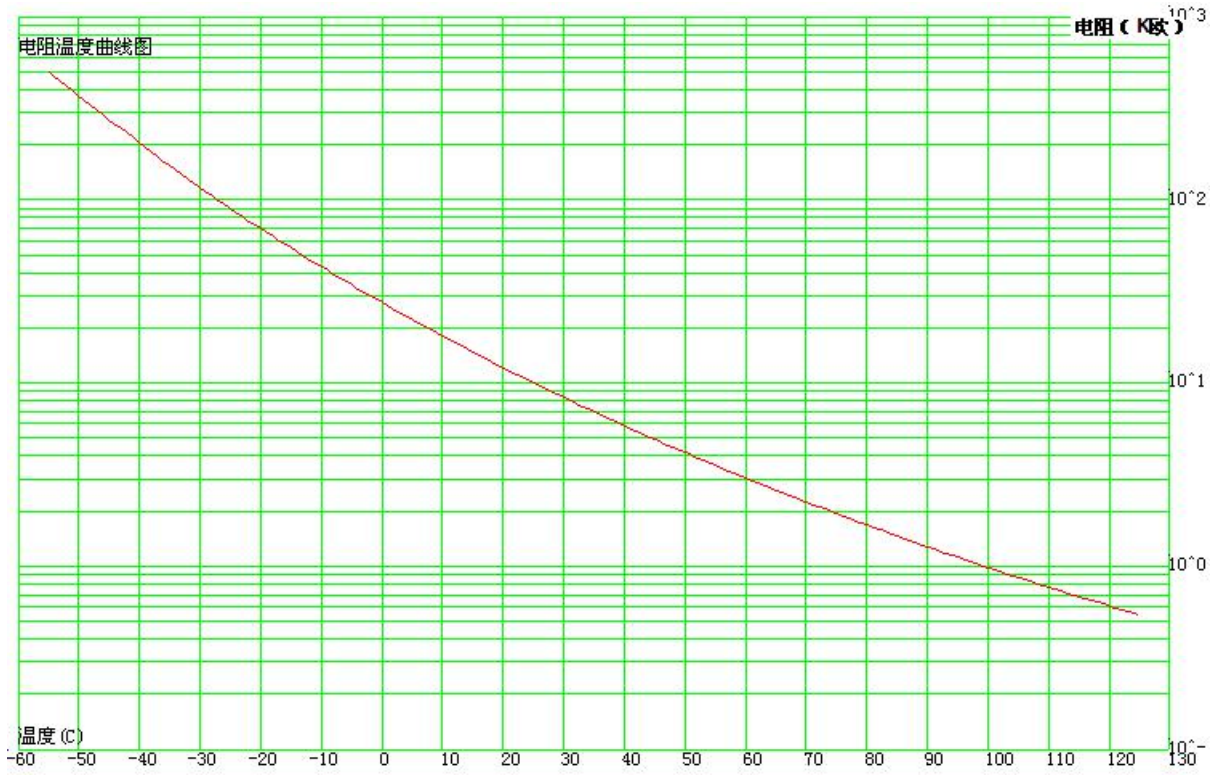
| 温度(°C) | 电阻(k $\Omega$ ) |         |         | 电阻精度(%)    |             | 温度精度(°C)   |             |
|--------|-----------------|---------|---------|------------|-------------|------------|-------------|
|        | 最小值             | 中心值     | 最大值     | $\Delta R$ | $-\Delta R$ | $\Delta T$ | $-\Delta T$ |
| -55    | 471.322         | 500.130 | 530.485 | 6.069      | -5.760      | 0.908      | -0.861      |
| -54    | 445.034         | 471.961 | 500.317 | 6.008      | -5.705      | 0.905      | -0.859      |
| -53    | 419.816         | 444.955 | 471.410 | 5.945      | -5.649      | 0.902      | -0.857      |
| -52    | 395.744         | 419.191 | 443.850 | 5.882      | -5.593      | 0.899      | -0.855      |
| -51    | 372.859         | 394.713 | 417.681 | 5.818      | -5.536      | 0.896      | -0.852      |
| -50    | 351.176         | 371.534 | 392.915 | 5.754      | -5.479      | 0.893      | -0.850      |
| -49    | 330.687         | 349.645 | 369.542 | 5.690      | -5.422      | 0.890      | -0.848      |
| -48    | 311.369         | 329.020 | 347.532 | 5.626      | -5.364      | 0.887      | -0.846      |
| -47    | 293.190         | 309.621 | 326.843 | 5.562      | -5.307      | 0.884      | -0.844      |
| -46    | 276.105         | 291.402 | 307.424 | 5.498      | -5.249      | 0.881      | -0.842      |
| -45    | 260.066         | 274.309 | 289.217 | 5.434      | -5.192      | 0.879      | -0.839      |
| -44    | 245.024         | 258.287 | 272.160 | 5.371      | -5.135      | 0.876      | -0.837      |
| -43    | 230.923         | 243.278 | 256.191 | 5.307      | -5.078      | 0.872      | -0.835      |
| -42    | 217.712         | 229.223 | 241.247 | 5.245      | -5.021      | 0.869      | -0.832      |
| -41    | 205.337         | 216.066 | 227.265 | 5.183      | -4.965      | 0.866      | -0.830      |
| -40    | 193.745         | 203.750 | 214.184 | 5.121      | -4.909      | 0.863      | -0.827      |
| -39    | 182.889         | 192.220 | 201.947 | 5.060      | -4.854      | 0.860      | -0.825      |
| -38    | 172.719         | 181.427 | 190.497 | 4.999      | -4.799      | 0.857      | -0.822      |
| -37    | 163.191         | 171.320 | 179.782 | 4.939      | -4.744      | 0.853      | -0.820      |
| -36    | 154.261         | 161.854 | 169.752 | 4.879      | -4.690      | 0.850      | -0.817      |
