

### 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

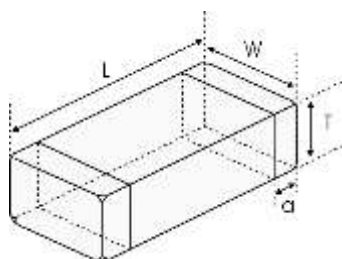


图 1 Fig.1

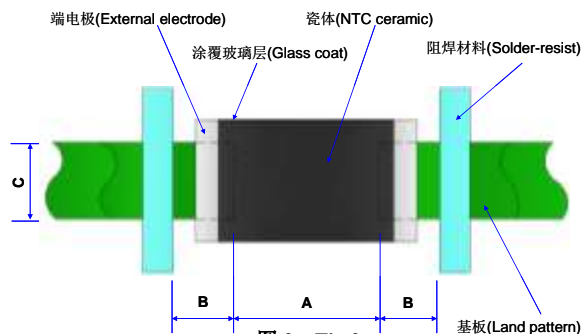


图 2 Fig.2

表 1 (Table 1)

单位 unit: inch[mm]

| 类别 Type        | L                        | W                         | T                         | a                        | A         | B         | C         |
|----------------|--------------------------|---------------------------|---------------------------|--------------------------|-----------|-----------|-----------|
| 0805<br>[2012] | 0.079±0.008<br>[2.0±0.2] | 0.049±0.008<br>[1.25±0.2] | 0.033±0.008<br>[0.85±0.2] | 0.020±0.012<br>[0.5±0.3] | [1.0-1.1] | [0.6-0.7] | [1.0-1.2] |

### 2 电气特性 Electrical Characteristics

| 型号<br>Part No     | 电阻值<br>Resistance<br>(25°C)<br>(kΩ) | B 常数<br>B Constant<br>(25/50°C)<br>(K) | B 常数<br>B Constant<br>(25/85°C)<br>(K) | 允许工作电流<br>Permissible<br>Operating Current<br>(25°C)<br>(mA) | 耗散系数<br>Dissipation<br>Factor<br>(mW/°C) | 热时间常数<br>Thermal<br>Time<br>Constant<br>(s) | 额定功率<br>Rated Electric<br>Power(25°C)<br>(mW) | 工作温度<br>Operating<br>ambient<br>temperature<br>(°C) |
|-------------------|-------------------------------------|--|--|--|--|---|---|---|
| KNTC0805/30KF3950 | 30±1%                               | 3950±1%                                | 3987                                   | 0.25   | 2.0                                      | <5  | 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

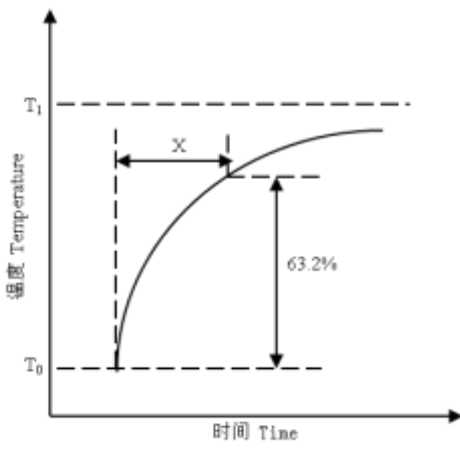
If any doubt on the results, measurements/tests should be made within the following limits:

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

#### ▪ Inspection Equipment

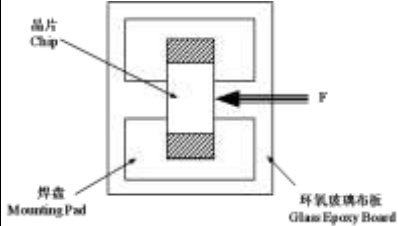
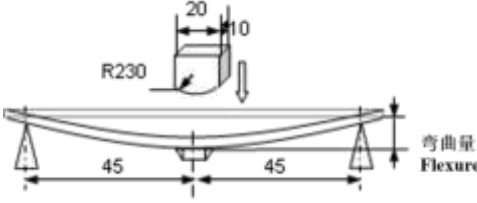
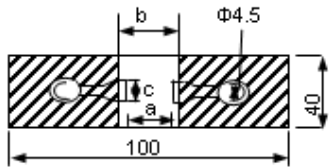
Visual Examination: 20× magnifier  
Resistance value test: Thermistor resistance tester


