

### 1 外形尺寸 Shape and Dimensions

- 尺寸: 见图 1 和表 1.
- PCB 焊盘: 见图 2 和表 1.
- Dimensions: See Fig.1 and Table 1.
- Recommended PCB pattern for reflow soldering: See Fig.2 and Table 1

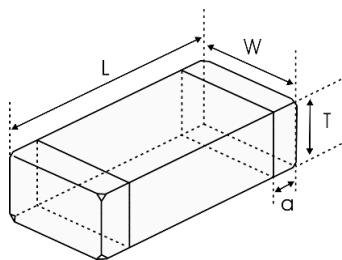


图 1 Fig.1

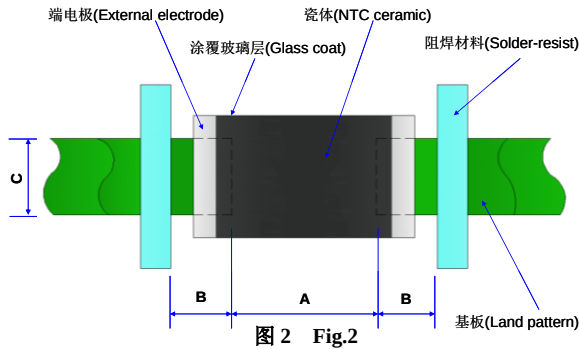


图 2 Fig.2

表 1 (Table 1)

单位 unit: inch[mm]

| 类别 Type        | L                         | W                         | T                         | a                         | A           | B         | C           |
|----------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------|-----------|-------------|
| 0402<br>[1005] | 0.039±0.006<br>[1.0±0.15] | 0.020±0.006<br>[0.5±0.15] | 0.020±0.006<br>[0.5±0.15] | 0.010±0.004<br>[0.25±0.1] | [0.45-0.55] | [0.4-0.5] | [0.45-0.55] |

### 2 电气特性 Electrical Characteristics

| 型号<br>Part No     | 电阻值<br>Resistance<br>(25℃)<br>(kΩ) | B 常数<br>B Constant<br>(25/50℃)<br>(K) | B 常数<br>B Constant<br>(25/85℃)<br>(K) | 允许工作电流<br>Permissible<br>Operating Current<br>(25℃)<br>(mA) | 耗散系数<br>Dissipation<br>Factor<br>(mW/℃) | 热时间常数<br>Thermal<br>Time<br>Constant<br>(s) | 额定功率<br>Rated Electric<br>Power(25℃)<br>(mW) | 工作温度<br>Operating<br>ambient<br>temperature<br>(℃) |
|-------------------|------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------------------------------|-----------------------------------------|---------------------------------------------|----------------------------------------------|----------------------------------------------------|
| KNTC0402/10KF3950 | 10±1%                              | 3950±1%                               | 3987                                  | 0.31                                                        | 1.0                                     | <3                                          | 100                                          | -40~+125                                           |

### 3 检验和测试程序

#### ▪ 测试条件

如无特别规定，检验和测试的标准大气环境条件如下：

- a. 环境温度：20±15℃；
- b. 相对湿度：65±20%；
- c. 气压：86 kPa~106 kPa

如果对测试结果有异议，则在下述条件下测试：

- a. 环境温度：25±2℃；
- b. 相对湿度：65±5%
- c. 气压：86kPa ~ 106kPa

#### ▪ 检查设备

外观检查：20 倍放大镜；

阻值检查：热敏电阻测试仪

### 3 Test and Measurement Procedures

#### ▪ Test Conditions

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

- a. Ambient Temperature: 20±15℃
- b. Relative Humidity: 65±20%
- c. Air Pressure: 86kPa to 106kPa

If any doubt on the results, measurements/tests should be made within the following limits:

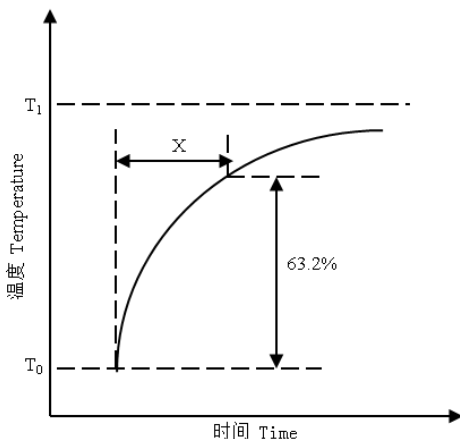
- a. Ambient Temperature: 25±2℃
- b. Relative Humidity: 65±5%
- c. Air Pressure: 86kPa to 106kPa

#### ▪ Inspection Equipment

Visual Examination: 20× magnifier

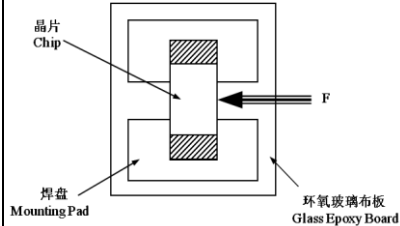
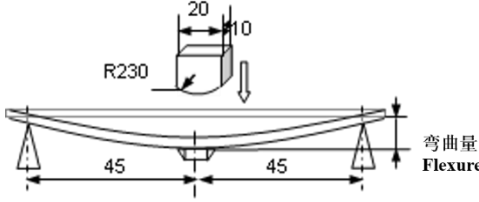
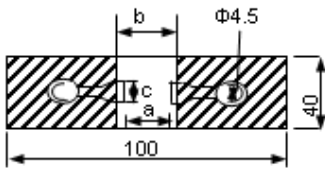
Resistance value test: Thermistor resistance tester

