



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 :

MF52 测温型 NTC 热敏电阻器

产品名称 PART NAME :

MF52 Series Temp Measurement NTC Thermistor

产品规格 PART NUMBER :

MF52A 153F3950(A1)

产品编号 PRODUCTCODE:

版次 REV.NO:

B0

日期 DATE:

2022-9-23

确认

CONFIRM

| 客户 CLIENT | | 供货商/制造商 MANUFACTOR | |
|-------------------------|--|---------------------------|-----|
| 品保部 Quality Dep. | | 规格书制作 Design | 吴迎丽 |
| 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 |
| | | 品质部审核 Checked by QA | 李少媛 |

南京时恒电子科技有限公司

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1、产品型号说明 Product model specification

MF52 **A** **153** **F** **3950** **(A1)**


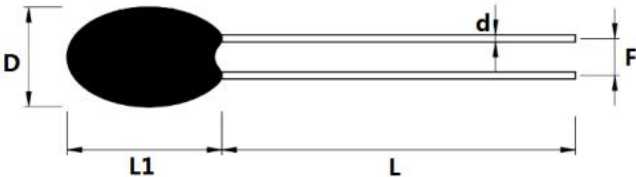
① ② ③ ④ ⑤ ⑥

- 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)
- ③ 153: 25℃ 的零功率电阻值 15KΩ (Zero Power Resistance at 25℃ is 15KΩ)
- 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 (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℃} | T _a =25±0.01℃ Test Power≤0.1mW | KΩ | 15KΩ±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 | 3950±1% |
| 2.3 | 耗散系数 Thermal dissipation Coefficient | δ | 静止空气中 In still air | mW/℃ | ≥2 |
| 2.4 | 时间常数 Thermal time constant | τ | 静止空气中 In still air | sec | ≤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℃~125℃ |
| 2.7 | 最大额定功率 Maximum rated power | P _{max} | / | mW | 50 |
| 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 |

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 153F3950(A1) | 审核 Approve: | | 日期 DATE | |
| 尺寸 Dimensions: (Unit: mm) | | | | | |
|  | | | | | |
| $D \pm 0.4$ | $L1 \pm 1.0$ | $L \pm 2.0$ | $d \pm 0.05$ | $F \pm 0.5$ | |
| 2.1 | 3.0 | 27 | 0.3 | 1.7 | |
| 技术要求 Technical requirements: | | | | | |
| 1) 零功率阻值: R25: $15K \Omega \pm 1\%$ (Zero Power Resistance: R25: $15K\Omega \pm 1\%$); 2) B25/50 数值: $3950K \pm 1\%$ (B-value: B25/50: $3950K \pm 1\%$); 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)。 | | | | | |
| 更新履历 Revised record sheet | | | | | |
| 版本 REV. NO | 更新时间 REV. DATE | 更新内容 Change content | | 申请人 Applicant | 批准人 Approved |
| B0 | | 版本发行 | | 王月婷 | 李少媛 |
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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 $R_{25} \Delta R/R \leq \pm 2\%$ |
| 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 | $R_{25} \Delta R/R \leq \pm 2\%$ |
| 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 | $R_{25} \Delta R/R \leq \pm 2\%$ |
| 4.4 | 温度快速变化 Rapid changes in temperature | IEC60068-2-14 | -55°C 30min $\rightarrow 25^\circ\text{C}$ 5min $\rightarrow 125^\circ\text{C}$ 30min $\rightarrow 25^\circ\text{C}$ 5min, 5cycles | $R_{25} \Delta R/R \leq \pm 2\%$ |
| 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 | $R_{25} \Delta R/R \leq \pm 2\%$ |
| 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 | $R_{25} \Delta R/R \leq \pm 2\%$ |

▲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 CQC certificate |  |
| 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 UL certificate | E240991 |
| 8.7 | TUV 认证 TUV certificate | |
| | | |

附表 I (Attachment I)