### 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<br>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                            | 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 T0 与最终温度 T1 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。<br>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).<br> |

|   |   |   |
|---|---|---|
| 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；<br/>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 border="1"> <thead> <tr> <th>尺寸 Size</th> <th>F</th> <th>保持时间 Duration</th> </tr> </thead> <tbody> <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> </tbody> </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。<br/>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；<br/>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 border="1"> <thead> <tr> <th>尺寸 Size</th> <th>弯曲变形量 Flexure</th> <th>施压速度 Pressurizing Speed</th> <th>保持时间 Duration</th> </tr> </thead> <tbody> <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> </tbody> </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。<br/>No visible damage.<br/>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math></p> <p>单位 unit: mm</p> <table border="1"> <thead> <tr> <th>类型 Type</th> <th>a</th> <th>b</th> <th>c</th> </tr> </thead> <tbody> <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> </tbody> </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               |               |                         |               |       |       |            |       |                  |     |   |         |   |   |   |      |      |     |     |      |     |     |     |      |     |     |     |      |     |     |      |

| <p>振动<br/>Vibration</p>                     | <p>IEC 60068-2-80</p> | <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 3 mutually perpendicular directions (total of 6 hours).</p> | <p>无外观损伤。<br/>No visible damage.</p>            |                |         |   |        |         |   |       |        |   |        |         |   |       |        |  |
|---|-----------------------|--|--|----------------|---------|---|--------|---------|---|-------|--------|---|--------|---------|---|-------|--------|--|
| <p>坠落<br/>Dropping</p>                      | <p>IEC 60068-2-32</p> | <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>   |                |         |   |        |         |   |       |        |   |        |         |   |       |        |  |
| <p>可焊性<br/>Solderability</p>                | <p>IEC 60068-2-58</p> | <p>① 焊接温度 Solder temperature: 245±5℃.<br/>② 浸渍时间 Duration: 3±0.3s.<br/>③ 焊锡成分 Solder: 96.5Sn/3.0Ag/0.5Cu.<br/>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.<br/>② 元件端电极的焊锡覆盖率不小于 95%。<br/>Wetting shall exceed 95% coverage.</p>                            |                |         |   |        |         |   |       |        |   |        |         |   |       |        |  |
| <p>耐焊性<br/>Resistance to Soldering Heat</p> | <p>IEC 60068-2-58</p> | <p>① 焊接温度 Solder temperature: 260±5℃.<br/>② 浸渍时间 Duration: 10±1s.<br/>③ 焊锡成分 Solder: 96.5Sn/3.0Ag/0.5Cu.<br/>④ 助焊剂 Flux:（重量比）25%松香和 75%酒精<br/>25% Resin and 75% ethanol in weight.<br/>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.<br/>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math><br/>③ <math> \Delta B/B  \leq 1\%</math></p> |                |         |   |        |         |   |       |        |   |        |         |   |       |        |  |
| <p>温度周期<br/>Temperature cycling</p>         | <p>IEC 60068-2-14</p> | <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 border="1" data-bbox="491 1429 1040 1624"> <thead> <tr> <th>步骤 Step</th> <th>温度 Temperature</th> <th>时间 Time</th> </tr> </thead> <tbody> <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> </tbody> </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.<br/>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math><br/>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   |  |                |         |   |        |         |   |       |        |   |        |         |   |       |        |  |
| <p>高温存放<br/>Resistance to dry heat</p>      | <p>IEC 60068-2-2</p>  | <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.<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.</p>   | <p>① 无外观损伤；<br/>No visible damage.<br/>② <math> \Delta R_{25}/R_{25}  \leq 2\%</math><br/>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   $\Delta R_{25}/R_{25}$   ≤2%<br>③   $\Delta B/B$   ≤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   $\Delta R_{25}/R_{25}$   ≤2%<br>③   $\Delta B/B$   ≤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   $\Delta R_{25}/R_{25}$   ≤2%<br>③   $\Delta B/B$   ≤1% |