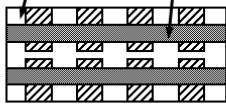
### 4 电性测试 Electrical Test

| 序号 No. | 项目 Items                                                 | 测试方法及备注 Test Methods and Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | 25℃ 零功率电阻值<br>Nominal Zero-Power Resistance at 25℃ (R25) | 环境温度 Ambient temperature: 25±0.05℃<br>测试功率 Measuring electric power: ≤0.1mW                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2      | B 值常数<br>Nominal B Constant                              | 分别在环境温度 25±0.05℃, 50±0.05℃或 85±0.05℃下测量电阻值。<br>Measure the resistance at the ambient temperature of 25±0.05℃, 50±0.05℃ or 85±0.05℃.<br>$B(25-50^{\circ}\text{C}) = \frac{\ln R_{25} - \ln R_{50}}{1/T_{25} - 1/T_{50}} \quad B(25-85^{\circ}\text{C}) = \frac{\ln R_{25} - \ln R_{85}}{1/T_{25} - 1/T_{85}}$<br>T: 绝对温度 (K) Absolute temperature (K)                                                                                                                                                           |
| 3      | 热时间常数<br>Thermal Time Constant                           | <p>在零功率条件下，当热敏电阻的环境温度发生急剧变化时，热敏电阻元件产生最初温度 T<sub>0</sub> 与最终温度 T<sub>1</sub> 两者温度差的 63.2% 的温度变化所需要的时间，通常以秒(S)表示。</p> <p>The total time for the temperature of the thermistor to change by 63.2% of the difference from ambient temperature T<sub>0</sub> (°C) to T<sub>1</sub> (°C) by the drastic change of the power applied to thermistor from Non-zero Power to Zero-Power state, normally expressed in second(S).</p>  |

|   |                                         |                                                                                                                                                                                                                                                                                                           |
|---|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | 耗散系数<br>Dissipation Factor              | 在一定环境温度下，NTC 热敏电阻通过自身发热使其温度升高 1℃时所需要的功率，通常以 mW/℃表示。可由下面公式计算：<br>The required power which makes the NTC thermistor body temperature raise 1℃ through self-heated, normally expressed in milliwatts per degree Celsius (mW/℃). It can be calculated by the following formula:<br>$\delta = \frac{W}{T-T_0}$ |
| 5 | 额定功率<br>Rated Power                     | 在环境温度 25℃下因自身发热使表面温度升高 100℃所需要的功率。<br>The necessary electric power makes thermistor's temperature rise 100℃ by self-heating at ambient temperature 25℃.                                                                                                                                                   |
| 6 | 允许工作电流<br>Permissible operating current | 在静止空气中通过自身发热使其升温为 1℃的电流。<br>The current that keep body temperature of chip NTC on the PC board in still air rising 1℃ by self-heating.                                                                                                                                                                    |

## 5 信赖性试验 Reliability Test

| 项目<br>Items                   | 测试标准<br>Standard | 测试方法及备注<br>Test Methods and Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 要求<br>Requirements |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
|-------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|-------------------------|---------------|-------|-------|------------|-------|------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---|---|---|------|------|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|------|
| 端头附着力<br>Terminal Strength    | IEC 60068-2-21   | <p>将晶片焊接在测试基板上（如右图所示的环氧玻璃布板），按箭头所示方向施加作用力；</p> <p>Solder the chip to the testing jig (glass epoxy board shown in the right) using eutectic solder. Then apply a force in the direction of the arrow.</p> <table><tr><td>尺寸 Size</td><td>F</td><td>保持时间 Duration</td></tr><tr><td>0201</td><td>2N</td><td rowspan="3">10±1s</td></tr><tr><td>0402, 0603</td><td>5N</td></tr><tr><td>0805</td><td>10N</td></tr></table>                                                                                                                                            | 尺寸 Size            | F             | 保持时间 Duration           | 0201          | 2N    | 10±1s | 0402, 0603 | 5N    | 0805             | 10N | <p>端电极无脱落且瓷体无损伤。</p> <p>No removal or split of the termination or other defects shall occur.</p>                                                                                                                                                                                                                                                                                                                                     |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 尺寸 Size                       | F                | 保持时间 Duration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0201                          | 2N               | 10±1s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0402, 0603                    | 5N               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0805                          | 10N              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 抗弯强度<br>Resistance to Flexure | IEC 60068-2-21   | <p>将晶片焊接在测试基板上（如右图所示的环氧玻璃布板），按下图箭头所示方向施加作用力；</p> <p>Solder the chip to the test jig (glass epoxy board shown in the right) using a eutectic solder. Then apply a force in the direction shown as follow;</p>  <table><tr><td>尺寸 Size</td><td>弯曲变形量 Flexure</td><td>施压速度 Pressurizing Speed</td><td>保持时间 Duration</td></tr><tr><td>0201,</td><td>1mm</td><td rowspan="2">&lt;0.5mm/s</td><td rowspan="2">10±1s</td></tr><tr><td>0402, 0603, 0805</td><td>2mm</td></tr></table> | 尺寸 Size            | 弯曲变形量 Flexure | 施压速度 Pressurizing Speed | 保持时间 Duration | 0201, | 1mm   | <0.5mm/s   | 10±1s | 0402, 0603, 0805 | 2mm | <p>① 无外观损伤。</p> <p>No visible damage.</p> <p>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math></p> <p>单位 unit: mm</p> <table><tr><td>类型 Type</td><td>a</td><td>b</td><td>c</td></tr><tr><td>0201</td><td>0.25</td><td>0.3</td><td>0.3</td></tr><tr><td>0402</td><td>0.4</td><td>1.5</td><td>0.5</td></tr><tr><td>0603</td><td>1.0</td><td>3.0</td><td>1.2</td></tr><tr><td>0805</td><td>1.2</td><td>4.0</td><td>1.65</td></tr></table>  | 类型 Type | a | b | c | 0201 | 0.25 | 0.3 | 0.3 | 0402 | 0.4 | 1.5 | 0.5 | 0603 | 1.0 | 3.0 | 1.2 | 0805 | 1.2 | 4.0 | 1.65 |
| 尺寸 Size                       | 弯曲变形量 Flexure    | 施压速度 Pressurizing Speed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 保持时间 Duration      |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0201,                         | 1mm              | <0.5mm/s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10±1s              |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0402, 0603, 0805              | 2mm              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 类型 Type                       | a                | b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | c                  |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0201                          | 0.25             | 0.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.3                |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0402                          | 0.4              | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.5                |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0603                          | 1.0              | 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.2                |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |
| 0805                          | 1.2              | 4.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.65               |               |                         |               |       |       |            |       |                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |

