



南京时恒电子科技有限公司  
Nanjing Shiheng Electronics Co.,Ltd.  
规格承认书

APPROVAL SHEET

客户名称 CUSTOMER :

产品名称 PART NAME :

产品规格 PART NUMBER :

产品编号 PRODUCTCODE:

版次 REV.NO:

日期 DATE:

MF52 测温型 NTC 热敏电阻器

MF52 Series Temp Measurement NTC Thermistor

MF52DE1 103F3950

B0

2023-10-31

确认

CONFIRM

| 客户 CLIENT               |  | 供货商/制造商 MANUFACTOR        |     |
|-------------------------|--|---------------------------|-----|
| 品保部<br>Quality Dep.     |  | 规格书制作<br>Design           | 刘星月 |
| 制造部<br>Production Dep.  |  | 业务部审核<br>Checked by sales |     |
| 工程部<br>Engineering Dep. |  | 技术部审核<br>Checked by R&D   | 程鹏  |
|                         |  | 品质部审核<br>Checked by QA    | 李少媛 |

南京时恒电子科技有限公司

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# 变更记录表

## REVISED RECORD SHEET

[illegible]

## 1、产品型号说明 Product model specification

**MF52 DE1 103 F 3950**

① ② ③ ④ ⑤

- ① MF52: 测温型 NTC 热敏电阻器系列 (Series Temp Measurement NTC Thermistor)
- ② DE1: 指引线  $\phi 0.3$  镀锡铜包钢线(  $\phi 0.3$ tinned copper-weld steel wire);
- ③ 103: 25℃的零功率电阻值 10K $\Omega$ (Zero Power Resistance at 25℃is 10K $\Omega$ )
- ④ F: 阻值精度代码 F- $\pm 1\%$  G- $\pm 2\%$  H- $\pm 3\%$  J- $\pm 5\%$  (Resistance precision code F- $\pm 1\%$  G- $\pm 2\%$  H- $\pm 3\%$  J- $\pm 5\%$ )
- ⑤ 3950: B25/50 值 3950K (B25/50:3950K)

## 2、电气性能 Electrical Characteristics

| No. | 项目<br>Item                                            | 符号<br>Symbol       | 测试条件<br>Test conditions                                                                                                  | 单位<br>Unit | 性能要求<br>Requirements            |
|-----|-------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------|
| 2.1 | 25℃的零功率电阻值<br>Zero Power Resistance at 25℃            | R <sub>25℃</sub>   | T <sub>a</sub> =25 $\pm$ 0.01℃<br>Test Power $\leq$ 0.1mW                                                                | K $\Omega$ | 10K $\Omega$ $\pm$ 1%           |
| 2.2 | B 值<br>B-value                                        | B <sub>25/50</sub> | $B=[(T_a \times T_b)/(T_b - T_a)] \times \ln(R_a/R_b)$<br>T <sub>a</sub> =25 $\pm$ 0.01℃ T <sub>b</sub> =50℃ $\pm$ 0.01℃ | K          | 3950 $\pm$ 1%                   |
| 2.3 | 耗散系数<br>Thermal dissipation Coefficient               | $\delta$           | 静止空气中<br>In still air                                                                                                    | mW/℃       | 约 2                             |
| 2.4 | 时间常数<br>Thermal time constant                         | $\tau$             | 静止空气中<br>In still air                                                                                                    | sec        | 约 7                             |
| 2.5 | 绝缘电阻<br>Insulation resistance                         | /                  | 100V/DC 1min                                                                                                             | M $\Omega$ | $\geq$ 100                      |
| 2.6 | 工作温度范围<br>Operating temperature range                 | /                  | /                                                                                                                        | ℃          | -40℃ $\sim$ 125℃                |
| 2.7 | 最大额定功率<br>Maximum rated power                         | P <sub>max</sub>   | /                                                                                                                        | mW         | 100                             |
| 2.8 | 阻温特性<br>R&T-table                                     | /                  | /                                                                                                                        | /          | 见附表 I<br>See attached table I   |
| 2.9 | 阻值误差&B 值误差<br>Resistance tolerance& B-value tolerance | /                  | /                                                                                                                        | /          | 见附表 II<br>See attached table II |