## 6 建议焊接条件

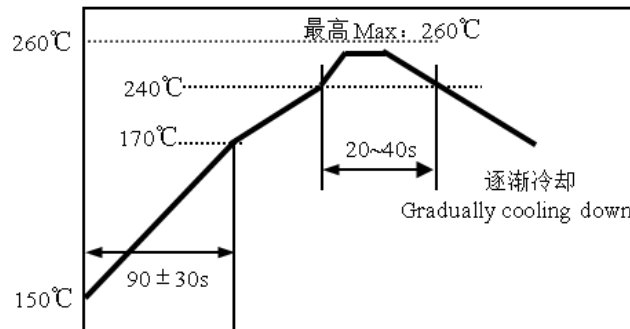
### • 回流焊

- 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

## 6 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

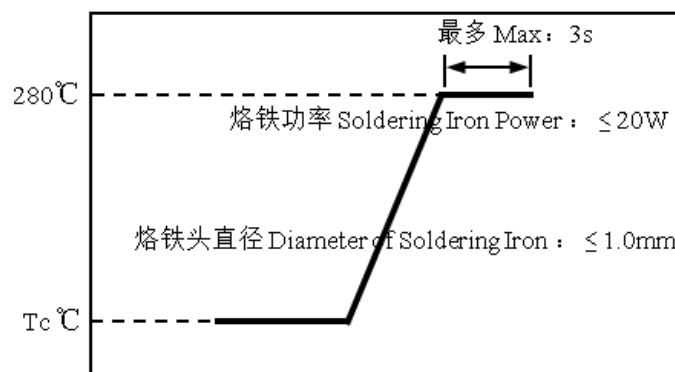
- 烙铁功率：最大 20W
- 预热：150°C/60sec.
- 烙铁头温度：最高 280°C
- 焊接时间：最多 3sec.
- 焊锡：96.5Sn/3.0Ag/0.5Cu
- 手工焊：最多 1 次