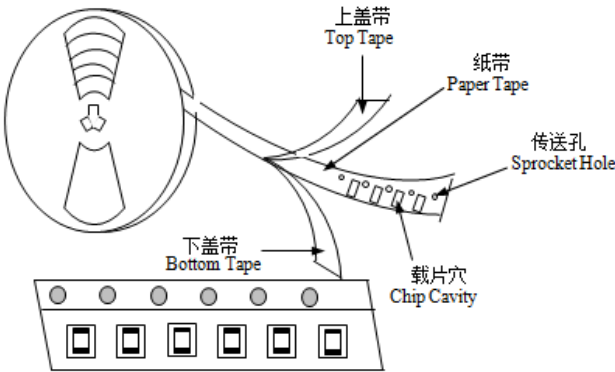
|                                     |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                        |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
|-------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|---|--------|---------|---|-------|--------|---|--------|---------|---|-------|--------|------------------------------------------------------------------------------------------------------------------------------------------|
| 振动<br>Vibration                     | IEC 60068-2-80 | <p>① 将晶片焊接在测试基板上（如右图所示的环氧玻璃布板）；<br/>Solder the chip to the testing jig (glass epoxy board shown in the left) using eutectic solder.</p> <p>② 晶片以全振幅为 1.5mm 进行振动，频率范围为 10Hz ~55 Hz；<br/>The chip shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.</p> <p>③ 振动频率按 10Hz→55Hz→10Hz 循环，周期为 1 分钟，在空间三个互相垂直的方向上各振动 2 小时（共 6 小时）。<br/>The frequency ranges from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3mutually perpendicular directions (total of 6 hours).</p> | <p>无外观损伤。<br/>No visible damage.</p> <div><p>铜箔 Cu pad      阻焊膜 Solder mask</p><p>环氧玻璃布板Glass Epoxy Board</p></div> |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 坠落<br>Dropping                      | IEC 60068-2-32 | <p>从 1m 的高度让晶片自由坠落至水泥地面 10 次。<br/>Drop a chip 10 times on a concrete floor from a height of 1 meter.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>无外观损伤。<br/>No visible damage.</p>                                                                                                                                                                   |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 可焊性<br>Solderability                | IEC 60068-2-58 | <p>① 焊接温度 Solder temperature: 245±5℃.</p> <p>② 浸渍时间 Duration: 3±0.3s.</p> <p>③ 焊锡成分 Solder: 96.5Sn/3.0Ag/0.5Cu.</p> <p>④ 助焊剂 Flux: （重量比）25%松香和 75%酒精<br/>25% Resin and 75% ethanol in weight.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>① 无外观损伤；<br/>No visible damage.</p> <p>② 元件端电极的焊锡覆盖率不小于 95%。<br/>Wetting shall exceed 95% coverage.</p>                                                                                             |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 耐焊性<br>Resistance to Soldering Heat | IEC 60068-2-58 | <p>① 焊接温度 Solder temperature: 260±5℃.</p> <p>② 浸渍时间 Duration: 10±1s.</p> <p>③ 焊锡成分 Solder: 96.5Sn/3.0Ag/0.5Cu.</p> <p>④ 助焊剂 Flux: （重量比）25%松香和 75%酒精<br/>25% Resin and 75% ethanol in weight.</p> <p>⑤ 试验后标准条件下放置 1~2 小时后测量。<br/>The chip shall be stabilized at normal condition for 1~2 hours before measuring.</p>                                                                                                                                                                                                                                                                                                                                                              | <p>① 无外观损伤；<br/>No visible damage.</p> <p>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math></p> <p>③ <math> \Delta B/B  \leq 1\%</math></p>                                                               |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 温度周期<br>Temperature cycling         | IEC 60068-2-14 | <p>① 无负载于下表所示的环境条件下重复 5 次。<br/>5 cycles of following sequence without loading.</p> <table><tr><td>步骤 Step</td><td>温度 Temperature</td><td>时间 Time</td></tr><tr><td>1</td><td>-40±5℃</td><td>30±3min</td></tr><tr><td>2</td><td>25±2℃</td><td>5±3min</td></tr><tr><td>3</td><td>125±2℃</td><td>30±3min</td></tr><tr><td>4</td><td>25±2℃</td><td>5±3min</td></tr></table> <p>② 试验后标准条件下放置 1~2 小时后测量。<br/>The chip shall be stabilized at normal condition for 1~2 hours before measuring.</p>                                                                                                                                                                                        | 步骤 Step                                                                                                                                                                                                | 温度 Temperature | 时间 Time | 1 | -40±5℃ | 30±3min | 2 | 25±2℃ | 5±3min | 3 | 125±2℃ | 30±3min | 4 | 25±2℃ | 5±3min | <p>① 无外观损伤；<br/>No visible damage.</p> <p>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math></p> <p>③ <math> \Delta B/B  \leq 1\%</math></p> |
| 步骤 Step                             | 温度 Temperature | 时间 Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                        |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 1                                   | -40±5℃         | 30±3min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                        |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 2                                   | 25±2℃          | 5±3min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                        |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 3                                   | 125±2℃         | 30±3min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                        |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 4                                   | 25±2℃          | 5±3min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                        |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |
| 高温存放<br>Resistance to dry heat      | IEC 60068-2-2  | <p>① 在 125±5℃ 空气中，无负载放置 1000±24 小时。<br/>125±5℃ in air, for 1000±24 hours without loading.</p> <p>② 试验后标准条件下放置 1~2 小时后测量。<br/>The chip shall be stabilized at normal condition for 1~2 hours before measuring.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>① 无外观损伤；<br/>No visible damage.</p> <p>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math></p> <p>③ <math> \Delta B/B  \leq 1\%</math></p>                                                               |                |         |   |        |         |   |       |        |   |        |         |   |       |        |                                                                                                                                          |