## Product drawing

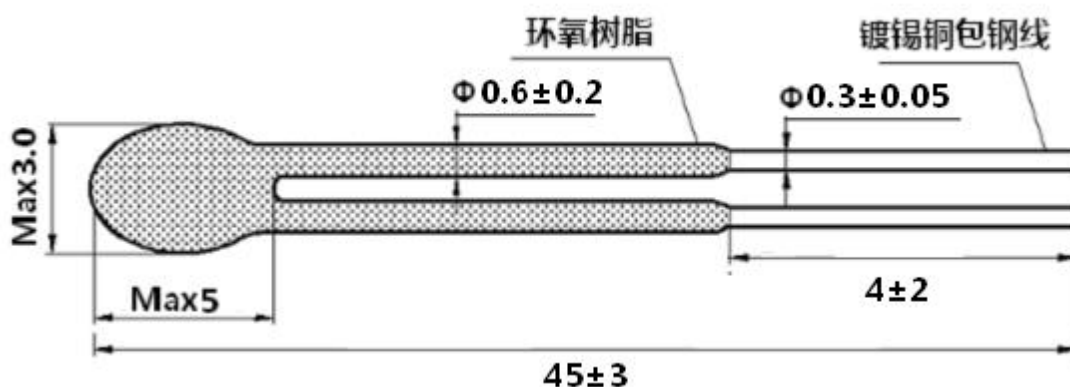
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DATE

MF52DE1 103F3950

(Unit: mm)



- 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 )。

[illegible]

## 4、可靠性 Reliability

| No. | 项目<br>Item                             | 试验标准          | 试验条件及方法<br>Test conditions and methods                                                                                                                                                 | 性能要求<br>Requirements                                             |
|-----|----------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 4.1 | 引出端强度<br>Terminal strength             | IEC60068-2-21 | 固定电阻端, 拉力: $5 \pm 1$ N, 时间: $10 \pm 1$ 秒<br>Fixed resistor end, Pull strength: $5 \pm 1$ N, time: $10 \pm 1$ sec                                                                       | 无可见性损伤<br>No obvious damage<br>$ \Delta R_{25}/R_{25}  \leq 2\%$ |
| 4.2 | 可焊性<br>Solderability                   | IEC60068-2-20 | 温度 $245 \pm 5^\circ\text{C}$ 时间 2-3 秒<br>temperature : $245 \pm 5^\circ\text{C}$ for 2-3sec                                                                                            | 着锡面积 $\geq 95\%$<br>Coverage area $\geq 95\%$ .                  |
| 4.3 | 耐焊接热<br>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 $5 \pm 1$ 秒<br>Temperature of tin pot: $260 \pm 5^\circ\text{C}$ , insert depth from body of resistance 6mm, time $5 \pm 1$ seconds | $ \Delta R_{25}/R_{25}  \leq 2\%$                                |
| 4.3 | 稳态湿热<br>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<br>Temp: $40^\circ\text{C} \pm 2^\circ\text{C}$ , humidity: $93 \pm 2\%$ , Time : 500hrs                    | $ \Delta R_{25}/R_{25}  \leq 2\%$                                |
| 4.4 | 温度快速变化<br>Rapid changes in temperature | IEC60068-2-14 | $-40^\circ\text{C}$ 30min $\rightarrow$ $25^\circ\text{C}$ 5min $\rightarrow$ $125^\circ\text{C}$ 30min $\rightarrow$ $25^\circ\text{C}$ 5min, 5cycles                                 | $ \Delta R_{25}/R_{25}  \leq 2\%$                                |
| 4.5 | 高温储存<br>High temperature storage       | IEC60068-2-2  | 温度: $125^\circ\text{C} \pm 5^\circ\text{C}$<br>时间: 1000 小时<br>Temp : $125^\circ\text{C} \pm 5^\circ\text{C}$ , Time : 1000hrs                                                          | $ \Delta R_{25}/R_{25}  \leq 2\%$                                |
| 4.6 | 低温储存<br>Low temperature storage        | IEC60068-2-1  | 温度: $-40^\circ\text{C}$ 时间: 1000 小时<br>Temp : $-40^\circ\text{C}$ , Time : 1000hrs                                                                                                     | $ \Delta R_{25}/R_{25}  \leq 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<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>$W \times H = 11\text{mm} \times 12\text{mm}$ |                  |

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 using 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

| 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 | 环保检测报告<br>Environmental test report                              | RoHS 2.0                                                                              |
| 8.4 | CQC 认证 (CQC19001222003)<br>CQC certificate (CQC19001222003)      |  |
| 8.5 | 江苏省高新技术产品认证<br>High-tech product certificate in Jiangsu Province |  |
|     |                                                                  |                                                                                       |
|     |                                                                  |                                                                                       |
|     |                                                                  |                                                                                       |

附表 I (Attachment I)