| -35    | 145.890         | 152.984 | 160.359 | 4.820      | -4.637      | 0.846      | -0.814      |
| -34    | 138.039         | 144.670 | 151.559 | 4.762      | -4.583      | 0.843      | -0.811      |
| -33    | 130.672         | 136.874 | 143.312 | 4.704      | -4.530      | 0.839      | -0.808      |
| -32    | 123.757         | 129.559 | 135.580 | 4.646      | -4.478      | 0.836      | -0.806      |
| -31    | 117.263         | 122.694 | 128.325 | 4.589      | -4.426      | 0.832      | -0.803      |
| -30    | 111.161         | 116.247 | 121.517 | 4.533      | -4.374      | 0.828      | -0.799      |
| -29    | 105.425         | 110.189 | 115.122 | 4.477      | -4.323      | 0.825      | -0.796      |
| -28    | 100.029         | 104.494 | 109.115 | 4.421      | -4.272      | 0.821      | -0.793      |
| -27    | 94.951          | 99.137  | 103.467 | 4.366      | -4.222      | 0.817      | -0.790      |
| -26    | 90.170          | 94.096  | 98.154  | 4.312      | -4.172      | 0.813      | -0.786      |
| -25    | 85.666          | 89.350  | 93.154  | 4.258      | -4.122      | 0.809      | -0.783      |
| -24    | 81.420          | 84.877  | 88.447  | 4.204      | -4.073      | 0.805      | -0.779      |
| -23    | 77.416          | 80.662  | 84.011  | 4.151      | -4.024      | 0.800      | -0.776      |
| -22    | 73.637          | 76.687  | 79.830  | 4.099      | -3.976      | 0.796      | -0.772      |
| -21    | 70.070          | 72.935  | 75.887  | 4.047      | -3.928      | 0.792      | -0.769      |
| -20    | 66.701          | 69.394  | 72.166  | 3.995      | -3.880      | 0.787      | -0.765      |
| -19    | 63.517          | 66.049  | 68.654  | 3.943      | -3.832      | 0.783      | -0.761      |
| -18    | 60.507          | 62.888  | 65.336  | 3.892      | -3.785      | 0.779      | -0.757      |
| -17    | 57.660          | 59.900  | 62.201  | 3.842      | -3.738      | 0.774      | -0.753      |

|     |        |        |        |       |        |       |        |
|-----|--------|--------|--------|-------|--------|-------|--------|
| -16 | 54.966 | 57.073 | 59.237 | 3.792 | -3.692 | 0.769 | -0.749 |
| -15 | 52.415 | 54.398 | 56.434 | 3.742 | -3.645 | 0.765 | -0.745 |
| -14 | 49.999 | 51.866 | 53.781 | 3.692 | -3.599 | 0.760 | -0.741 |
| -13 | 47.710 | 49.468 | 51.270 | 3.643 | -3.554 | 0.755 | -0.737 |