|                                                      |                       |                                                                                                                                                                                                                         |                                                                                                    |
|------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 低温存放<br>Resistance<br>to cold                        | IEC 60068-2-1         | ① 在-40±3℃空气中，无负载放置 1000±24 小时。<br>-40±3℃ in air, for 1000±24 hours without loading.<br>② 试验后标准条件下放置 1~2 小时后测量。<br>The chip shall be stabilized at normal condition for 1~2 hours before measuring.                      | ① 无外观损伤；<br>No visible damage.<br>② $ \Delta R_{25}/R_{25}  \leq 2\%$<br>③ $ \Delta B/B  \leq 1\%$ |
| 湿热存放<br>Resistance<br>to damp heat                   | IEC 60068-2-78        | ① 在 40±2℃，相对湿度 90~95%空气中，无负载放置 1000±24 小时。<br>40±2℃, 90~95%RH in air, for 1000±24 hours without loading.<br>② 试验后标准条件下放置 1~2 小时后测量。<br>The chip shall be stabilized at normal condition for 1~2 hours before measuring. | ① 无外观损伤；<br>No visible damage.<br>② $ \Delta R_{25}/R_{25}  \leq 2\%$<br>③ $ \Delta B/B  \leq 1\%$ |
| 高温负荷<br>Resistance<br>to high<br>temperature<br>load | IEC 60539-1<br>5.25.4 | ① 在 85±2℃空气中，施加允许工作电流 1000±48 小时。<br>85±2℃ in air with permissive operating current for 1000±48 hours<br>② 试验后标准条件下放置 1~2 小时后测量。<br>The chip shall be stabilized at normal condition for 1~2 hours before measuring.    | ① 无外观损伤；<br>No visible damage.<br>② $ \Delta R_{25}/R_{25}  \leq 2\%$<br>③ $ \Delta B/B  \leq 1\%$ |

## 6 编带 Taping

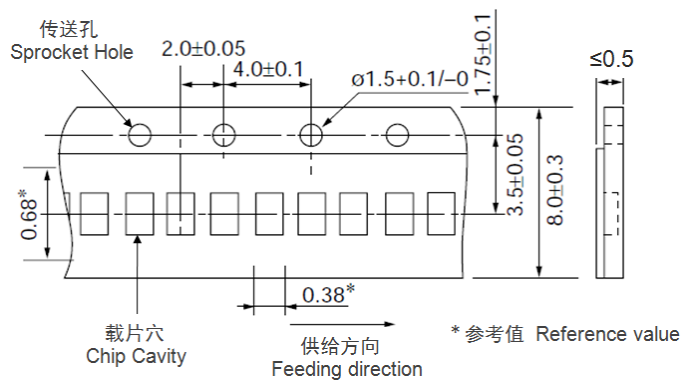
|                            |               |          |          |          |
|----------------------------|---------------|----------|----------|----------|
| 类型 Type                    | 0201          | 0402     | 0603     | 0805     |
| 编带厚度<br>Tape thickness(mm) | 0.5±0.15      | 0.5±0.15 | 0.8±0.15 | 0.85±0.2 |
| 编带材质<br>Tape material      | 纸带 Paper Tape |          |          |          |
| 每盘数量<br>Quantity per Reel  | 15K           | 10K      | 4K       | 4K       |

### (1) 编带图 Taping Drawings

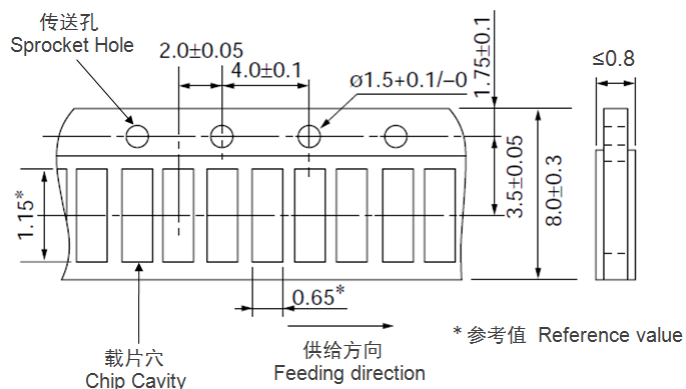


(2) 纸带尺寸 Paper Tape Dimensions (单位 Unit: mm)