### • 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.]



7 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              | 989.782               | 1,035.824              | 1,083.900             | 4.64%            | 0.67                   |
| -39              | 925.952               | 968.373                | 1,012.635             | 4.57%            | 0.66                   |
| -38              | 866.675               | 905.774                | 946.543               | 4.50%            | 0.66                   |
| -37              | 811.596               | 847.648                | 885.213               | 4.43%            | 0.65                   |
| -36              | 760.391               | 793.646                | 828.272               | 4.36%            | 0.65                   |
| -35              | 712.762               | 743.448                | 775.378               | 4.29%            | 0.64                   |
| -34              | 668.437               | 696.763                | 726.216               | 4.23%            | 0.64                   |
| -33              | 627.165               | 653.321                | 680.500               | 4.16%            | 0.63                   |
| -32              | 588.716               | 612.877                | 637.965               | 4.09%            | 0.63                   |
| -31              | 552.879               | 575.204                | 598.371               | 4.03%            | 0.62                   |
| -30              | 519.460               | 540.096                | 561.495               | 3.96%            | 0.61                   |
| -29              | 488.281               | 507.361                | 527.133               | 3.90%            | 0.61                   |
| -28              | 459.178               | 476.824                | 495.099               | 3.83%            | 0.60                   |
| -27              | 431.999               | 448.324                | 465.220               | 3.77%            | 0.60                   |
| -26              | 406.605               | 421.712                | 437.337               | 3.71%            | 0.59                   |
| -25              | 382.867               | 396.852                | 411.306               | 3.64%            | 0.59                   |
| -24              | 360.621               | 373.567                | 386.938               | 3.58%            | 0.58                   |
| -23              | 339.811               | 351.799                | 364.172               | 3.52%            | 0.58                   |
| -22              | 320.337               | 331.439                | 342.893               | 3.46%            | 0.57                   |
| -21              | 302.104               | 312.389                | 322.993               | 3.39%            | 0.56                   |
| -20              | 285.025               | 294.556                | 304.376               | 3.33%            | 0.56                   |
| -19              | 269.021               | 277.855                | 286.950               | 3.27%            | 0.55                   |
| -18              | 254.017               | 262.206                | 270.632               | 3.21%            | 0.55                   |
| -17              | 239.945               | 247.538                | 255.345               | 3.15%            | 0.54                   |
| -16              | 226.741               | 233.782                | 241.018               | 3.10%            | 0.53                   |
| -15              | 214.346               | 220.877                | 227.584               | 3.04%            | 0.53                   |
| -14              | 202.706               | 208.765                | 214.983               | 2.98%            | 0.52                   |
| -13              | 191.771               | 197.392                | 203.158               | 2.92%            | 0.51                   |
| -12              | 181.494               | 186.710                | 192.056               | 2.86%            | 0.51                   |
| -11              | 171.830               | 176.671                | 181.629               | 2.81%            | 0.50                   |
| -10              | 162.741               | 167.233                | 171.833               | 2.75%            | 0.49                   |
| -9               | 154.187               | 158.357                | 162.624               | 2.69%            | 0.49                   |
| -8               | 146.136               | 150.007                | 153.965               | 2.64%            | 0.48                   |
| -7               | 138.553               | 142.147                | 145.819               | 2.58%            | 0.47                   |
| -6               | 131.410               | 134.747                | 138.154               | 2.53%            | 0.47                   |
| -5               | 124.678               | 127.776                | 130.937               | 2.47%            | 0.46                   |
| -4               | 118.323               | 121.199                | 124.132               | 2.42%            | 0.45                   |
| -3               | 112.330               | 115.000                | 117.721               | 2.37%            | 0.45                   |
| -2               | 106.677               | 109.155                | 111.680               | 2.31%            | 0.44                   |
| -1               | 101.342               | 103.643                | 105.985               | 2.26%            | 0.43                   |
| 0                | 96.306                | 98.442                 | 100.614               | 2.21%            | 0.43                   |
| 1                | 91.555                | 93.538                 | 95.554                | 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                | 87.067                | 88.907                 | 90.777                | 2.10%            | 0.41                   |
| 3                | 82.825                | 84.533                 | 86.267                | 2.05%            | 0.40                   |
| 4                | 78.814                | 80.399                 | 82.007                | 2.00%            | 0.40                   |
| 5                | 75.020                | 76.491                 | 77.982                | 1.95%            | 0.39                   |
| 6                | 71.425                | 72.788                 | 74.171                | 1.90%            | 0.38                   |
| 7                | 68.022                | 69.287                 | 70.568                | 1.85%            | 0.37                   |
| 8                | 64.802                | 65.975                 | 67.162                | 1.80%            | 0.37                   |
| 9                | 61.753                | 62.840                 | 63.939                | 1.75%            | 0.36                   |
| 10               | 58.866                | 59.873                 | 60.891                | 1.70%            | 0.35                   |
| 11               | 56.132                | 57.065                 | 58.007                | 1.65%            | 0.34                   |
| 12               | 53.541                | 54.404                 | 55.276                | 1.60%            | 0.33                   |
| 13               | 51.084                | 51.883                 | 52.690                | 1.55%            | 0.33                   |
| 14               | 48.753                | 49.493                 | 50.239                | 1.51%            | 0.32                   |
