## Type NTC Series

A range of NTC chip thermistors offering high thermal sensitivity. Suitable for temperature compensating circuits and other applications requiring a resistance that varies according to ambient temperature.
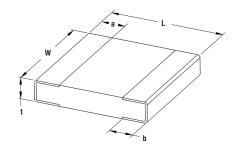
## Key Features

- **Two Package Sizes**
- **Suited to Automatic Pick and Place**
- **Components supplied unmarked**
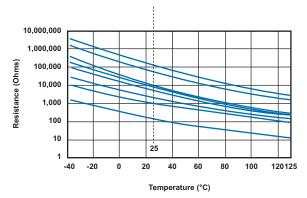- **-55°C to +125°C Temperature Range**

## Characteristics - Electrical

| | NTC0603 | | NTC0805 | |
|---|---|---|---|---|
| Rated Power Max (mW) | 63 | | 125 | |
| Optimum Working Dissipation (mW) | 0.4 | | 1 | |
| Resistance Range (ohms) Min | 4K7 | | 100 | |
| Max | 150K | | 150K | |
| Tolerance on Resistance (%) | 5 | 10 | 5 | 10 |
| Code Letter | J | K | J | K |
| Selection Series | See Table | | | |
| ß Constant | See Table | | | |
| Tolerance on ß (%) | 5 (3% available on request) | | | |
| Thermal Time Constant (sec) | 2 | | 4 | |
| Thermal Dissipation Constant (mW/°C) | 1.2 | | 1.5 | |
| Operation Temp. Range (°C) | -55 to +125 | | | |
| Resistance to Soldering Heat | ± 2% on both R25 and B | | | |

## Dimensions



| Style | L | W | t | a | b |
|---|---|---|---|---|---|
| **NTC0603** | 1.6 ± 0.15 | 0.8 ± 0.15 | 0.5 ± 0.1 | 0.3 | 0.3 |
| **NTC0805** | 2.0 | 1.25 | 0.5 | 0.4 | 0.4 |

## Typical Performance Graph

Dimensions are shown for reference purposes only.

Dimensions are in millimetres unless otherwise specified.

Specifications subject to change.

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## Resistance Value / ß Constant

| Resistance Value @ 25°C | ß Constant | |
|---|---|---|
| | NTC0603 | NTC0805 |
| 100 | - - - - - | 2750 |
| 150 | - - - - - | 2750 |
| 220 | - - - - - | 2750 |
| 330 | - - - - - | 2750 |
| 470 | - - - - - | 2750 |
| 680 | - - - - - | 2750 |
| 1K0 | - - - - - | 2750 |
| 1K5 | - - - - - | 3000 |
| 2K0 | - - - - - | 3000 |
| 2K2 | - - - - - | 3000 |
| 2K5 | - - - - - | 3000 |
| 3K0 | - - - - - | 3450 |
| 3K3 | - - - - - | 3450 |
| 4K7 | 3500 | 3450 |
| 5K0 | 3500 | 3450 |
| 6K8 | 3500 | 3850 |
| 10K | 3700 | 4100 |
| 15K | 3850 | 4100 |
| 20K | 3950 | 4100 |
| 22K | 3950 | 4100 |
| 30K | 3950 | 4100 |
| 33K | 3950 | 4100 |
| 47K | 4100 | 4100 |
| 50K | 3950 | 3950 |
| 68K | 4100 | 4100 |
| 100K | 4100 | 4100 |
| 150K | 4100 | 4100 |

## Derating



## Power Rating and Maximum Operating Temperature

The power rating is specified at an ambient temperature of 25°C. Under these conditions, the temperature of the thermistor element reaches its permitted maximum temperature of 125°C. The thermistor should be derated linearly from 100% at +55°C to zero at 125°C as shown in the derating curve.

## Mounting

The thermistors are suitable for automatic placement.

## Marking

The components are supplied unmarked.

## Packaging

Tape/reel - 5k pcs/reel.