| -12 | 45.539 | 47.196 | 48.892 | 3.595 | -3.508 | 0.750 | -0.732 |
| -11 | 43.482 | 45.042 | 46.639 | 3.546 | -3.463 | 0.745 | -0.728 |
| -10 | 41.529 | 43.000 | 44.504 | 3.498 | -3.419 | 0.740 | -0.724 |
| -9  | 39.677 | 41.062 | 42.479 | 3.450 | -3.374 | 0.735 | -0.719 |
| -8  | 37.918 | 39.224 | 40.559 | 3.403 | -3.330 | 0.730 | -0.715 |
| -7  | 36.247 | 37.479 | 38.737 | 3.356 | -3.286 | 0.725 | -0.710 |
| -6  | 34.660 | 35.822 | 37.007 | 3.309 | -3.242 | 0.720 | -0.705 |
| -5  | 33.152 | 34.247 | 35.365 | 3.263 | -3.199 | 0.715 | -0.701 |
| -4  | 31.718 | 32.751 | 33.805 | 3.217 | -3.155 | 0.709 | -0.696 |
| -3  | 30.354 | 31.329 | 32.323 | 3.171 | -3.112 | 0.704 | -0.691 |
| -2  | 29.057 | 29.977 | 30.915 | 3.126 | -3.070 | 0.699 | -0.686 |
| -1  | 27.823 | 28.691 | 29.575 | 3.080 | -3.027 | 0.693 | -0.681 |
| 0   | 26.691 | 27.513 | 28.348 | 3.037 | -2.986 | 0.687 | -0.675 |
| 1   | 25.529 | 26.303 | 27.090 | 2.991 | -2.943 | 0.682 | -0.671 |
| 2   | 24.464 | 25.195 | 25.937 | 2.946 | -2.901 | 0.676 | -0.666 |
| 3   | 23.449 | 24.139 | 24.840 | 2.902 | -2.859 | 0.671 | -0.661 |
| 4   | 22.482 | 23.134 | 23.795 | 2.859 | -2.818 | 0.665 | -0.655 |
| 5   | 21.560 | 22.176 | 22.800 | 2.815 | -2.777 | 0.659 | -0.650 |
| 6   | 20.681 | 21.263 | 21.852 | 2.772 | -2.736 | 0.653 | -0.645 |
| 7   | 19.843 | 20.392 | 20.949 | 2.729 | -2.695 | 0.647 | -0.639 |
| 8   | 19.043 | 19.562 | 20.088 | 2.686 | -2.655 | 0.641 | -0.634 |
| 9   | 18.280 | 18.771 | 19.267 | 2.644 | -2.615 | 0.635 | -0.628 |
| 10  | 17.552 | 18.016 | 18.484 | 2.602 | -2.575 | 0.629 | -0.623 |
| 11  | 16.856 | 17.295 | 17.738 | 2.560 | -2.535 | 0.623 | -0.617 |
| 12  | 16.192 | 16.607 | 17.025 | 2.518 | -2.495 | 0.617 | -0.611 |
| 13  | 15.558 | 15.950 | 16.345 | 2.477 | -2.456 | 0.611 | -0.605 |
| 14  | 14.952 | 15.323 | 15.696 | 2.436 | -2.417 | 0.604 | -0.600 |
| 15  | 14.374 | 14.724 | 15.076 | 2.395 | -2.378 | 0.598 | -0.594 |
| 16  | 13.820 | 14.151 | 14.485 | 2.354 | -2.339 | 0.591 | -0.588 |
| 17  | 13.291 | 13.604 | 13.919 | 2.314 | -2.301 | 0.585 | -0.581 |
| 18  | 12.785 | 13.081 | 13.379 | 2.274 | -2.262 | 0.578 | -0.575 |
| 19  | 12.301 | 12.581 | 12.863 | 2.234 | -2.224 | 0.572 | -0.569 |
| 20  | 11.839 | 12.103 | 12.369 | 2.194 | -2.186 | 0.565 | -0.563 |
| 21  | 11.396 | 11.646 | 11.897 | 2.155 | -2.149 | 0.558 | -0.556 |
| 22  | 10.972 | 11.208 | 11.445 | 2.116 | -2.111 | 0.550 | -0.549 |