| 15               | 46.542                | 47.226                 | 47.915                | 1.46%            | 0.31                   |
| 16               | 44.443                | 45.075                 | 45.712                | 1.41%            | 0.30                   |
| 17               | 42.451                | 43.034                 | 43.622                | 1.37%            | 0.29                   |
| 18               | 40.558                | 41.097                 | 41.639                | 1.32%            | 0.29                   |
| 19               | 38.762                | 39.259                 | 39.758                | 1.27%            | 0.28                   |
| 20               | 37.054                | 37.512                 | 37.972                | 1.23%            | 0.27                   |
| 21               | 35.432                | 35.853                 | 36.277                | 1.18%            | 0.26                   |
| 22               | 33.889                | 34.277                 | 34.666                | 1.13%            | 0.25                   |
| 23               | 32.423                | 32.779                 | 33.136                | 1.09%            | 0.24                   |
| 24               | 31.027                | 31.355                 | 31.682                | 1.04%            | 0.24                   |
| 25               | 29.700                | 30.000                 | 30.300                | 1.00%            | 0.23                   |
| 26               | 28.412                | 28.711                 | 29.011                | 1.04%            | 0.24                   |
| 27               | 27.186                | 27.485                 | 27.784                | 1.09%            | 0.25                   |
| 28               | 26.020                | 26.318                 | 26.616                | 1.13%            | 0.26                   |
| 29               | 24.911                | 25.206                 | 25.503                | 1.18%            | 0.27                   |
| 30               | 23.855                | 24.148                 | 24.442                | 1.22%            | 0.29                   |
| 31               | 22.849                | 23.140                 | 23.432                | 1.26%            | 0.30                   |
| 32               | 21.892                | 22.180                 | 22.469                | 1.31%            | 0.31                   |
| 33               | 20.979                | 21.264                 | 21.551                | 1.35%            | 0.32                   |
| 34               | 20.110                | 20.392                 | 20.675                | 1.39%            | 0.33                   |
| 35               | 19.281                | 19.560                 | 19.840                | 1.43%            | 0.35                   |
| 36               | 18.491                | 18.766                 | 19.043                | 1.47%            | 0.36                   |
| 37               | 17.738                | 18.009                 | 18.282                | 1.52%            | 0.37                   |
| 38               | 17.019                | 17.286                 | 17.556                | 1.56%            | 0.38                   |
| 39               | 16.334                | 16.597                 | 16.862                | 1.60%            | 0.40                   |
| 40               | 15.679                | 15.938                 | 16.200                | 1.64%            | 0.41                   |
| 41               | 15.054                | 15.309                 | 15.567                | 1.68%            | 0.42                   |
| 42               | 14.458                | 14.708                 | 14.962                | 1.72%            | 0.43                   |
| 43               | 13.888                | 14.134                 | 14.384                | 1.76%            | 0.45                   |
| 44               | 13.344                | 13.586                 | 13.831                | 1.80%            | 0.46                   |
| 45               | 12.823                | 13.061                 | 13.302                | 1.84%            | 0.47                   |
| 46               | 12.327                | 12.560                 | 12.797                | 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               | 11.852                | 12.081                 | 12.313                | 1.92%            | 0.50                   |
| 48               | 11.398                | 11.623                 | 11.851                | 1.96%            | 0.51                   |
| 49               | 10.964                | 11.184                 | 11.408                | 2.00%            | 0.53                   |
| 50               | 10.548                | 10.765                 | 10.984                | 2.04%            | 0.54                   |
| 51               | 10.151                | 10.363                 | 10.578                | 2.08%            | 0.55                   |
| 52               | 9.770                 | 9.978                  | 10.189                | 2.12%            | 0.57                   |
| 53               | 9.406                 | 9.610                  | 9.817                 | 2.16%            | 0.58                   |
| 54               | 9.057                 | 9.257                  | 9.460                 | 2.19%            | 0.59                   |
| 55               | 8.723                 | 8.919                  | 9.118                 | 2.23%            | 0.61                   |
| 56               | 8.403                 | 8.595                  | 8.790                 | 2.27%            | 0.62                   |
| 57               | 8.096                 | 8.284                  | 8.475                 | 2.31%            | 0.64                   |
| 58               | 7.802                 | 7.986                  | 8.173                 | 2.35%            | 0.65                   |
| 59               | 7.521                 | 7.701                  | 7.884                 | 2.38%            | 0.66                   |
| 60               | 7.250                 | 7.427                  | 7.606                 | 2.42%            | 0.68                   |
| 61               | 6.992                 | 7.164                  | 7.340                 | 2.46%            | 0.69                   |
| 62               | 6.744                 | 6.913                  | 7.085                 | 2.49%            | 0.71                   |
| 63               | 6.506                 | 6.671                  | 6.840                 | 2.53%            | 0.72                   |
| 64               | 6.277                 | 6.439                  | 6.604                 | 2.57%            | 0.74                   |
| 65               | 6.058                 | 6.216                  | 6.378                 | 2.60%            | 0.75                   |
| 66               | 5.847                 | 6.002                  | 6.160                 | 2.64%            | 0.76                   |
| 67               | 5.645                 | 5.796                  | 5.951                 | 2.67%            | 0.78                   |
| 68               | 5.450                 | 5.598                  | 5.750                 | 2.71%            | 0.79                   |
| 69               | 5.263                 | 5.408                  | 5.557                 | 2.75%            | 0.81                   |