南京时恒阻温特性表 SHIHENG R-T Table

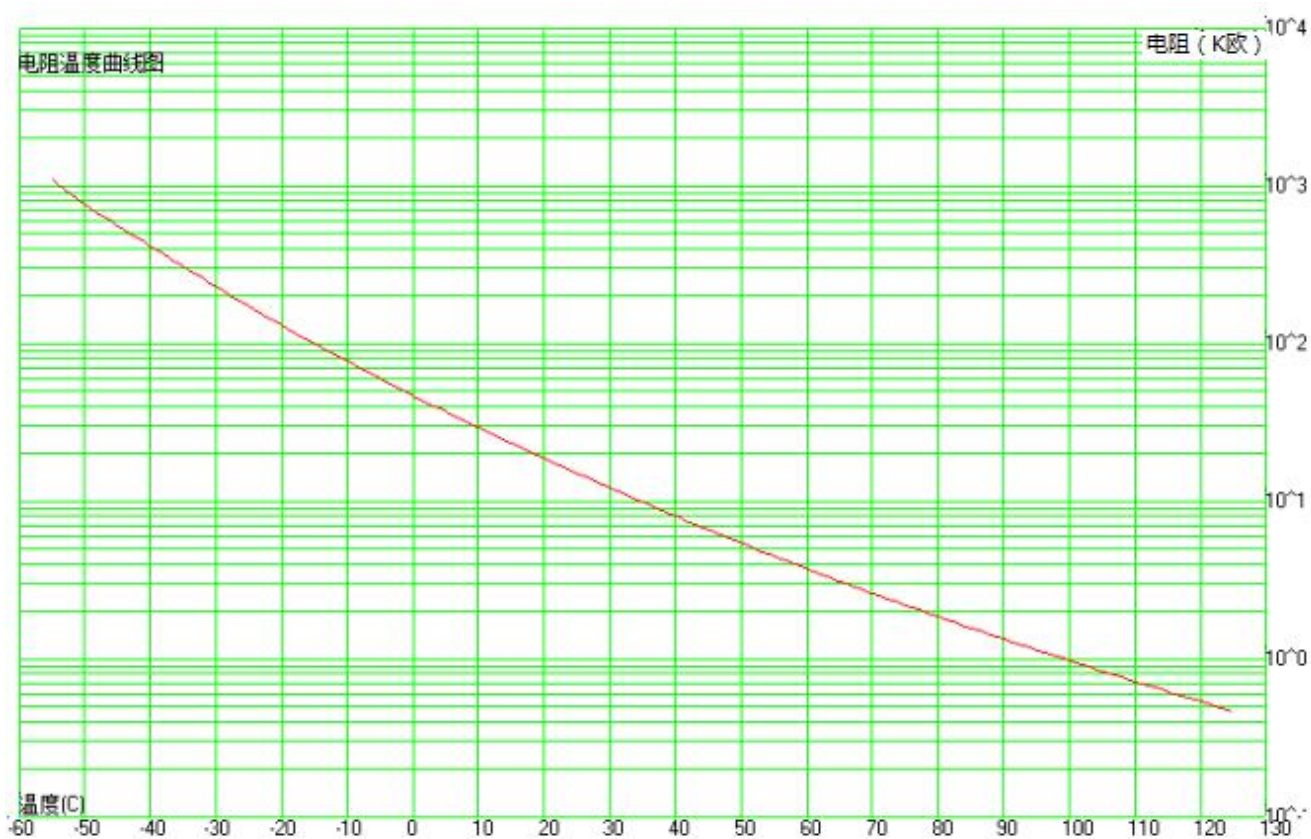
| R25=15KΩ 精度:±1% B25/50=3950K 精度:±1%(P261-12D) | | | | | | | |
|---|--------------------------|----------|----------|---------------------------|--------|--------------------------|--------|
| 温度(°C) TEMP(°C) | 电阻(KΩ) RESISTANCE(KΩ) | | | 电阻精度(%) RESISST-TOL(%) | | 温度精度(°C) TEMP-TOL(°C) | |
| | 最小值 | 中心值 | 最大值 | ΔR | -ΔR | ΔT | -ΔT |
| -55 | 1042.740 | 1099.500 | 1159.220 | 5.431 | -5.161 | 0.740 | -0.703 |
| -54 | 961.275 | 1012.760 | 1066.890 | 5.345 | -5.083 | 0.736 | -0.700 |
| -53 | 890.709 | 937.692 | 987.055 | 5.264 | -5.010 | 0.733 | -0.697 |
| -52 | 828.729 | 871.807 | 917.034 | 5.187 | -4.941 | 0.729 | -0.694 |
| -51 | 773.600 | 813.247 | 854.841 | 5.114 | -4.875 | 0.725 | -0.691 |
| -50 | 724.016 | 760.612 | 798.979 | 5.044 | -4.811 | 0.721 | -0.687 |
| -49 | 678.982 | 712.840 | 748.312 | 4.976 | -4.749 | 0.716 | -0.684 |
| -48 | 637.742 | 669.120 | 701.972 | 4.909 | -4.689 | 0.712 | -0.680 |
| -47 | 599.713 | 628.829 | 659.293 | 4.844 | -4.630 | 0.708 | -0.676 |
| -46 | 564.443 | 591.484 | 619.759 | 4.780 | -4.571 | 0.703 | -0.673 |
| -45 | 531.582 | 556.712 | 582.972 | 4.716 | -4.513 | 0.699 | -0.669 |
| -44 | 500.857 | 524.219 | 548.616 | 4.653 | -4.456 | 0.694 | -0.665 |
| -43 | 472.049 | 493.772 | 516.443 | 4.591 | -4.399 | 0.689 | -0.660 |
| -42 | 444.985 | 465.185 | 486.253 | 4.528 | -4.342 | 0.684 | -0.656 |
| -41 | 419.523 | 438.306 | 457.884 | 4.466 | -4.285 | 0.680 | -0.652 |