| 23  | 10.566 | 10.789 | 11.014 | 2.077 | -2.074 | 0.542 | -0.542 |
| 24  | 10.177 | 10.389 | 10.600 | 2.038 | -2.037 | 0.532 | -0.532 |
| 25  | 9.800  | 10.000 | 10.200 | 2.000 | -2.000 | 0.525 | -0.525 |
| 26  | 9.441  | 9.637  | 9.834  | 2.037 | -2.036 | 0.553 | -0.553 |
| 27  | 9.093  | 9.285  | 9.478  | 2.075 | -2.072 | 0.563 | -0.562 |
| 28  | 8.759  | 8.948  | 9.137  | 2.113 | -2.108 | 0.576 | -0.575 |

|    |       |       |       |       |        |       |        |
|----|-------|-------|-------|-------|--------|-------|--------|
| 29 | 8.439 | 8.624 | 8.810 | 2.150 | -2.144 | 0.589 | -0.587 |
| 30 | 8.133 | 8.315 | 8.497 | 2.188 | -2.180 | 0.602 | -0.600 |
| 31 | 7.840 | 8.018 | 8.196 | 2.225 | -2.216 | 0.616 | -0.614 |
| 32 | 7.559 | 7.733 | 7.908 | 2.262 | -2.251 | 0.630 | -0.627 |
| 33 | 7.289 | 7.459 | 7.631 | 2.299 | -2.286 | 0.644 | -0.641 |
| 34 | 7.030 | 7.197 | 7.365 | 2.335 | -2.321 | 0.658 | -0.654 |
| 35 | 6.782 | 6.946 | 7.111 | 2.372 | -2.356 | 0.672 | -0.668 |
| 36 | 6.544 | 6.704 | 6.866 | 2.408 | -2.390 | 0.687 | -0.682 |
| 37 | 6.316 | 6.473 | 6.631 | 2.444 | -2.425 | 0.701 | -0.696 |
| 38 | 6.096 | 6.250 | 6.405 | 2.480 | -2.459 | 0.716 | -0.710 |
| 39 | 5.886 | 6.036 | 6.188 | 2.516 | -2.493 | 0.730 | -0.724 |
| 40 | 5.684 | 5.831 | 5.980 | 2.551 | -2.527 | 0.745 | -0.738 |
| 41 | 5.490 | 5.634 | 5.780 | 2.586 | -2.560 | 0.760 | -0.752 |
| 42 | 5.303 | 5.444 | 5.587 | 2.621 | -2.593 | 0.775 | -0.766 |
| 43 | 5.124 | 5.262 | 5.402 | 2.656 | -2.627 | 0.789 | -0.781 |
| 44 | 4.952 | 5.087 | 5.224 | 2.691 | -2.660 | 0.804 | -0.795 |
| 45 | 4.786 | 4.918 | 5.053 | 2.726 | -2.692 | 0.820 | -0.810 |
| 46 | 4.627 | 4.756 | 4.888 | 2.760 | -2.725 | 0.835 | -0.824 |
| 47 | 4.474 | 4.601 | 4.729 | 2.794 | -2.757 | 0.850 | -0.839 |
| 48 | 4.326 | 4.451 | 4.577 | 2.828 | -2.790 | 0.865 | -0.853 |
| 49 | 4.185 | 4.306 | 4.430 | 2.862 | -2.822 | 0.881 | -0.868 |
| 50 | 4.049 | 4.168 | 4.288 | 2.896 | -2.853 | 0.896 | -0.883 |
| 51 | 3.917 | 4.034 | 4.152 | 2.930 | -2.885 | 0.912 | -0.898 |
| 52 | 3.791 | 3.905 | 4.021 | 2.963 | -2.917 | 0.928 | -0.913 |
| 53 | 3.670 | 3.781 | 3.894 | 2.996 | -2.948 | 0.943 | -0.928 |
| 54 | 3.552 | 3.662 | 3.773 | 3.029 | -2.979 | 0.959 | -0.943 |
| 55 | 3.440 | 3.546 | 3.655 | 3.062 | -3.010 | 0.975 | -0.959 |
| 56 | 3.331 | 3.436 | 3.542 | 3.095 | -3.041 | 0.991 | -0.974 |
