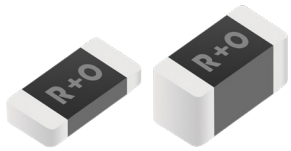
# Chip NTC Thermistor Datasheet

## Features

- Leadless , Size 0402
- SMD type suitable for high density mounting
- B constant tolerance ±1%
- Excellent solder ability
- Operating temperature：-40°C to +125°C
- RoHS compliant & Lead-Free & Halogen Free

**HNTC0402 Series**



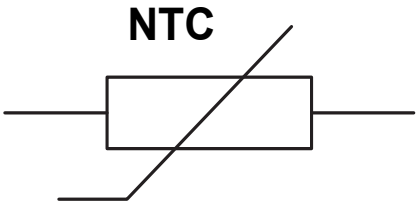
## Applications

- Consumer Electronics，mobile phone，wearable device，TWS headphones，etc.
- Office automation such as printer ，facsimile,word processor，etc.
- Industrial Power Supplies
- Medical Electronics
- IoT Sensor Nodes

## Part Number Code

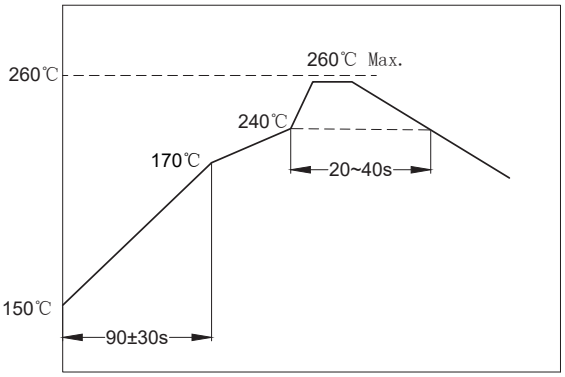
H NTC □□□□ - □□□ F □□□□ F B
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① "HJC" Brand Code
② Chip NTC Thermistor
③ Chip Size/package
④ Rated Zero-Power Resistance：103=10000Ω, 503=50000Ω, 104=100000Ω
⑤ Resistance Tolerance F: 1% G: 2% H: 3% J:5%
⑥ B Constant
⑦ B Constant Tolerance F: 1% H: 3%
⑧ B Constant calculation method A: 25°C/85°C B: 25°C/50°C




## Recommended Soldering Conditions

### Reflow Soldering Recommendation




| Profile Feature | | Condition |
|---|---|---|
| Pre-heat | Temperature Min | +150°C |
| | Temperature Max | +170°C |
| | Pre-heat Time | 90±30 secs. |
| ramp up rate | | 3°C /sec. Max |
| Time above 240°C | | 20~40 secs |
| Peak Temperature | | +260°C，10 secs. Max |
| Ramp-down Rate | | 6°C /sec. Max |
| Time 25°C to Peak Temp ($T_P$) | | 8 min. Max |
| Do not exceed | | +260°C |

### Iron Soldering Recommendation

| Item | Conditions |
|---|---|
| Temperature of Soldering Iron-tip | 280°C Max |
| Soldering Time | 3 secs. Max |
| Times for iron soldering | 1 time Max |
| Note: Take care not to apply the tip of the soldering iron to the terminal electrodes. | |

## Electrical Characteristics (Ta=25°C Unless otherwise specified)

| PARAMETER | CONDITION | VALUE | UNIT |
|---|---|---|---|
| Rated Zero-Power Resistance | $T_a$=25°C ±0.1°C | 47±1% | KΩ |
| B Constant (Material Constant) | 25°C /50°C | 4050±1% | K |
| Permissible Operating Current | $T_a$=25°C ±0.1°C | 0.14 | mA |
| Thermal Dissipation Constant | $T_a$=25°C ±0.1°C | 1.0 | mW/°C |
| Thermal Time Constant | $T_a$=25°C ±0.1°C | ＜3 | sec |
| Rated Electric Power | $T_a$=25°C ±0.1°C | 100 | mW |
| Operating Temperature Range | / | -40 to + 125 | °C |