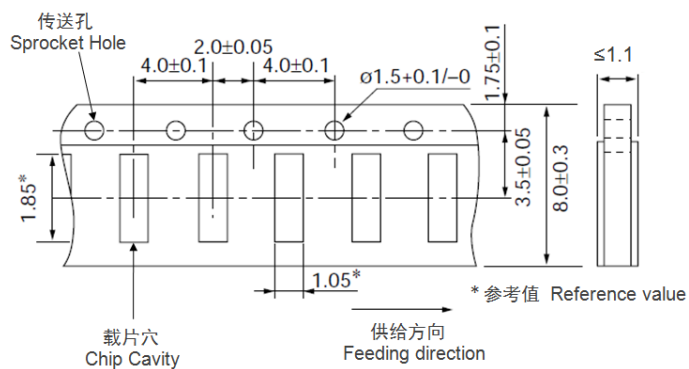
0201 系列 0201 series



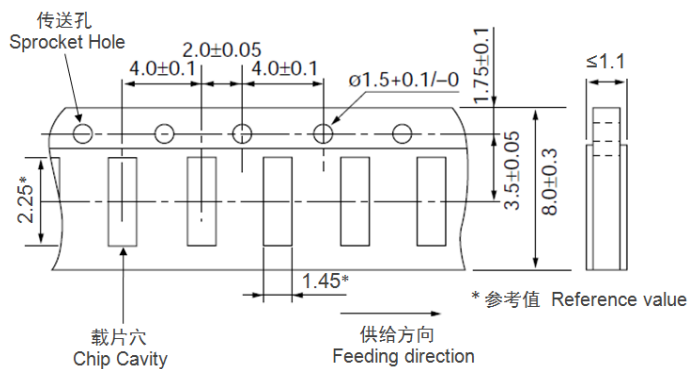
0402 系列 0402 series



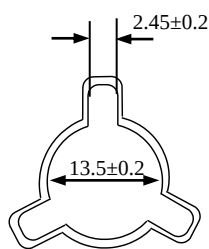
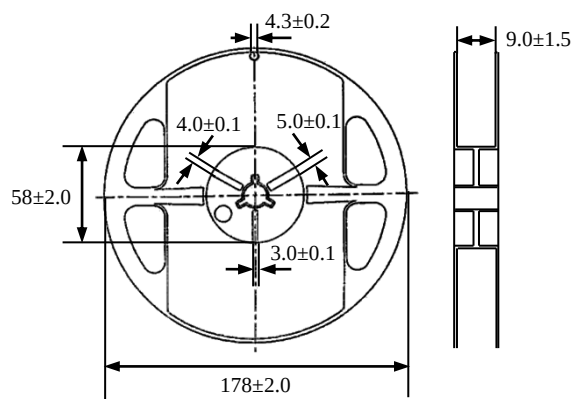
0603 系列 0603 series



0805 系列 0805 series



(3) 卷盘尺寸 Reel Dimensions(单位 Unit: mm)



## 7 储存

- **储存条件**

- a. 储存温度:  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$
- b. 相对湿度:  $\leq 75\% \text{RH}$
- c. 避免接触粉尘、腐蚀性气氛和阳光

- **储存期限: 产品交付后 6 个月**

## 8 注意事项

- 热敏电阻不可在以下条件下工作或储存:

- (1) 腐蚀性气体或还原性气体  
(氯气、硫化氢气体、氨气、硫酸气体、一氧化氮等)。
- (2) 挥发性或易燃性气体
- (3) 多尘条件
- (4) 高压或低压条件
- (5) 潮湿场所
- (6) 存在盐水、油、化学液体或有机溶剂的场所
- (7) 强烈振动
- (8) 存在类似有害条件的其他场所

- 热敏电阻的陶瓷属于易碎材料, 使用时不可施加过大压力或冲击。

- 热敏电阻不可在超过目录规定的温度范围情况下工作。

## 7 Storage

- **Storage Conditions**

- a. Storage Temperature:  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$
- b. Relative Humidity:  $\leq 75\% \text{RH}$
- c. Keep away from corrosive atmosphere and sunlight.

- **Period of Storage: 6 Months after delivery**

## 8 Notes & Warnings

- The thermistors shall not be operated and stored under the following environmental condition:

- (1) Corrosive or deoxidized atmospheres  
(such as chlorine, sulfurated hydrogen, ammonia, sulfuric acid, nitric oxide and so on)
- (2) Volatile or inflammable atmospheres
- (3) Dusty condition
- (4) Excessively high or low pressure condition
- (5) Humid site
- (6) Places with brine, oil, chemical liquid or organic solvent
- (7) Intense vibration
- (8) Places with analogously deleterious conditions

- The ceramic body of the thermistors is fragile, no excessive pressure or impact shall be exerted on it.

- The thermistors shall not be operated beyond the specified "Operating Temperature Range" in the catalog.

## 9 建议焊接条件

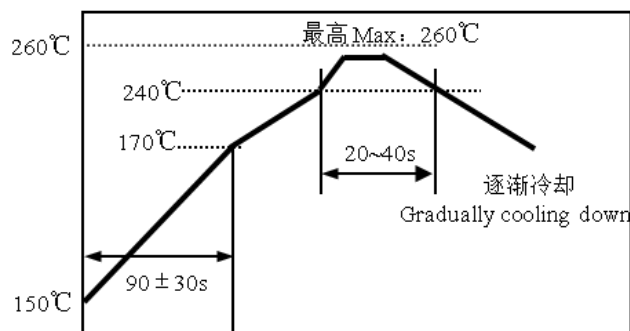
### • 回流焊

- 温升 1~2°C/sec.
- 预热：150~170°C/90±30 sec.
- 大于 240°C时间：20~40sec
- 峰值温度：最高 260°C/10 sec.
- 焊锡：96.5Sn/3.0Ag/0.5Cu
- 回流焊：最多 2 次

## 9 Recommended Soldering Technologies

### • Re-flowing Profile

- 1~2°C/sec. Ramp
- Pre-heating: 150~170°C/90±30 sec.
- Time above 240°C: 20~40 sec.
- Peak temperature: 260°C Max./10 sec.
- Solder paste: 96.5Sn/3.0Ag/0.5Cu
- Max.2 times for re-flowing



### • 手工焊

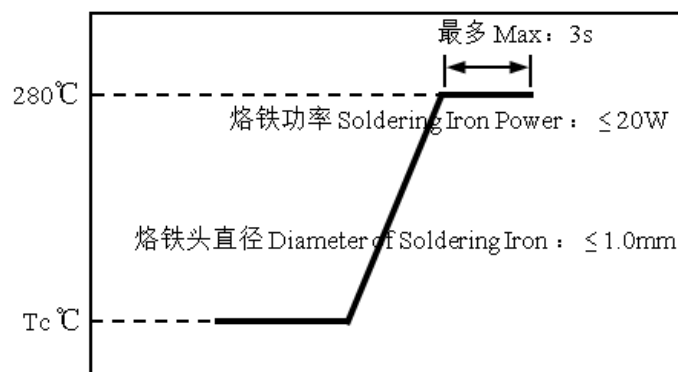
- 烙铁功率：最大 20W
- 预热：150°C/60sec.
- 烙铁头温度：最高 280°C
- 焊接时间：最多 3sec.
- 焊锡：96.5Sn/3.0Ag/0.5Cu
- 手工焊：最多 1 次

### • Iron Soldering Profile

- Iron soldering power: Max.20W
- Pre-heating: 150°C/60sec.
- Soldering Tip temperature: 280°C Max.
- Soldering time: 3 sec Max.
- Solder paste: 96.5Sn/3.0Ag/0.5Cu
- Max.1 times for iron soldering

[注：不要使烙铁头接触到端头]

[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]