| -40 | 395.546 | 413.010 | 431.201 | 4.404 | -4.228 | 0.675 | -0.648 |
| -39 | 372.954 | 389.189 | 406.091 | 4.342 | -4.171 | 0.670 | -0.643 |
| -38 | 351.663 | 366.753 | 382.453 | 4.280 | -4.114 | 0.665 | -0.639 |
| -37 | 331.597 | 345.621 | 360.203 | 4.218 | -4.057 | 0.660 | -0.635 |
| -36 | 312.688 | 325.720 | 339.260 | 4.157 | -4.000 | 0.655 | -0.630 |
| -35 | 294.874 | 306.981 | 319.554 | 4.095 | -3.943 | 0.650 | -0.626 |
| -34 | 278.098 | 289.345 | 301.016 | 4.033 | -3.887 | 0.645 | -0.621 |
| -33 | 262.303 | 272.750 | 283.585 | 3.972 | -3.830 | 0.639 | -0.616 |
| -32 | 247.440 | 257.143 | 267.200 | 3.911 | -3.773 | 0.634 | -0.612 |
| -31 | 233.456 | 242.469 | 251.804 | 3.850 | -3.717 | 0.629 | -0.607 |
| -30 | 220.306 | 228.677 | 237.343 | 3.789 | -3.660 | 0.623 | -0.602 |
| -29 | 207.943 | 215.719 | 223.762 | 3.728 | -3.604 | 0.618 | -0.597 |
| -28 | 196.323 | 203.546 | 211.013 | 3.668 | -3.548 | 0.613 | -0.592 |
| -27 | 185.404 | 192.114 | 199.047 | 3.608 | -3.492 | 0.607 | -0.587 |
| -26 | 175.145 | 181.379 | 187.816 | 3.549 | -3.437 | 0.601 | -0.582 |
| -25 | 165.506 | 171.300 | 177.278 | 3.489 | -3.381 | 0.596 | -0.577 |
| -24 | 156.452 | 161.836 | 167.389 | 3.431 | -3.326 | 0.590 | -0.572 |
| -23 | 147.945 | 152.950 | 158.109 | 3.372 | -3.272 | 0.584 | -0.567 |
| -22 | 139.953 | 144.607 | 149.400 | 3.314 | -3.218 | 0.579 | -0.562 |
| -21 | 132.444 | 136.772 | 141.227 | 3.257 | -3.164 | 0.573 | -0.556 |