南京时恒阻温特性表 SHIHENG R-T Table

| R25=10K $\Omega$ 精度:±1% B25/50=3950K 精度:±1%(P477-4B) |                                             |         |         |                           |             |                           |             |
|------------------------------------------------------|---------------------------------------------|---------|---------|---------------------------|-------------|---------------------------|-------------|
| 温度(°C)<br>TEMP (°C)                                  | 电阻(K $\Omega$ )<br>RESISTANCE (K $\Omega$ ) |         |         | 电阻精度(%)<br>RESIST-TOL (%) |             | 温度精度(°C)<br>TEMP-TOL (°C) |             |
|                                                      | 最小值                                         | 中心值     | 最大值     | $\Delta R$                | $-\Delta R$ | $\Delta T$                | $-\Delta T$ |
| -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 |



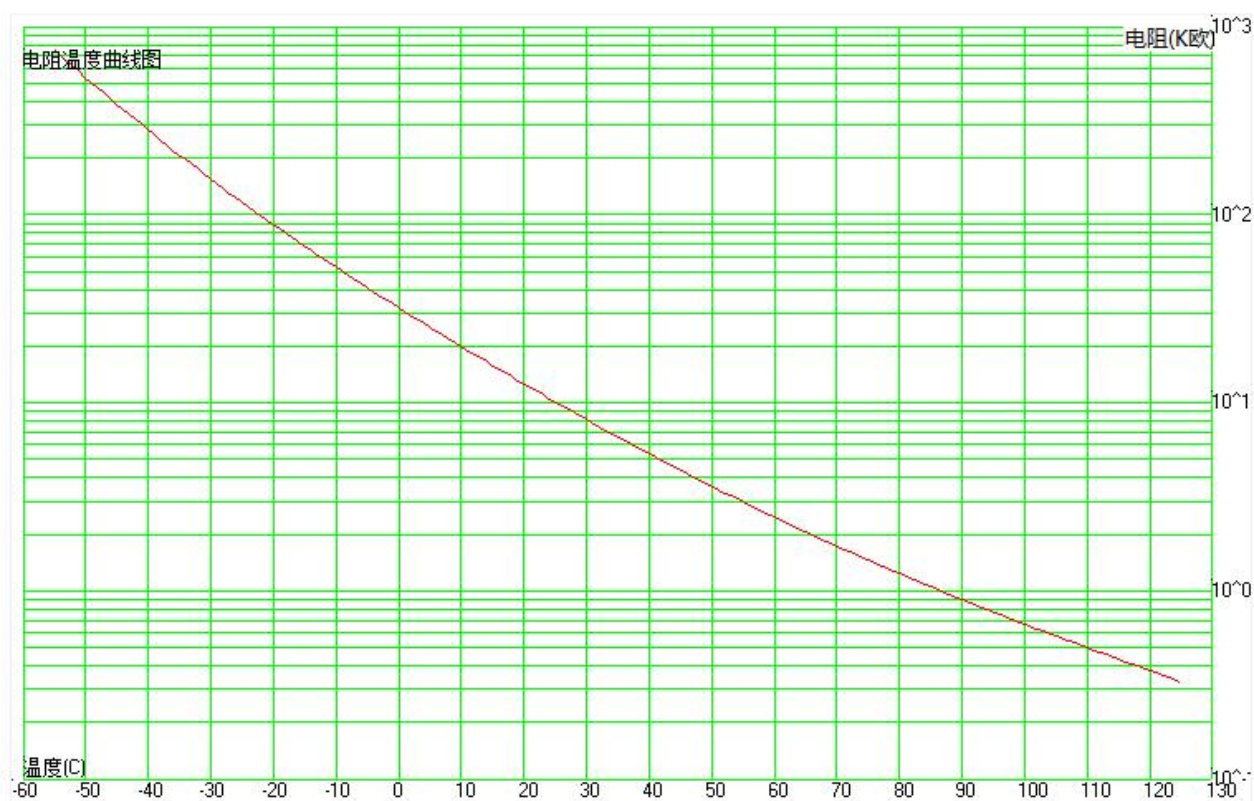


|    |       |       |       |       |        |       |        |
|----|-------|-------|-------|-------|--------|-------|--------|
| 26 | 9.556 | 9.656 | 9.756 | 1.034 | -1.034 | 0.297 | -0.297 |
| 27 | 9.145 | 9.245 | 9.345 | 1.078 | -1.078 | 0.276 | -0.276 |
| 28 | 8.754 | 8.853 | 8.953 | 1.121 | -1.121 | 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)