## Test and Measurement Procedures

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

| Items | Condition |
|---|---|
| Ambient Temperature: | 20±15°C |
| Relative Humidity: | 65±20% |
| Air Pressure: | 86kPa to 106kPa |

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

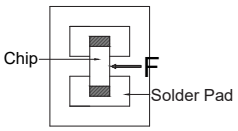
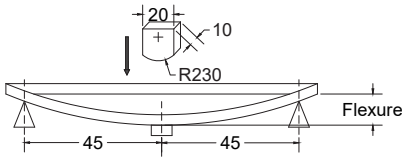
| Items | Condition |
|---|---|
| Ambient Temperature: | 25±2°C |
| Relative Humidity: | 65±5% |
| Air Pressure: | 86kPa to 106kPa |

Inspection Equipment
1.Visual Examination: 20×magnifier
2.Resistance value test: Thermistor resistance tester

## Electrical Test

| Items | Test Methods and Remarks |
|---|---|
| Nominal Zero-Power Resistance at 25°C | Ambient temperature：25±0.05°C ; Measuring electric power：≤ 0.1mW |
| Nominal B Constant | Measure the resistance at the ambient temperature of 25±0.05°C , 50±0.05°C or 85±0.05°C . $B_{(25/50℃)} = \frac{\ln R_{25}-\ln R_{50}}{1/T_{25}-1/T_{50}}$ $B_{(25/85℃)} = \frac{\ln R_{25}-\ln R_{85}}{1/T_{25}-1/T_{85}}$ |
| Thermal Time Constant | The total time for the temperature of the thermistor to change by 63.2% of the difference from ambient temperature T0 (°C ) to T1 (°C ) by the drastic change of the power applied to thermistor from Non-zero Power to Zero-Power state, normally expressed in second(S) |
| Dissipation Factor | The required power which makes the NTC thermistor body temperature raise 1 °C through self-heated, normally expressed in milliwatts per degree Celsius (mW/°C ). It can be calculated by the following formula: |
| Rated Power | The necessary electric power makes thermistor’ s temperature rise 100°C by self-heating at ambient temperature 25°C . |
| Permissible operating current | The current that keep body temperature of chip NTC on the PC board in still air rising 1° C by self-heating. |

## Reliability Test

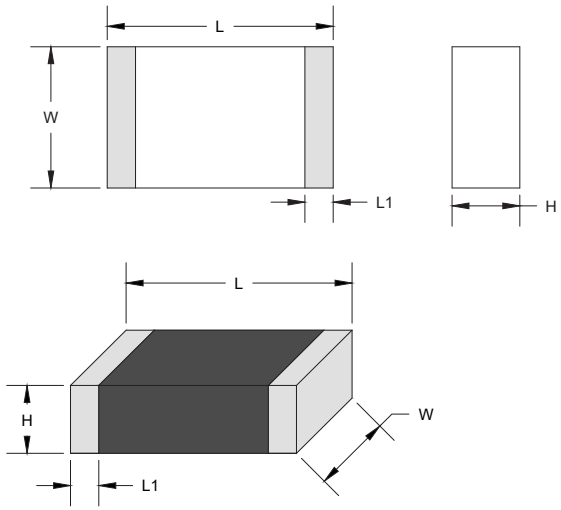
<table>
<tr><th>Items</th><th>Standard</th><th>Test Methods and Remarks</th><th>Requirements</th></tr>
<tr><td>Terminal Strength</td><td>IEC 60068-2-21</td><td>Solder the chip to the testing jig using eutectic solder. Then apply a force in the direction of the arrow.
<table>
<tr><th>Size</th><th>F</th><th>Duration</th></tr>
<tr><td>0402, 0603</td><td>5N</td><td>10±1s</td></tr>
<tr><td>0805</td><td>10N</td><td>10±1s</td></tr>
</table></td><td>No removal or split of the termination or other defects shall occur.<br> 
</td></tr>
<tr><td>Resistance to Flexure</td><td>IEC 60068-2-21</td><td>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;<br> 