| | | | | | | | |
|-----|---------|---------|---------|-------|--------|-------|--------|
| -20 | 125.387 | 129.412 | 133.553 | 3.200 | -3.110 | 0.567 | -0.551 |
| -19 | 118.753 | 122.498 | 126.348 | 3.143 | -3.057 | 0.561 | -0.546 |
| -18 | 112.515 | 116.000 | 119.581 | 3.087 | -3.004 | 0.555 | -0.540 |
| -17 | 106.648 | 109.892 | 113.224 | 3.031 | -2.952 | 0.549 | -0.534 |
| -16 | 101.128 | 104.149 | 107.248 | 2.976 | -2.899 | 0.543 | -0.529 |
| -15 | 95.933 | 98.745 | 101.630 | 2.921 | -2.848 | 0.536 | -0.523 |
| -14 | 91.041 | 93.661 | 96.346 | 2.866 | -2.796 | 0.530 | -0.517 |
| -13 | 86.433 | 88.874 | 91.374 | 2.813 | -2.745 | 0.524 | -0.511 |
| -12 | 82.091 | 84.365 | 86.693 | 2.759 | -2.695 | 0.517 | -0.505 |
| -11 | 77.997 | 80.115 | 82.284 | 2.706 | -2.644 | 0.511 | -0.499 |
| -10 | 74.135 | 76.110 | 78.129 | 2.653 | -2.594 | 0.504 | -0.493 |
| -9 | 70.490 | 72.331 | 74.213 | 2.601 | -2.545 | 0.498 | -0.487 |
| -8 | 67.049 | 68.765 | 70.518 | 2.549 | -2.496 | 0.491 | -0.481 |
| -7 | 63.798 | 65.398 | 67.032 | 2.498 | -2.447 | 0.484 | -0.474 |
| -6 | 60.725 | 62.218 | 63.740 | 2.447 | -2.398 | 0.477 | -0.468 |
| -5 | 57.820 | 59.211 | 60.630 | 2.396 | -2.350 | 0.470 | -0.461 |
| -4 | 55.071 | 56.369 | 57.691 | 2.346 | -2.302 | 0.463 | -0.455 |
| -3 | 52.470 | 53.680 | 54.912 | 2.295 | -2.254 | 0.456 | -0.448 |
| -2 | 50.006 | 51.135 | 52.283 | 2.246 | -2.206 | 0.449 | -0.441 |
| -1 | 47.672 | 48.724 | 49.795 | 2.196 | -2.159 | 0.442 | -0.435 |
| 0 | 45.735 | 46.724 | 47.731 | 2.154 | -2.118 | 0.434 | -0.427 |
| 1 | 43.362 | 44.276 | 45.206 | 2.099 | -2.065 | 0.427 | -0.421 |
| 2 | 41.371 | 42.224 | 43.090 | 2.050 | -2.019 | 0.420 | -0.414 |
| 3 | 39.482 | 40.277 | 41.083 | 2.002 | -1.973 | 0.413 | -0.407 |
| 4 | 37.689 | 38.429 | 39.180 | 1.954 | -1.927 | 0.405 | -0.399 |
| 5 | 35.985 | 36.675 | 37.374 | 1.907 | -1.881 | 0.397 | -0.392 |
| 6 | 34.366 | 35.009 | 35.660 | 1.859 | -1.835 | 0.390 | -0.385 |
| 7 | 32.827 | 33.425 | 34.031 | 1.812 | -1.790 | 0.382 | -0.377 |
| 8 | 31.364 | 31.921 | 32.484 | 1.765 | -1.744 | 0.374 | -0.370 |
| 9 | 29.972 | 30.490 | 31.014 | 1.719 | -1.699 | 0.366 | -0.362 |
| 10 | 28.647 | 29.130 | 29.617 | 1.672 | -1.654 | 0.358 | -0.355 |
| 11 | 27.387 | 27.835 | 28.288 | 1.626 | -1.610 | 0.350 | -0.347 |
| 12 | 26.187 | 26.603 | 27.024 | 1.580 | -1.565 | 0.342 | -0.339 |
| 13 | 25.044 | 25.431 | 25.821 | 1.534 | -1.521 | 0.334 | -0.331 |
| 14 | 23.955 | 24.314 | 24.676 | 1.489 | -1.477 | 0.326 | -0.323 |
| 15 | 22.917 | 23.251 | 23.586 | 1.443 | -1.432 | 0.318 | -0.315 |
| 16 | 21.929 | 22.238 | 22.549 | 1.398 | -1.389 | 0.309 | -0.307 |
| 17 | 20.986 | 21.272 | 21.560 | 1.353 | -1.345 | 0.301 | -0.299 |
| 18 | 20.088 | 20.353 | 20.619 | 1.308 | -1.301 | 0.293 | -0.291 |
| 19 | 19.231 | 19.476 | 19.722 | 1.264 | -1.258 | 0.284 | -0.283 |
| 20 | 18.413 | 18.640 | 18.867 | 1.219 | -1.214 | 0.275 | -0.274 |
| 21 | 17.634 | 17.843 | 18.052 | 1.175 | -1.171 | 0.267 | -0.266 |
| 22 | 16.890 | 17.082 | 17.276 | 1.131 | -1.128 | 0.258 | -0.257 |
| 23 | 16.180 | 16.357 | 16.535 | 1.087 | -1.085 | 0.249 | -0.248 |