| 57 | 3.226 | 3.329 | 3.433 | 3.128 | -3.071 | 1.007 | -0.989 |
| 58 | 3.126 | 3.226 | 3.328 | 3.160 | -3.102 | 1.023 | -1.005 |
| 59 | 3.028 | 3.126 | 3.226 | 3.192 | -3.132 | 1.040 | -1.020 |
| 60 | 2.935 | 3.030 | 3.128 | 3.224 | -3.162 | 1.056 | -1.036 |
| 61 | 2.844 | 2.938 | 3.034 | 3.256 | -3.192 | 1.072 | -1.051 |
| 62 | 2.757 | 2.849 | 2.943 | 3.288 | -3.222 | 1.089 | -1.067 |
| 63 | 2.673 | 2.763 | 2.855 | 3.320 | -3.252 | 1.106 | -1.083 |
| 64 | 2.592 | 2.680 | 2.770 | 3.351 | -3.281 | 1.122 | -1.099 |
| 65 | 2.514 | 2.600 | 2.688 | 3.383 | -3.311 | 1.139 | -1.115 |
| 66 | 2.438 | 2.522 | 2.609 | 3.414 | -3.340 | 1.156 | -1.131 |
| 67 | 2.365 | 2.448 | 2.532 | 3.445 | -3.369 | 1.173 | -1.147 |
| 68 | 2.295 | 2.376 | 2.458 | 3.476 | -3.398 | 1.190 | -1.163 |
| 69 | 2.227 | 2.306 | 2.387 | 3.507 | -3.427 | 1.207 | -1.179 |
| 70 | 2.161 | 2.239 | 2.318 | 3.537 | -3.455 | 1.224 | -1.195 |
| 71 | 2.098 | 2.174 | 2.251 | 3.568 | -3.484 | 1.241 | -1.212 |
| 72 | 2.037 | 2.111 | 2.187 | 3.598 | -3.512 | 1.258 | -1.228 |
| 73 | 1.978 | 2.050 | 2.125 | 3.628 | -3.540 | 1.276 | -1.245 |

|     |       |       |       |       |        |       |        |
|-----|-------|-------|-------|-------|--------|-------|--------|
| 74  | 1.920 | 1.992 | 2.064 | 3.659 | -3.568 | 1.293 | -1.261 |
| 75  | 1.865 | 1.935 | 2.006 | 3.688 | -3.596 | 1.311 | -1.278 |
| 76  | 1.812 | 1.880 | 1.950 | 3.718 | -3.624 | 1.329 | -1.295 |
| 77  | 1.760 | 1.827 | 1.895 | 3.748 | -3.651 | 1.346 | -1.312 |
| 78  | 1.710 | 1.776 | 1.843 | 3.777 | -3.679 | 1.364 | -1.328 |
| 79  | 1.662 | 1.726 | 1.792 | 3.807 | -3.706 | 1.382 | -1.345 |
| 80  | 1.615 | 1.678 | 1.743 | 3.836 | -3.733 | 1.400 | -1.362 |
| 81  | 1.570 | 1.632 | 1.695 | 3.865 | -3.760 | 1.418 | -1.379 |
| 82  | 1.527 | 1.587 | 1.649 | 3.894 | -3.787 | 1.436 | -1.397 |
| 83  | 1.484 | 1.543 | 1.604 | 3.923 | -3.813 | 1.454 | -1.414 |
| 84  | 1.444 | 1.501 | 1.561 | 3.952 | -3.840 | 1.473 | -1.431 |
| 85  | 1.404 | 1.461 | 1.519 | 3.980 | -3.866 | 1.491 | -1.449 |
| 86  | 1.366 | 1.421 | 1.478 | 4.009 | -3.893 | 1.510 | -1.466 |
| 87  | 1.329 | 1.383 | 1.439 | 4.037 | -3.919 | 1.528 | -1.483 |
| 88  | 1.293 | 1.346 | 1.401 | 4.065 | -3.945 | 1.547 | -1.501 |
| 89  | 1.258 | 1.310 | 1.364 | 4.093 | -3.971 | 1.566 | -1.519 |
| 90  | 1.224 | 1.275 | 1.328 | 4.121 | -3.997 | 1.584 | -1.536 |
| 91  | 1.192 | 1.242 | 1.293 | 4.149 | -4.022 | 1.603 | -1.554 |