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## Change of Resistance with Temperature, ß and Tolerance

| Temp (°C) | R = 1K0 ± 5%, ß = 2750 ± 5% | | | R = 100K ± 5%, ß = 4100 ± 5% | | |
|---|---|---|---|---|---|---|
| | R Min | R Nom | R Max | R Min | R Nom | R Max |
| -55 | 23,619 | 29,443 | 36,612 | 11,437,698 | 15,492,485 | 20,932,275 |
| -50 | 18,060 | 22,198 | 27,216 | 7,666,457 | 10,167,934 | 13,451,901 |
| -45 | 13,973 | 16,944 | 20,496 | 5,229,571 | 6,797,677 | 8,813,894 |
| -40 | 10,931 | 13,085 | 15,624 | 3,626,293 | 4,623,690 | 5,880,679 |
| -35 | 8,639 | 10,214 | 12,047 | 2,553,502 | 3,196,281 | 3,990,860 |
| -30 | 6,895 | 8,055 | 9,388 | 1,824,208 | 2,243,342 | 2,751,881 |
| -25 | 5,552 | 6,414 | 7,390 | 1,320,987 | 1,597,136 | 1,926,187 |
| -20 | 4,510 | 5,153 | 5,873 | 968,858 | 1,152,437 | 1,367,374 |
| -15 | 3,693 | 4,175 | 4,709 | 719,179 | 842,136 | 983,650 |
| -10 | 3,074 | 3,410 | 3,807 | 539,923 | 622,766 | 716,523 |
| -5 | 2,532 | 2,806 | 3,103 | 409,704 | 465,752 | 528,143 |
| 0 | 2,118 | 2,326 | 2,548 | 314,048 | 352,049 | 393,661 |
| 5 | 1,784 | 1,941 | 2,107 | 243,038 | 268,796 | 296,539 |
| 10 | 1,511 | 1,630 | 1,754 | 189,795 | 207,195 | 225,625 |
| 15 | 1,288 | 1,377 | 1,469 | 149,493 | 161,161 | 173,305 |
| 20 | 1,103 | 1,170 | 1,239 | 118,711 | 126,434 | 134,321 |
| **25** | **950** | **1,000** | **1,050** | **95,000** | **100,000** | **105,000** |
| 30 | 822 | 859 | 895 | 76,585 | 79,707 | 82,749 |
| 35 | 715 | 741 | 767 | 62,174 | 64,002 | 65,719 |
| 40 | 624 | 643 | 660 | 50,811 | 51,752 | 52,579 |
| 45 | 548 | 560 | 571 | 41,789 | 42,128 | 42,363 |
| 50 | 482 | 490 | 496 | 34,578 | 34,512 | 34,360 |
| 55 | 426 | 430 | 433 | 28,776 | 28,445 | 28,048 |
| 60 | 378 | 379 | 380 | 24,081 | 23,582 | 23,035 |
| 65 | 337 | 336 | 334 | 20,258 | 19,658 | 19,029 |
| 70 | 301 | 298 | 295 | 17,128 | 16,475 | 15,807 |
| 75 | 270 | 266 | 261 | 14,551 | 13,877 | 13,201 |
| 80 | 243 | 238 | 232 | 12,420 | 11,746 | 11,081 |
| 85 | 219 | 213 | 207 | 10,647 | 9,988 | 9.347 |
| 90 | 198 | 192 | 186 | 9,167 | 8,532 | 7,921 |
| 95 | 180 | 173 | 167 | 7,924 | 7,319 | 6,743 |
| 100 | 163 | 157 | 150 | 6,877 | 6,304 | 5,765 |
| 105 | 149 | 142 | 135 | 5,990 | 5,452 | 4,950 |
| 110 | 136 | 129 | 122 | 5,237 | 4,733 | 4,266 |
| 115 | 125 | 118 | 111 | 4,594 | 4,123 | 3,691 |
| 120 | 114 | 108 | 101 | 4,044 | 3,605 | 3,206 |
| 125 | 105 | 99 | 92 | 3,571 | 3,162 | 2,794 |

## How to Order

| NTC | 0603 | J | 2K0 |
|---|---|---|---|
| **Common Part** | **Size** | **Tolerance** | **Value** |
| NTC - Negative Temperature Coefficient Chip Thermistor | 0603<br><br>0805 | J - 5% | See table on previous page |

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