<table>
<tr><th>Size</th><th>Flexure</th><th>Speed</th><th>Duration</th></tr>
<tr><td>0402, 0603</td><td>1mm</td><td>＜0.5mm/s</td><td>10±1s</td></tr>
<tr><td>0805</td><td>2mm</td><td>＜0.5mm/s</td><td>10±1s</td></tr>
</table></td><td>No visible damage.<br>| Δ R25/R25 | ⩽ 5%</td></tr>
<tr><td>Dropping</td><td>IEC 60068-2-32</td><td>Drop a chip 10 times on a concrete floor from a height of 1 meter.</td><td>No visible damage.</td></tr>
<tr><td>Solderability</td><td>IEC 60068-2-58</td><td>1. Solder temperature: 245±5°C<br>2. Duration: 3±0.3s<br>3. Solder: Sn/3.0Ag/0.5Cu<br>4. 25% Resin and 75% ethanol in weight</td><td>No visible damage<br>Wetting shall exceed 95% coverage.</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>IEC 60068-2-58</td><td>1. Solder temperature: 260±5°C<br>2. Duration: 10±1s<br>3. Solder: Sn/3.0Ag/0.5Cu<br>4. 25% Resin and 75% ethanol in weight<br>5. The chip shall be stabilized at normal condition for 1~2 hours before measuring</td><td>No visible damage.<br>| Δ R25/R25 | ⩽ 5%<br>| Δ B/B | ⩽ 2%</td></tr>
<tr><td>Temperature cycling</td><td>IEC 60068-2-14</td><td>1. 5 cycles of following sequence without loading.
<table>
<tr><th>Step</th><th>Temperature</th><th>Period</th></tr>
<tr><td>1</td><td>-40±5°C</td><td>30±3min</td></tr>
<tr><td>2</td><td>Room Temperature</td><td>5±3min</td></tr>
<tr><td>3</td><td>125±2°C</td><td>30±3min</td></tr>
<tr><td>4</td><td>Room Temperature</td><td>5±3min</td></tr>
</table>
2. The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td>No visible damage<br>| Δ R25/R25 | ⩽ 3%<br>| Δ B/B | ⩽ 2%</td></tr>
<tr><td>Resistance to dry heat</td><td>IEC 60068-2-2</td><td>1. 125±5°C in air, for 1000±24 hours without loading<br>2. The chip shall be stabilized at normal condition for 1~2 hours before measuring</td><td>No visible damage.<br>| Δ R25/R25 | ⩽ 5%<br>| Δ B/B | ⩽ 2%</td></tr>
<tr><td>Resistance to cold</td><td>IEC 60068-2- 1</td><td>1. -40±3°C in air, for 1000±24 hours without loading.<br>2. The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td>No visible damage.<br>| Δ R25/R25 | ⩽ 5%<br>| Δ B/B | ⩽ 2%</td></tr>
<tr><td>Resistance to damp heat</td><td>IEC 60068-2-78</td><td>1. 40±2°C , 90~95%RH in air, for 1000±24 hours without loading<br>2. The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td><td>No visible damage.<br>| Δ R25/R25 | ⩽ 3%<br>| Δ B/B | ⩽ 2%</td></tr>
<tr><td>Resistance to high temperature load</td><td>IEC 60539-1 5.25.4</td><td>1. 85±2°C in air with permissive operating current for 1000±48 hours<br>2. The chip shall be stabilized at normal condition for 1~2 hours before measuring</td><td>No visible damage.<br>| Δ R25/R25 | ⩽ 5%<br>| Δ B/B | ⩽ 2%</td></tr>
</table>