| 70               | 5.084                 | 5.226                  | 5.371                 | 2.78%            | 0.82                   |
| 71               | 4.912                 | 5.051                  | 5.193                 | 2.82%            | 0.84                   |
| 72               | 4.747                 | 4.883                  | 5.022                 | 2.85%            | 0.85                   |
| 73               | 4.588                 | 4.721                  | 4.858                 | 2.88%            | 0.87                   |
| 74               | 4.436                 | 4.566                  | 4.699                 | 2.92%            | 0.88                   |
| 75               | 4.289                 | 4.416                  | 4.547                 | 2.95%            | 0.90                   |
| 76               | 4.148                 | 4.272                  | 4.400                 | 2.99%            | 0.92                   |
| 77               | 4.012                 | 4.133                  | 4.258                 | 3.02%            | 0.93                   |
| 78               | 3.881                 | 4.000                  | 4.122                 | 3.06%            | 0.95                   |
| 79               | 3.754                 | 3.871                  | 3.990                 | 3.09%            | 0.96                   |
| 80               | 3.633                 | 3.747                  | 3.864                 | 3.12%            | 0.98                   |
| 81               | 3.517                 | 3.628                  | 3.742                 | 3.16%            | 0.99                   |
| 82               | 3.404                 | 3.513                  | 3.625                 | 3.19%            | 1.01                   |
| 83               | 3.296                 | 3.403                  | 3.512                 | 3.22%            | 1.03                   |
| 84               | 3.192                 | 3.296                  | 3.404                 | 3.26%            | 1.04                   |
| 85               | 3.092                 | 3.194                  | 3.299                 | 3.29%            | 1.06                   |
| 86               | 2.995                 | 3.095                  | 3.198                 | 3.32%            | 1.07                   |
| 87               | 2.902                 | 3.000                  | 3.100                 | 3.35%            | 1.09                   |
| 88               | 2.812                 | 2.908                  | 3.006                 | 3.38%            | 1.11                   |
| 89               | 2.725                 | 2.819                  | 2.915                 | 3.42%            | 1.12                   |
| 90               | 2.642                 | 2.733                  | 2.828                 | 3.45%            | 1.14                   |
| 91               | 2.561                 | 2.651                  | 2.743                 | 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               | 2.484                 | 2.571                  | 2.661                 | 3.51%            | 1.17                   |
| 93               | 2.409                 | 2.494                  | 2.583                 | 3.54%            | 1.19                   |
| 94               | 2.336                 | 2.420                  | 2.506                 | 3.57%            | 1.21                   |
| 95               | 2.266                 | 2.348                  | 2.433                 | 3.61%            | 1.22                   |
| 96               | 2.199                 | 2.279                  | 2.362                 | 3.64%            | 1.24                   |
| 97               | 2.134                 | 2.213                  | 2.294                 | 3.67%            | 1.26                   |
| 98               | 2.072                 | 2.149                  | 2.228                 | 3.70%            | 1.27                   |
| 99               | 2.011                 | 2.086                  | 2.164                 | 3.73%            | 1.29                   |
| 100              | 1.953                 | 2.026                  | 2.103                 | 3.76%            | 1.31                   |
| 101              | 1.896                 | 1.968                  | 2.043                 | 3.79%            | 1.33                   |
| 102              | 1.842                 | 1.912                  | 1.985                 | 3.82%            | 1.34                   |
| 103              | 1.789                 | 1.858                  | 1.930                 | 3.85%            | 1.36                   |
| 104              | 1.738                 | 1.806                  | 1.876                 | 3.88%            | 1.38                   |
| 105              | 1.689                 | 1.755                  | 1.824                 | 3.91%            | 1.40                   |
| 106              | 1.641                 | 1.706                  | 1.773                 | 3.94%            | 1.41                   |
| 107              | 1.595                 | 1.658                  | 1.724                 | 3.97%            | 1.43                   |
| 108              | 1.551                 | 1.613                  | 1.677                 | 4.00%            | 1.45                   |
| 109              | 1.507                 | 1.568                  | 1.631                 | 4.03%            | 1.47                   |
| 110              | 1.466                 | 1.525                  | 1.587                 | 4.05%            | 1.49                   |
| 111              | 1.425                 | 1.484                  | 1.544                 | 4.08%            | 1.50                   |
| 112              | 1.386                 | 1.443                  | 1.503                 | 4.11%            | 1.52                   |
| 113              | 1.348                 | 1.404                  | 1.462                 | 4.14%            | 1.54                   |
| 114              | 1.312                 | 1.367                  | 1.423                 | 4.17%            | 1.56                   |
| 115              | 1.276                 | 1.330                  | 1.386                 | 4.20%            | 1.58                   |
| 116              | 1.242                 | 1.295                  | 1.349                 | 4.22%            | 1.60                   |
| 117              | 1.209                 | 1.261                  | 1.314                 | 4.25%            | 1.62                   |
| 118              | 1.177                 | 1.228                  | 1.280                 | 4.28%            | 1.63                   |
| 119              | 1.146                 | 1.196                  | 1.247                 | 4.31%            | 1.65                   |
| 120              | 1.116                 | 1.164                  | 1.215                 | 4.34%            | 1.67                   |
| 121              | 1.087                 | 1.134                  | 1.184                 | 4.36%            | 1.69                   |
| 122              | 1.059                 | 1.105                  | 1.154                 | 4.39%            | 1.71                   |
| 123              | 1.031                 | 1.077                  | 1.124                 | 4.42%            | 1.73                   |
| 124              | 1.005                 | 1.049                  | 1.096                 | 4.44%            | 1.75                   |
| 125              | 0.979                 | 1.023                  | 1.068                 | 4.47%            | 1.77                   |