# 10 R-T 表 R-T table

| 温度<br>Temp. (°C) | R 最小值<br>R_Min (Kohm) | R 中心值<br>R_Cent (Kohm) | R 最大值<br>R_Max (Kohm) | 阻值公差<br>Res TOL. | 温度公差<br>Temp. TOL.(°C) |
|------------------|-----------------------|------------------------|-----------------------|------------------|------------------------|
| -40              | 329.927               | 345.275                | 361.300               | 4.64%            | 0.67                   |
| -39              | 308.651               | 322.791                | 337.545               | 4.57%            | 0.66                   |
| -38              | 288.892               | 301.925                | 315.514               | 4.50%            | 0.66                   |
| -37              | 270.532               | 282.549                | 295.071               | 4.43%            | 0.65                   |
| -36              | 253.464               | 264.549                | 276.091               | 4.36%            | 0.65                   |
| -35              | 237.587               | 247.816                | 258.459               | 4.29%            | 0.64                   |
| -34              | 222.812               | 232.254                | 242.072               | 4.23%            | 0.64                   |
| -33              | 209.055               | 217.774                | 226.833               | 4.16%            | 0.63                   |
| -32              | 196.239               | 204.292                | 212.655               | 4.09%            | 0.63                   |
| -31              | 184.293               | 191.735                | 199.457               | 4.03%            | 0.62                   |
| -30              | 173.153               | 180.032                | 187.165               | 3.96%            | 0.61                   |
| -29              | 162.760               | 169.120                | 175.711               | 3.90%            | 0.61                   |
| -28              | 153.059               | 158.941                | 165.033               | 3.83%            | 0.60                   |
| -27              | 144.000               | 149.441                | 155.073               | 3.77%            | 0.60                   |
| -26              | 135.535               | 140.571                | 145.779               | 3.71%            | 0.59                   |
| -25              | 127.622               | 132.284                | 137.102               | 3.64%            | 0.59                   |
| -24              | 120.207               | 124.522                | 128.979               | 3.58%            | 0.58                   |
| -23              | 113.270               | 117.266                | 121.391               | 3.52%            | 0.58                   |
| -22              | 106.779               | 110.480                | 114.298               | 3.46%            | 0.57                   |
| -21              | 100.701               | 104.130                | 107.664               | 3.39%            | 0.56                   |
| -20              | 95.008                | 98.185                 | 101.459               | 3.33%            | 0.56                   |
| -19              | 89.674                | 92.618                 | 95.650                | 3.27%            | 0.55                   |
| -18              | 84.672                | 87.402                 | 90.211                | 3.21%            | 0.55                   |
| -17              | 79.982                | 82.513                 | 85.115                | 3.15%            | 0.54                   |
| -16              | 75.580                | 77.927                 | 80.339                | 3.10%            | 0.53                   |
| -15              | 71.449                | 73.626                 | 75.861                | 3.04%            | 0.53                   |
| -14              | 67.569                | 69.588                 | 71.661                | 2.98%            | 0.52                   |
| -13              | 63.924                | 65.797                 | 67.719                | 2.92%            | 0.51                   |
| -12              | 60.498                | 62.237                 | 64.019                | 2.86%            | 0.51                   |
| -11              | 57.277                | 58.890                 | 60.543                | 2.81%            | 0.50                   |
| -10              | 54.247                | 55.744                 | 57.278                | 2.75%            | 0.49                   |
| -9               | 51.396                | 52.786                 | 54.208                | 2.69%            | 0.49                   |
| -8               | 48.712                | 50.002                 | 51.322                | 2.64%            | 0.48                   |
| -7               | 46.184                | 47.382                 | 48.606                | 2.58%            | 0.47                   |
| -6               | 43.803                | 44.916                 | 46.051                | 2.53%            | 0.47                   |
| -5               | 41.559                | 42.592                 | 43.646                | 2.47%            | 0.46                   |
| -4               | 39.441                | 40.400                 | 41.377                | 2.42%            | 0.45                   |
| -3               | 37.443                | 38.333                 | 39.240                | 2.37%            | 0.45                   |
| -2               | 35.559                | 36.385                 | 37.227                | 2.31%            | 0.44                   |
| -1               | 33.781                | 34.548                 | 35.328                | 2.26%            | 0.43                   |
| 0                | 32.102                | 32.814                 | 33.538                | 2.21%            | 0.43                   |
| 1                | 30.518                | 31.179                 | 31.851                | 2.16%            | 0.42                   |