## Environmental Specification

| | |
|---|---|
| Storage temperature: | -10°C to +40°C |
| Storage Conditions: | Light-proof, Hermetically Sealed, Moisture-proof;<br>The components should be left in their original packing to avoid soldering problems due to oxidized contacts. |
| Relative humidity: | < 75 % RH |
| Storage period | The components should be employed within 6 months after delivery |

## Physical Dimensions

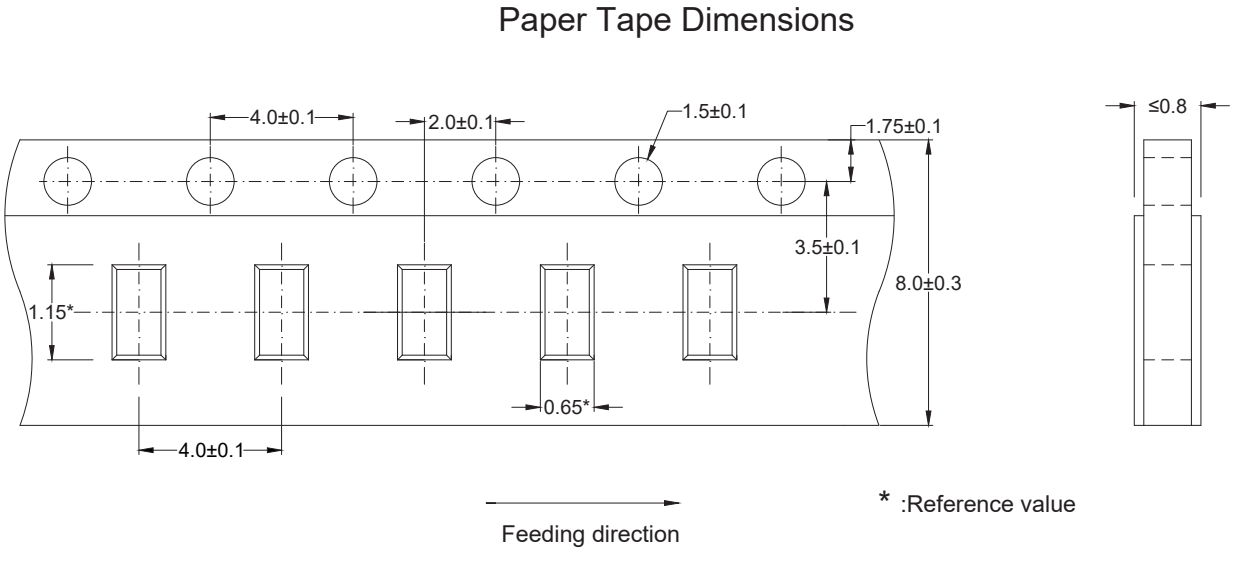



| Part Package | L | W | H | L1 |
|---|---|---|---|---|
| | (mm) | (mm) | (mm) | (mm) |
| 0402 | 1.00±0.15 | 0.50±0.15 | 0.50±0.15 | 0.25±0.10 |