| | | | | | | | |
|----|--------|--------|--------|-------|--------|-------|--------|
| 24 | 15.502 | 15.665 | 15.829 | 1.043 | -1.042 | 0.239 | -0.239 |
| 25 | 14.850 | 15.000 | 15.150 | 1.000 | -1.000 | 0.230 | -0.230 |
| 26 | 14.225 | 14.375 | 14.525 | 1.042 | -1.042 | 0.246 | -0.245 |
| 27 | 13.625 | 13.774 | 13.924 | 1.086 | -1.084 | 0.256 | -0.256 |
| 28 | 13.051 | 13.200 | 13.349 | 1.129 | -1.126 | 0.267 | -0.267 |
| 29 | 12.504 | 12.652 | 12.800 | 1.172 | -1.168 | 0.279 | -0.278 |
| 30 | 11.982 | 12.129 | 12.276 | 1.214 | -1.210 | 0.290 | -0.289 |
| 31 | 11.484 | 11.629 | 11.775 | 1.257 | -1.251 | 0.302 | -0.301 |
| 32 | 11.008 | 11.152 | 11.297 | 1.299 | -1.292 | 0.314 | -0.312 |
| 33 | 10.553 | 10.696 | 10.840 | 1.342 | -1.334 | 0.326 | -0.324 |
| 34 | 10.120 | 10.261 | 10.403 | 1.384 | -1.375 | 0.338 | -0.335 |
| 35 | 9.705 | 9.845 | 9.985 | 1.426 | -1.415 | 0.350 | -0.347 |
| 36 | 9.310 | 9.447 | 9.586 | 1.467 | -1.456 | 0.362 | -0.359 |
| 37 | 8.932 | 9.067 | 9.204 | 1.509 | -1.497 | 0.374 | -0.371 |
| 38 | 8.570 | 8.704 | 8.839 | 1.551 | -1.537 | 0.386 | -0.383 |
| 39 | 8.225 | 8.357 | 8.490 | 1.592 | -1.577 | 0.399 | -0.395 |
| 40 | 7.896 | 8.025 | 8.157 | 1.633 | -1.617 | 0.411 | -0.407 |
| 41 | 7.581 | 7.708 | 7.837 | 1.674 | -1.656 | 0.424 | -0.419 |
| 42 | 7.279 | 7.405 | 7.532 | 1.715 | -1.696 | 0.436 | -0.431 |
| 43 | 6.991 | 7.115 | 7.240 | 1.756 | -1.735 | 0.449 | -0.444 |
| 44 | 6.716 | 6.837 | 6.960 | 1.796 | -1.774 | 0.462 | -0.456 |
| 45 | 6.453 | 6.572 | 6.693 | 1.836 | -1.813 | 0.475 | -0.469 |
| 46 | 6.201 | 6.318 | 6.437 | 1.876 | -1.852 | 0.488 | -0.481 |
| 47 | 5.960 | 6.075 | 6.192 | 1.916 | -1.890 | 0.501 | -0.494 |
| 48 | 5.730 | 5.843 | 5.957 | 1.956 | -1.928 | 0.514 | -0.506 |
| 49 | 5.510 | 5.620 | 5.732 | 1.996 | -1.967 | 0.527 | -0.519 |
| 50 | 5.299 | 5.407 | 5.517 | 2.035 | -2.004 | 0.540 | -0.532 |
| 51 | 5.097 | 5.203 | 5.311 | 2.074 | -2.042 | 0.554 | -0.545 |
| 52 | 4.903 | 5.008 | 5.114 | 2.114 | -2.080 | 0.567 | -0.558 |
| 53 | 4.718 | 4.821 | 4.924 | 2.152 | -2.117 | 0.580 | -0.571 |
| 54 | 4.541 | 4.641 | 4.743 | 2.191 | -2.154 | 0.594 | -0.584 |
| 55 | 4.372 | 4.470 | 4.569 | 2.230 | -2.191 | 0.608 | -0.597 |
| 56 | 4.209 | 4.305 | 4.403 | 2.268 | -2.227 | 0.622 | -0.610 |
| 57 | 4.053 | 4.147 | 4.243 | 2.306 | -2.264 | 0.635 | -0.624 |
| 58 | 3.904 | 3.996 | 4.090 | 2.344 | -2.300 | 0.649 | -0.637 |
| 59 | 3.761 | 3.851 | 3.943 | 2.382 | -2.336 | 0.663 | -0.651 |
| 60 | 3.624 | 3.712 | 3.802 | 2.420 | -2.372 | 0.677 | -0.664 |
| 61 | 3.493 | 3.579 | 3.667 | 2.457 | -2.408 | 0.692 | -0.678 |
| 62 | 3.367 | 3.451 | 3.537 | 2.494 | -2.443 | 0.706 | -0.691 |
| 63 | 3.246 | 3.329 | 3.413 | 2.531 | -2.479 | 0.720 | -0.705 |
| 64 | 3.130 | 3.211 | 3.293 | 2.568 | -2.514 | 0.734 | -0.719 |
| 65 | 3.019 | 3.098 | 3.179 | 2.605 | -2.549 | 0.749 | -0.733 |
| 66 | 2.912 | 2.989 | 3.068 | 2.642 | -2.583 | 0.764 | -0.747 |
| 67 | 2.810 | 2.885 | 2.962 | 2.678 | -2.618 | 0.778 | -0.761 |