| 温度<br>Temp. (°C) | R 最小值<br>R_Min (Kohm) | R 中心值<br>R_Cent (Kohm) | R 最大值<br>R_Max (Kohm) | 阻值公差<br>Res TOL. | 温度公差<br>Temp. TOL.(°C) |
|------------------|-----------------------|------------------------|-----------------------|------------------|------------------------|
| 2                | 29.022                | 29.636                 | 30.259                | 2.10%            | 0.41                   |
| 3                | 27.608                | 28.178                 | 28.756                | 2.05%            | 0.40                   |
| 4                | 26.271                | 26.800                 | 27.336                | 2.00%            | 0.40                   |
| 5                | 25.007                | 25.497                 | 25.994                | 1.95%            | 0.39                   |
| 6                | 23.808                | 24.263                 | 24.724                | 1.90%            | 0.38                   |
| 7                | 22.674                | 23.096                 | 23.523                | 1.85%            | 0.37                   |
| 8                | 21.601                | 21.992                 | 22.387                | 1.80%            | 0.37                   |
| 9                | 20.584                | 20.947                 | 21.313                | 1.75%            | 0.36                   |
| 10               | 19.622                | 19.958                 | 20.297                | 1.70%            | 0.35                   |
| 11               | 18.711                | 19.022                 | 19.336                | 1.65%            | 0.34                   |
| 12               | 17.847                | 18.135                 | 18.425                | 1.60%            | 0.33                   |
| 13               | 17.028                | 17.294                 | 17.563                | 1.55%            | 0.33                   |
| 14               | 16.251                | 16.498                 | 16.746                | 1.51%            | 0.32                   |
| 15               | 15.514                | 15.742                 | 15.972                | 1.46%            | 0.31                   |
| 16               | 14.814                | 15.025                 | 15.237                | 1.41%            | 0.30                   |
| 17               | 14.150                | 14.345                 | 14.541                | 1.37%            | 0.29                   |
| 18               | 13.519                | 13.699                 | 13.880                | 1.32%            | 0.29                   |
| 19               | 12.921                | 13.086                 | 13.253                | 1.27%            | 0.28                   |
| 20               | 12.351                | 12.504                 | 12.657                | 1.23%            | 0.27                   |
| 21               | 11.811                | 11.951                 | 12.092                | 1.18%            | 0.26                   |
| 22               | 11.296                | 11.426                 | 11.555                | 1.13%            | 0.25                   |
| 23               | 10.808                | 10.926                 | 11.045                | 1.09%            | 0.24                   |
| 24               | 10.342                | 10.452                 | 10.561                | 1.04%            | 0.24                   |
| 25               | 9.900                 | 10.000                 | 10.100                | 1.00%            | 0.23                   |
| 26               | 9.471                 | 9.570                  | 9.670                 | 1.04%            | 0.24                   |
| 27               | 9.062                 | 9.162                  | 9.261                 | 1.09%            | 0.25                   |
| 28               | 8.673                 | 8.773                  | 8.872                 | 1.13%            | 0.26                   |
| 29               | 8.304                 | 8.402                  | 8.501                 | 1.18%            | 0.27                   |
| 30               | 7.952                 | 8.049                  | 8.147                 | 1.22%            | 0.29                   |
| 31               | 7.616                 | 7.713                  | 7.811                 | 1.26%            | 0.30                   |
| 32               | 7.297                 | 7.393                  | 7.490                 | 1.31%            | 0.31                   |
| 33               | 6.993                 | 7.088                  | 7.184                 | 1.35%            | 0.32                   |
| 34               | 6.703                 | 6.797                  | 6.892                 | 1.39%            | 0.33                   |
| 35               | 6.427                 | 6.520                  | 6.613                 | 1.43%            | 0.35                   |
| 36               | 6.164                 | 6.255                  | 6.348                 | 1.47%            | 0.36                   |
| 37               | 5.913                 | 6.003                  | 6.094                 | 1.52%            | 0.37                   |
| 38               | 5.673                 | 5.762                  | 5.852                 | 1.56%            | 0.38                   |
| 39               | 5.445                 | 5.532                  | 5.621                 | 1.60%            | 0.40                   |
| 40               | 5.226                 | 5.313                  | 5.400                 | 1.64%            | 0.41                   |
| 41               | 5.018                 | 5.103                  | 5.189                 | 1.68%            | 0.42                   |
| 42               | 4.819                 | 4.903                  | 4.987                 | 1.72%            | 0.43                   |
| 43               | 4.629                 | 4.711                  | 4.795                 | 1.76%            | 0.45                   |
| 44               | 4.448                 | 4.529                  | 4.610                 | 1.80%            | 0.46                   |
| 45               | 4.274                 | 4.354                  | 4.434                 | 1.84%            | 0.47                   |
| 46               | 4.109                 | 4.187                  | 4.266                 | 1.88%            | 0.49                   |

| 温度<br>Temp. (°C) | R 最小值<br>R_Min (Kohm) | R 中心值<br>R_Cent (Kohm) | R 最大值<br>R_Max (Kohm) | 阻值公差<br>Res TOL. | 温度公差<br>Temp. TOL.(°C) |
|------------------|-----------------------|------------------------|-----------------------|------------------|------------------------|
| 47               | 3.951                 | 4.027                  | 4.104                 | 1.92%            | 0.50                   |
| 48               | 3.799                 | 3.874                  | 3.950                 | 1.96%            | 0.51                   |
| 49               | 3.655                 | 3.728                  | 3.803                 | 2.00%            | 0.53                   |
| 50               | 3.516                 | 3.588                  | 3.661                 | 2.04%            | 0.54                   |
| 51               | 3.384                 | 3.454                  | 3.526                 | 2.08%            | 0.55                   |
| 52               | 3.257                 | 3.326                  | 3.396                 | 2.12%            | 0.57                   |
| 53               | 3.135                 | 3.203                  | 3.272                 | 2.16%            | 0.58                   |
| 54               | 3.019                 | 3.086                  | 3.153                 | 2.19%            | 0.59                   |
| 55               | 2.908                 | 2.973                  | 3.039                 | 2.23%            | 0.61                   |
| 56               | 2.801                 | 2.865                  | 2.930                 | 2.27%            | 0.62                   |
| 57               | 2.699                 | 2.761                  | 2.825                 | 2.31%            | 0.64                   |
| 58               | 2.601                 | 2.662                  | 2.724                 | 2.35%            | 0.65                   |
| 59               | 2.507                 | 2.567                  | 2.628                 | 2.38%            | 0.66                   |
| 60               | 2.417                 | 2.476                  | 2.535                 | 2.42%            | 0.68                   |
| 61               | 2.331                 | 2.388                  | 2.447                 | 2.46%            | 0.69                   |
| 62               | 2.248                 | 2.304                  | 2.362                 | 2.49%            | 0.71                   |
| 63               | 2.169                 | 2.224                  | 2.280                 | 2.53%            | 0.72                   |
| 64               | 2.092                 | 2.146                  | 2.201                 | 2.57%            | 0.74                   |
| 65               | 2.019                 | 2.072                  | 2.126                 | 2.60%            | 0.75                   |
| 66               | 1.949                 | 2.001                  | 2.053                 | 2.64%            | 0.76                   |
| 67               | 1.882                 | 1.932                  | 1.984                 | 2.67%            | 0.78                   |
| 68               | 1.817                 | 1.866                  | 1.917                 | 2.71%            | 0.79                   |
| 69               | 1.754                 | 1.803                  | 1.852                 | 2.75%            | 0.81                   |
| 70               | 1.695                 | 1.742                  | 1.790                 | 2.78%            | 0.82                   |
| 71               | 1.637                 | 1.684                  | 1.731                 | 2.82%            | 0.84                   |
| 72               | 1.582                 | 1.628                  | 1.674                 | 2.85%            | 0.85                   |
| 73               | 1.529                 | 1.574                  | 1.619                 | 2.88%            | 0.87                   |
| 74               | 1.479                 | 1.522                  | 1.566                 | 2.92%            | 0.88                   |
| 75               | 1.430                 | 1.472                  | 1.516                 | 2.95%            | 0.90                   |
| 76               | 1.383                 | 1.424                  | 1.467                 | 2.99%            | 0.92                   |
| 77               | 1.337                 | 1.378                  | 1.419                 | 3.02%            | 0.93                   |
| 78               | 1.294                 | 1.333                  | 1.374                 | 3.06%            | 0.95                   |
| 79               | 1.251                 | 1.290                  | 1.330                 | 3.09%            | 0.96                   |
| 80               | 1.211                 | 1.249                  | 1.288                 | 3.12%            | 0.98                   |
| 81               | 1.172                 | 1.209                  | 1.247                 | 3.16%            | 0.99                   |
| 82               | 1.135                 | 1.171                  | 1.208                 | 3.19%            | 1.01                   |
| 83               | 1.099                 | 1.134                  | 1.171                 | 3.22%            | 1.03                   |
| 84               | 1.064                 | 1.099                  | 1.135                 | 3.26%            | 1.04                   |
| 85               | 1.031                 | 1.065                  | 1.100                 | 3.29%            | 1.06                   |
| 86               | 0.998                 | 1.032                  | 1.066                 | 3.32%            | 1.07                   |
| 87               | 0.967                 | 1.000                  | 1.033                 | 3.35%            | 1.09                   |
| 88               | 0.937                 | 0.969                  | 1.002                 | 3.38%            | 1.11                   |
| 89               | 0.908                 | 0.940                  | 0.972                 | 3.42%            | 1.12                   |
| 90               | 0.881                 | 0.911                  | 0.943                 | 3.45%            | 1.14                   |
| 91               | 0.854                 | 0.884                  | 0.914                 | 3.48%            | 1.16                   |