## Ordering Information

| PACKAGE | Part Number | DELIVERY MODE | MPQ(PCS) |
|---|---|---|---|
| 0402 | HNTC0402-473F4050FB | 7''REEL | 10,000 |

## Packaging Information



## R-T Chart

| Temp.(℃ ) | R_Min(KΩ) | R_Typ( KΩ) | R_Max(KΩ) | R_Tolerance | Temp._Tolerance(℃ ) |
|---|---|---|---|---|---|
| -40 | 1668.985 | 1747.92 | 1830.405 | 4.72% | 0.66 |
| -39 | 1559.059 | 1631.671 | 1707.495 | 4.65% | 0.66 |
| -38 | 1457.126 | 1523.95 | 1593.679 | 4.58% | 0.65 |
| -37 | 1362.554 | 1424.076 | 1488.225 | 4.50% | 0.65 |
| -36 | 1274.763 | 1331.424 | 1390.465 | 4.43% | 0.64 |
| -35 | 1193.223 | 1245.428 | 1299.787 | 4.36% | 0.64 |
| -34 | 1117.447 | 1165.564 | 1215.631 | 4.30% | 0.63 |
| -33 | 1046.992 | 1091.357 | 1137.488 | 4.23% | 0.63 |
| -32 | 981.45 | 1022.37 | 1064.889 | 4.16% | 0.62 |
| -31 | 920.446 | 958.202 | 997.406 | 4.09% | 0.62 |
| -30 | 863.639 | 898.485 | 934.645 | 4.02% | 0.61 |
| -29 | 810.711 | 842.884 | 876.246 | 3.96% | 0.61 |
| -28 | 761.375 | 791.088 | 821.878 | 3.89% | 0.6 |
| -27 | 715.364 | 742.813 | 771.239 | 3.83% | 0.6 |
| -26 | 672.432 | 697.798 | 724.048 | 3.76% | 0.59 |
| -25 | 632.356 | 655.802 | 680.05 | 3.70% | 0.58 |
| -24 | 594.926 | 616.605 | 639.009 | 3.63% | 0.58 |
| -23 | 559.952 | 580.001 | 600.708 | 3.57% | 0.57 |
| -22 | 527.258 | 545.805 | 564.948 | 3.51% | 0.57 |
| -21 | 496.681 | 513.842 | 531.543 | 3.44% | 0.56 |
| -20 | 468.071 | 483.954 | 500.325 | 3.38% | 0.55 |
| -19 | 441.29 | 455.992 | 471.137 | 3.32% | 0.55 |
| -18 | 416.209 | 429.822 | 443.835 | 3.26% | 0.54 |
| -17 | 392.711 | 405.317 | 418.286 | 3.20% | 0.54 |
| -16 | 370.686 | 382.362 | 394.367 | 3.14% | 0.53 |
| -15 | 350.033 | 360.85 | 371.963 | 3.08% | 0.52 |
| -14 | 330.659 | 340.68 | 350.971 | 3.02% | 0.52 |
| -13 | 312.476 | 321.762 | 331.292 | 2.96% | 0.51 |
| -12 | 295.404 | 304.011 | 312.837 | 2.90% | 0.5 |
| -11 | 279.369 | 287.347 | 295.522 | 2.85% | 0.5 |
| -10 | 264.302 | 271.697 | 279.271 | 2.79% | 0.49 |
| -9 | 250.139 | 256.995 | 264.012 | 2.73% | 0.48 |
| -8 | 236.82 | 243.176 | 249.678 | 2.67% | 0.48 |
| -7 | 224.29 | 230.184 | 236.208 | 2.62% | 0.47 |
| -6 | 212.498 | 217.963 | 223.546 | 2.56% | 0.46 |
| -5 | 201.396 | 206.463 | 211.637 | 2.51% | 0.46 |
| -4 | 190.926 | 195.624 | 200.418 | 2.45% | 0.45 |
| -3 | 181.063 | 185.419 | 189.862 | 2.40% | 0.44 |
| -2 | 171.768 | 175.808 | 179.924 | 2.34% | 0.44 |
| -1 | 163.006 | 166.751 | 170.565 | 2.29% | 0.43 |
| 0 | 154.743 | 158.214 | 161.748 | 2.23% | 0.42 |
| 1 | 146.947 | 150.165 | 153.439 | 2.18% | 0.41 |
| 2 | 139.589 | 142.573 | 145.605 | 2.13% | 0.41 |
| 3 | 132.643 | 135.408 | 138.217 | 2.07% | 0.40 |
| 4 | 126.083 | 128.645 | 131.247 | 2.02% | 0.39 |
| 5 | 119.885 | 122.259 | 124.668 | 1.97% | 0.38 |
| 6 | 114.028 | 116.227 | 118.457 | 1.92% | 0.38 |