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|-----|-------|-------|-------|-------|--------|-------|--------|
| 68 | 2.711 | 2.785 | 2.861 | 2.714 | -2.652 | 0.793 | -0.775 |
| 69 | 2.617 | 2.689 | 2.763 | 2.750 | -2.686 | 0.808 | -0.789 |
| 70 | 2.526 | 2.597 | 2.669 | 2.786 | -2.720 | 0.823 | -0.803 |
| 71 | 2.439 | 2.508 | 2.579 | 2.822 | -2.754 | 0.837 | -0.817 |
| 72 | 2.355 | 2.423 | 2.492 | 2.858 | -2.788 | 0.853 | -0.832 |
| 73 | 2.274 | 2.341 | 2.408 | 2.893 | -2.821 | 0.868 | -0.846 |
| 74 | 2.197 | 2.262 | 2.328 | 2.928 | -2.855 | 0.883 | -0.861 |
| 75 | 2.123 | 2.186 | 2.251 | 2.963 | -2.888 | 0.898 | -0.875 |
| 76 | 2.051 | 2.113 | 2.176 | 2.998 | -2.921 | 0.913 | -0.890 |
| 77 | 1.982 | 2.043 | 2.105 | 3.033 | -2.954 | 0.929 | -0.904 |
| 78 | 1.916 | 1.975 | 2.036 | 3.068 | -2.986 | 0.944 | -0.919 |
| 79 | 1.852 | 1.910 | 1.969 | 3.102 | -3.019 | 0.960 | -0.934 |
| 80 | 1.791 | 1.847 | 1.905 | 3.137 | -3.051 | 0.976 | -0.949 |
| 81 | 1.732 | 1.787 | 1.844 | 3.171 | -3.083 | 0.991 | -0.964 |
| 82 | 1.675 | 1.729 | 1.784 | 3.205 | -3.115 | 1.007 | -0.979 |
| 83 | 1.620 | 1.673 | 1.727 | 3.239 | -3.147 | 1.023 | -0.994 |
| 84 | 1.568 | 1.619 | 1.672 | 3.273 | -3.179 | 1.039 | -1.009 |
| 85 | 1.517 | 1.567 | 1.619 | 3.307 | -3.210 | 1.055 | -1.024 |
| 86 | 1.468 | 1.517 | 1.568 | 3.340 | -3.242 | 1.071 | -1.039 |
| 87 | 1.420 | 1.469 | 1.518 | 3.374 | -3.273 | 1.087 | -1.055 |
| 88 | 1.375 | 1.422 | 1.470 | 3.407 | -3.304 | 1.103 | -1.070 |
| 89 | 1.331 | 1.377 | 1.424 | 3.440 | -3.335 | 1.120 | -1.086 |
| 90 | 1.289 | 1.334 | 1.380 | 3.473 | -3.366 | 1.136 | -1.101 |
| 91 | 1.248 | 1.292 | 1.337 | 3.506 | -3.397 | 1.153 | -1.117 |
| 92 | 1.208 | 1.251 | 1.296 | 3.539 | -3.428 | 1.169 | -1.132 |
| 93 | 1.170 | 1.212 | 1.256 | 3.572 | -3.458 | 1.186 | -1.148 |
| 94 | 1.134 | 1.175 | 1.217 | 3.605 | -3.489 | 1.202 | -1.164 |
| 95 | 1.098 | 1.138 | 1.180 | 3.637 | -3.519 | 1.219 | -1.180 |
| 96 | 1.064 | 1.103 | 1.144 | 3.670 | -3.549 | 1.236 | -1.195 |
| 97 | 1.031 | 1.069 | 1.109 | 3.702 | -3.579 | 1.253 | -1.211 |
| 98 | 0.999 | 1.037 | 1.075 | 3.734 | -3.609 | 1.270 | -1.227 |
| 99 | 0.968 | 1.005 | 1.043 | 3.766 | -3.639 | 1.287 | -1.243 |
| 100 | 0.939 | 0.975 | 1.012 | 3.798 | -3.669 | 1.304 | -1.260 |
| 101 | 0.910 | 0.945 | 0.981 | 3.830 | -3.699 | 1.321 | -1.276 |
| 102 | 0.882 | 0.916 | 0.952 | 3.862 | -3.728 | 1.339 | -1.292 |
| 103 | 0.855 | 0.889 | 0.923 | 3.894 | -3.757 | 1.356 | -1.308 |
| 104 | 0.829 | 0.862 | 0.896 | 3.926 | -3.787 | 1.373 | -1.325 |
| 105 | 0.804 | 0.836 | 0.869 | 3.957 | -3.816 | 1.391 | -1.341 |
| 106 | 0.780 | 0.811 | 0.844 | 3.989 | -3.845 | 1.408 | -1.358 |
| 107 | 0.757 | 0.787 | 0.819 | 4.020 | -3.874 | 1.426 | -1.374 |
| 108 | 0.734 | 0.764 | 0.795 | 4.051 | -3.903 | 1.444 | -1.391 |
| 109 | 0.712 | 0.741 | 0.772 | 4.083 | -3.932 | 1.462 | -1.408 |
| 110 | 0.691 | 0.719 | 0.749 | 4.114 | -3.961 | 1.479 | -1.424 |
| 111 | 0.670 | 0.698 | 0.727 | 4.145 | -3.989 | 1.497 | -1.441 |