| 92  | 1.160 | 1.209 | 1.260 | 4.177 | -4.048 | 1.622 | -1.572 |
| 93  | 1.130 | 1.178 | 1.227 | 4.204 | -4.073 | 1.641 | -1.590 |
| 94  | 1.100 | 1.147 | 1.196 | 4.232 | -4.098 | 1.661 | -1.608 |
| 95  | 1.071 | 1.118 | 1.165 | 4.259 | -4.123 | 1.680 | -1.626 |
| 96  | 1.044 | 1.089 | 1.136 | 4.286 | -4.148 | 1.699 | -1.645 |
| 97  | 1.017 | 1.061 | 1.107 | 4.313 | -4.173 | 1.719 | -1.663 |
| 98  | 0.991 | 1.034 | 1.079 | 4.340 | -4.198 | 1.738 | -1.681 |
| 99  | 0.965 | 1.008 | 1.052 | 4.367 | -4.222 | 1.758 | -1.700 |
| 100 | 0.941 | 0.983 | 1.026 | 4.393 | -4.247 | 1.777 | -1.718 |
| 101 | 0.917 | 0.958 | 1.000 | 4.420 | -4.271 | 1.797 | -1.737 |
| 102 | 0.894 | 0.934 | 0.976 | 4.446 | -4.295 | 1.817 | -1.755 |
| 103 | 0.872 | 0.911 | 0.952 | 4.472 | -4.319 | 1.837 | -1.774 |
| 104 | 0.850 | 0.888 | 0.928 | 4.498 | -4.343 | 1.857 | -1.793 |
| 105 | 0.829 | 0.867 | 0.906 | 4.524 | -4.367 | 1.877 | -1.812 |
| 106 | 0.808 | 0.846 | 0.884 | 4.550 | -4.390 | 1.897 | -1.831 |
| 107 | 0.789 | 0.825 | 0.863 | 4.576 | -4.414 | 1.918 | -1.850 |
| 108 | 0.769 | 0.805 | 0.842 | 4.601 | -4.437 | 1.938 | -1.869 |
| 109 | 0.751 | 0.786 | 0.822 | 4.626 | -4.460 | 1.959 | -1.888 |
| 110 | 0.733 | 0.767 | 0.803 | 4.652 | -4.483 | 1.979 | -1.907 |
| 111 | 0.715 | 0.749 | 0.784 | 4.677 | -4.506 | 2.000 | -1.927 |
| 112 | 0.698 | 0.731 | 0.766 | 4.702 | -4.529 | 2.021 | -1.946 |
| 113 | 0.682 | 0.714 | 0.748 | 4.727 | -4.551 | 2.041 | -1.966 |
| 114 | 0.666 | 0.698 | 0.731 | 4.751 | -4.574 | 2.062 | -1.985 |
| 115 | 0.650 | 0.681 | 0.714 | 4.776 | -4.596 | 2.083 | -2.005 |
| 116 | 0.635 | 0.666 | 0.698 | 4.800 | -4.618 | 2.105 | -2.025 |
| 117 | 0.620 | 0.651 | 0.682 | 4.824 | -4.640 | 2.126 | -2.045 |
| 118 | 0.606 | 0.636 | 0.667 | 4.848 | -4.662 | 2.147 | -2.065 |

|     |       |       |       |       |        |       |        |
|-----|-------|-------|-------|-------|--------|-------|--------|
| 119 | 0.592 | 0.621 | 0.652 | 4.872 | -4.684 | 2.169 | -2.085 |
| 120 | 0.579 | 0.607 | 0.637 | 4.896 | -4.706 | 2.190 | -2.105 |
| 121 | 0.566 | 0.594 | 0.623 | 4.920 | -4.727 | 2.212 | -2.125 |
| 122 | 0.553 | 0.581 | 0.609 | 4.943 | -4.748 | 2.233 | -2.145 |
| 123 | 0.541 | 0.568 | 0.596 | 4.967 | -4.770 | 2.255 | -2.166 |
| 124 | 0.529 | 0.556 | 0.583 | 4.990 | -4.791 | 2.277 | -2.186 |
| 125 | 0.517 | 0.544 | 0.571 | 5.013 | -4.812 | 2.299 | -2.207 |



附表 2

南京时恒阻值误差曲线图