## R-T Chart

| Temp.(℃ ) | R_Min(KΩ) | R_Typ( KΩ) | R_Max(KΩ) | R_Tolerance | Temp._Tolerance(℃ ) |
|---|---|---|---|---|---|
| 7 | 108.491 | 110.528 | 112.591 | 1.87% | 0.37 |
| 8 | 103.254 | 105.140 | 107.050 | 1.82% | 0.36 |
| 9 | 98.300 | 100.045 | 101.812 | 1.77% | 0.35 |
| 10 | 93.611 | 95.227 | 96.861 | 1.72% | 0.35 |
| 11 | 89.173 | 90.667 | 92.178 | 1.67% | 0.34 |
| 12 | 84.970 | 86.352 | 87.748 | 1.62% | 0.33 |
| 13 | 80.989 | 82.266 | 83.555 | 1.57% | 0.32 |
| 14 | 77.216 | 78.396 | 79.586 | 1.52% | 0.31 |
| 15 | 73.641 | 74.730 | 75.828 | 1.47% | 0.31 |
| 16 | 70.250 | 71.256 | 72.268 | 1.42% | 0.30 |
| 17 | 67.035 | 67.962 | 68.895 | 1.37% | 0.29 |
| 18 | 63.984 | 64.839 | 65.698 | 1.33% | 0.28 |
| 19 | 61.089 | 61.876 | 62.667 | 1.28% | 0.27 |
| 20 | 58.341 | 59.065 | 59.792 | 1.23% | 0.26 |
| 21 | 55.730 | 56.396 | 57.064 | 1.18% | 0.26 |
| 22 | 53.252 | 53.863 | 54.476 | 1.14% | 0.25 |
| 23 | 50.896 | 51.457 | 52.019 | 1.09% | 0.24 |
| 24 | 48.658 | 49.172 | 49.686 | 1.05% | 0.23 |
| 25 | 46.530 | 47.000 | 47.470 | 1.00% | 0.22 |
| 26 | 44.467 | 44.936 | 45.406 | 1.05% | 0.23 |
| 27 | 42.506 | 42.974 | 43.442 | 1.09% | 0.25 |
| 28 | 40.642 | 41.108 | 41.574 | 1.14% | 0.26 |
| 29 | 38.870 | 39.332 | 39.796 | 1.18% | 0.27 |
| 30 | 37.184 | 37.643 | 38.104 | 1.22% | 0.28 |
| 31 | 35.580 | 36.035 | 36.492 | 1.27% | 0.29 |
| 32 | 34.054 | 34.504 | 34.957 | 1.31% | 0.30 |
| 33 | 32.601 | 33.046 | 33.494 | 1.36% | 0.32 |
| 34 | 31.217 | 31.657 | 32.100 | 1.40% | 0.33 |
| 35 | 29.899 | 30.334 | 30.772 | 1.44% | 0.34 |
| 36 | 28.645 | 29.073 | 29.506 | 1.49% | 0.35 |
| 37 | 27.449 | 27.872 | 28.298 | 1.53% | 0.37 |
| 38 | 26.310 | 26.726 | 27.146 | 1.57% | 0.38 |
| 39 | 25.223 | 25.633 | 26.047 | 1.61% | 0.39 |
| 40 | 24.188 | 24.591 | 24.998 | 1.66% | 0.40 |
| 41 | 23.200 | 23.596 | 23.997 | 1.70% | 0.42 |
| 42 | 22.257 | 22.647 | 23.041 | 1.74% | 0.43 |
| 43 | 21.357 | 21.740 | 22.127 | 1.78% | 0.44 |
| 44 | 20.499 | 20.875 | 21.255 | 1.82% | 0.45 |
| 45 | 19.679 | 20.048 | 20.422 | 1.86% | 0.47 |
| 46 | 18.896 | 19.258 | 19.625 | 1.91% | 0.48 |
| 47 | 18.148 | 18.503 | 18.863 | 1.95% | 0.49 |
| 48 | 17.434 | 17.782 | 18.135 | 1.99% | 0.51 |
| 49 | 16.751 | 17.092 | 17.439 | 2.03% | 0.52 |
| 50 | 16.098 | 16.433 | 16.772 | 2.07% | 0.53 |
| 51 | 15.474 | 15.802 | 16.135 | 2.11% | 0.55 |
| 52 | 14.877 | 15.198 | 15.524 | 2.15% | 0.56 |
| 53 | 14.306 | 14.621 | 14.940 | 2.19% | 0.57 |