| 温度<br>Temp. (°C) | R 最小值<br>R_Min (Kohm) | R 中心值<br>R_Cent (Kohm) | R 最大值<br>R_Max (Kohm) | 阻值公差<br>Res TOL. | 温度公差<br>Temp. TOL.(°C) |
|------------------|-----------------------|------------------------|-----------------------|------------------|------------------------|
| 92               | 0.828                 | 0.857                  | 0.887                 | 3.51%            | 1.17                   |
| 93               | 0.803                 | 0.831                  | 0.861                 | 3.54%            | 1.19                   |
| 94               | 0.779                 | 0.807                  | 0.835                 | 3.57%            | 1.21                   |
| 95               | 0.755                 | 0.783                  | 0.811                 | 3.61%            | 1.22                   |
| 96               | 0.733                 | 0.760                  | 0.787                 | 3.64%            | 1.24                   |
| 97               | 0.711                 | 0.738                  | 0.765                 | 3.67%            | 1.26                   |
| 98               | 0.691                 | 0.716                  | 0.743                 | 3.70%            | 1.27                   |
| 99               | 0.670                 | 0.695                  | 0.721                 | 3.73%            | 1.29                   |
| 100              | 0.651                 | 0.675                  | 0.701                 | 3.76%            | 1.31                   |
| 101              | 0.632                 | 0.656                  | 0.681                 | 3.79%            | 1.33                   |
| 102              | 0.614                 | 0.637                  | 0.662                 | 3.82%            | 1.34                   |
| 103              | 0.596                 | 0.619                  | 0.643                 | 3.85%            | 1.36                   |
| 104              | 0.579                 | 0.602                  | 0.625                 | 3.88%            | 1.38                   |
| 105              | 0.563                 | 0.585                  | 0.608                 | 3.91%            | 1.40                   |
| 106              | 0.547                 | 0.569                  | 0.591                 | 3.94%            | 1.41                   |
| 107              | 0.532                 | 0.553                  | 0.575                 | 3.97%            | 1.43                   |
| 108              | 0.517                 | 0.538                  | 0.559                 | 4.00%            | 1.45                   |
| 109              | 0.502                 | 0.523                  | 0.544                 | 4.03%            | 1.47                   |
| 110              | 0.489                 | 0.508                  | 0.529                 | 4.05%            | 1.49                   |
| 111              | 0.475                 | 0.495                  | 0.515                 | 4.08%            | 1.50                   |
| 112              | 0.462                 | 0.481                  | 0.501                 | 4.11%            | 1.52                   |
| 113              | 0.449                 | 0.468                  | 0.487                 | 4.14%            | 1.54                   |
| 114              | 0.437                 | 0.456                  | 0.474                 | 4.17%            | 1.56                   |
| 115              | 0.425                 | 0.443                  | 0.462                 | 4.20%            | 1.58                   |
| 116              | 0.414                 | 0.432                  | 0.450                 | 4.22%            | 1.60                   |
| 117              | 0.403                 | 0.420                  | 0.438                 | 4.25%            | 1.62                   |
| 118              | 0.392                 | 0.409                  | 0.427                 | 4.28%            | 1.63                   |
| 119              | 0.382                 | 0.399                  | 0.416                 | 4.31%            | 1.65                   |
| 120              | 0.372                 | 0.388                  | 0.405                 | 4.34%            | 1.67                   |
| 121              | 0.362                 | 0.378                  | 0.395                 | 4.36%            | 1.69                   |
| 122              | 0.353                 | 0.368                  | 0.385                 | 4.39%            | 1.71                   |
| 123              | 0.344                 | 0.359                  | 0.375                 | 4.42%            | 1.73                   |
| 124              | 0.335                 | 0.350                  | 0.365                 | 4.44%            | 1.75                   |
| 125              | 0.326                 | 0.341                  | 0.356                 | 4.47%            | 1.77                   |