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|-----|-------|-------|-------|-------|--------|-------|--------|
| 112 | 0.651 | 0.678 | 0.706 | 4.176 | -4.018 | 1.515 | -1.458 |
| 113 | 0.631 | 0.658 | 0.686 | 4.207 | -4.046 | 1.533 | -1.475 |
| 114 | 0.613 | 0.639 | 0.666 | 4.237 | -4.075 | 1.552 | -1.492 |
| 115 | 0.595 | 0.620 | 0.647 | 4.268 | -4.103 | 1.570 | -1.509 |
| 116 | 0.577 | 0.602 | 0.628 | 4.299 | -4.131 | 1.588 | -1.526 |
| 117 | 0.561 | 0.585 | 0.610 | 4.329 | -4.159 | 1.607 | -1.543 |
| 118 | 0.544 | 0.568 | 0.593 | 4.360 | -4.187 | 1.625 | -1.561 |
| 119 | 0.529 | 0.552 | 0.576 | 4.390 | -4.215 | 1.644 | -1.578 |
| 120 | 0.513 | 0.536 | 0.560 | 4.420 | -4.243 | 1.662 | -1.595 |
| 121 | 0.499 | 0.521 | 0.544 | 4.450 | -4.270 | 1.681 | -1.613 |
| 122 | 0.484 | 0.506 | 0.529 | 4.480 | -4.298 | 1.700 | -1.630 |
| 123 | 0.470 | 0.492 | 0.514 | 4.510 | -4.325 | 1.718 | -1.648 |
| 124 | 0.457 | 0.478 | 0.500 | 4.540 | -4.352 | 1.737 | -1.666 |
| 125 | 0.444 | 0.465 | 0.486 | 4.570 | -4.379 | 1.756 | -1.683 |



附表 II (Attachment II)