## R-T Chart

| Temp.(℃ ) | R_Min(KΩ) | R_Typ( KΩ) | R_Max(KΩ) | R_Tolerance | Temp._Tolerance(℃ ) |
|---|---|---|---|---|---|
| 54 | 13.760 | 14.068 | 14.381 | 2.23% | 0.59 |
| 55 | 13.237 | 13.539 | 13.845 | 2.26% | 0.60 |
| 56 | 12.737 | 13.032 | 13.332 | 2.30% | 0.61 |
| 57 | 12.258 | 12.547 | 12.840 | 2.34% | 0.63 |
| 58 | 11.799 | 12.082 | 12.369 | 2.38% | 0.64 |
| 59 | 11.360 | 11.636 | 11.918 | 2.42% | 0.66 |
| 60 | 10.939 | 11.209 | 11.485 | 2.46% | 0.67 |
| 61 | 10.537 | 10.801 | 11.070 | 2.50% | 0.68 |
| 62 | 10.151 | 10.409 | 10.673 | 2.53% | 0.70 |
| 63 | 9.781 | 10.034 | 10.292 | 2.57% | 0.71 |
| 64 | 9.426 | 9.673 | 9.926 | 2.61% | 0.73 |
| 65 | 9.086 | 9.328 | 9.575 | 2.65% | 0.74 |
| 66 | 8.760 | 8.996 | 9.238 | 2.68% | 0.76 |
| 67 | 8.447 | 8.678 | 8.914 | 2.72% | 0.77 |
| 68 | 8.147 | 8.373 | 8.604 | 2.76% | 0.79 |
| 69 | 7.859 | 8.080 | 8.305 | 2.79% | 0.80 |
| 70 | 7.582 | 7.798 | 8.019 | 2.83% | 0.82 |
| 71 | 7.316 | 7.527 | 7.743 | 2.87% | 0.83 |
| 72 | 7.061 | 7.266 | 7.477 | 2.90% | 0.85 |
| 73 | 6.815 | 7.016 | 7.222 | 2.94% | 0.86 |
| 74 | 6.579 | 6.776 | 6.977 | 2.98% | 0.88 |
| 75 | 6.352 | 6.544 | 6.741 | 3.01% | 0.89 |
| 76 | 6.135 | 6.323 | 6.515 | 3.05% | 0.91 |
| 77 | 5.926 | 6.110 | 6.298 | 3.08% | 0.92 |
| 78 | 5.726 | 5.905 | 6.089 | 3.12% | 0.94 |
| 79 | 5.533 | 5.708 | 5.887 | 3.15% | 0.95 |
| 80 | 5.347 | 5.518 | 5.694 | 3.19% | 0.97 |
| 81 | 5.169 | 5.336 | 5.508 | 3.22% | 0.98 |
| 82 | 4.997 | 5.161 | 5.329 | 3.26% | 1.00 |
| 83 | 4.833 | 4.992 | 5.156 | 3.29% | 1.02 |
| 84 | 4.674 | 4.830 | 4.990 | 3.32% | 1.03 |
| 85 | 4.521 | 4.674 | 4.831 | 3.36% | 1.05 |
| 86 | 4.374 | 4.523 | 4.676 | 3.39% | 1.06 |
| 87 | 4.232 | 4.377 | 4.527 | 3.43% | 1.08 |
| 88 | 4.095 | 4.237 | 4.383 | 3.46% | 1.10 |
| 89 | 3.963 | 4.102 | 4.245 | 3.49% | 1.11 |
| 90 | 3.836 | 3.972 | 4.112 | 3.53% | 1.13 |
| 91 | 3.714 | 3.846 | 3.983 | 3.56% | 1.15 |
| 92 | 3.596 | 3.725 | 3.859 | 3.59% | 1.16 |
| 93 | 3.482 | 3.609 | 3.740 | 3.63% | 1.18 |
| 94 | 3.373 | 3.496 | 3.624 | 3.66% | 1.20 |
| 95 | 3.267 | 3.388 | 3.513 | 3.69% | 1.21 |
| 96 | 3.165 | 3.284 | 3.406 | 3.72% | 1.23 |
| 97 | 3.067 | 3.183 | 3.303 | 3.76% | 1.25 |
| 98 | 2.973 | 3.086 | 3.203 | 3.79% | 1.26 |
| 99 | 2.882 | 2.992 | 3.107 | 3.82% | 1.28 |
| 100 | 2.794 | 2.902 | 3.014 | 3.85% | 1.30 |

## R-T Chart

| Temp.(℃ ) | R_Min(KΩ) | R_Typ( KΩ) | R_Max(KΩ) | R_Tolerance | Temp._Tolerance(℃ ) |
|---|---|---|---|---|---|
| 101 | 2.709 | 2.815 | 2.924 | 3.88% | 1.32 |
| 102 | 2.627 | 2.730 | 2.837 | 3.92% | 1.33 |
| 103 | 2.548 | 2.649 | 2.753 | 3.95% | 1.35 |
| 104 | 2.472 | 2.570 | 2.673 | 3.98% | 1.37 |
| 105 | 2.398 | 2.494 | 2.594 | 4.01% | 1.39 |
| 106 | 2.326 | 2.421 | 2.518 | 4.04% | 1.40 |
| 107 | 2.257 | 2.349 | 2.445 | 4.07% | 1.42 |
| 108 | 2.190 | 2.281 | 2.374 | 4.10% | 1.44 |
| 109 | 2.126 | 2.214 | 2.305 | 4.13% | 1.46 |
| 110 | 2.063 | 2.150 | 2.239 | 4.16% | 1.47 |
| 111 | 2.003 | 2.088 | 2.175 | 4.19% | 1.49 |
| 112 | 1.945 | 2.028 | 2.113 | 4.23% | 1.51 |
| 113 | 1.889 | 1.970 | 2.054 | 4.26% | 1.53 |
| 114 | 1.835 | 1.914 | 1.996 | 4.29% | 1.55 |
| 115 | 1.783 | 1.860 | 1.940 | 4.32% | 1.57 |
| 116 | 1.732 | 1.808 | 1.886 | 4.34% | 1.58 |
| 117 | 1.683 | 1.757 | 1.834 | 4.37% | 1.60 |
| 118 | 1.636 | 1.708 | 1.784 | 4.40% | 1.62 |
| 119 | 1.590 | 1.661 | 1.735 | 4.43% | 1.64 |
| 120 | 1.546 | 1.615 | 1.687 | 4.46% | 1.66 |
| 121 | 1.503 | 1.571 | 1.641 | 4.49% | 1.68 |
| 122 | 1.461 | 1.528 | 1.597 | 4.52% | 1.70 |
| 123 | 1.421 | 1.486 | 1.553 | 4.55% | 1.72 |
| 124 | 1.382 | 1.445 | 1.511 | 4.58% | 1.73 |
| 125 | 1.344 | 1.406 | 1.471 | 4.61% | 1.75 |