



NTC Thermistors

Element

NTCDS • NTCGF series

| | |
|--------------|---|
| NTCDS | Glass-encapsulated NTC thermistors |
| NTCGF | Resin coated NTC thermistors |

NTC Thermistors

Element

Product compatible with RoHS directive
Halogen-free
Compatible with lead-free solders

Overview of the NTCDS · NTCGF Series

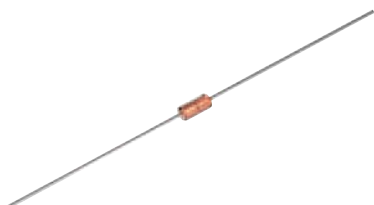
FEATURES

- This series features a glass-sealed construction identical to that of DHDs (Double Heatsink Diodes). They are thus highly reliable and resistant to high relative humidity.
- Tight tolerances are maintained in resistance vs. temperature characteristics.
- The application of semiconductor mass production techniques has resulted in considerable size reduction and improved consistency.

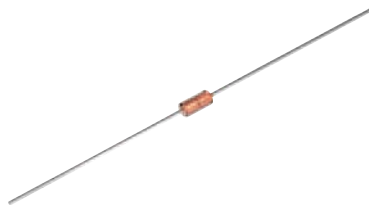
PRODUCT LINEUP

NTCDS series

Glass-encapsulated NTC thermistors
Dimensional code 3 (3.0×ø1.8mm)



Glass-encapsulated NTC thermistors
Dimensional code 4 (4.0×ø2.0mm)




NTCGF series

Resin coated NTC thermistors
Dimensional code 5 (Resin coated shape)

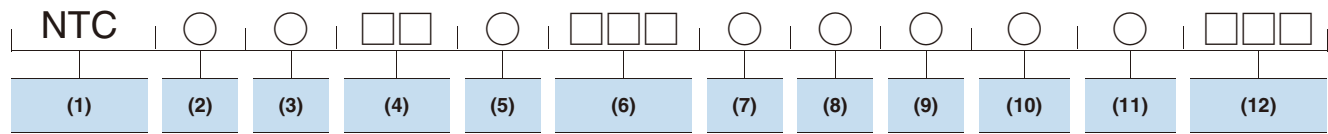


- RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://product.tdk.com/en/environment/rohs/>
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

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Overview of the NTCDS · NTCGF Series

PART NUMBER CONSTRUCTION



(1) This code denotes NTC thermistors.

(2) Structural classification code

| | |
|---|---|
| D | Glass-encapsulated shape(Axial lead type) |
| G | Multilayer element |

(3) Assembly classification code

| | |
|---|--|
| S | Without processing |
| A | Folded radial lead wire |
| B | Folded radial lead wire with insulation tube |
| C | Short cut lead wire |
| D | Kinked lead wire with insulation tube |
| E | Kinked lead wire |
| F | Resin coated NTC thermistors |
| Z | Coating product |
| X | Others |

(4) B constant(Resistance temperature characteristics)

This code indicates the value of B constant using a combination of one numeric and one alphabetic character.

| Numeric code | B constant(K) | Alphabetic code | B constant(K) |
|--------------|---------------|-----------------|---------------|
| 2 | 2000 | A | 0 to 50 |
| 3 | 3000 | B | 51 to 100 |
| 4 | 4000 | C | 101 to 150 |

Note: Although B constants are expressed as 3A, 3B, 4A, 4B, etc. using these two tables, the alphabetic characters do not denote tolerances;they have the meaning shown in the example below.

(Example)

3A=3010(K)

3A=3050(K)

That is, the alphabetic character(in this example, A) indicates the range of values that can be specified by the thermistor user.

| | |
|---|------------|
| D | 151 to 200 |
| E | 201 to 250 |
| F | 251 to 300 |
| G | 301 to 350 |
| H | 351 to 400 |
| J | 401 to 450 |
| K | 451 to 500 |
| L | 501 to 550 |
| M | 551 to 600 |
| N | 601 to 650 |
| P | 651 to 700 |
| Q | 701 to 750 |
| R | 751 to 800 |
| S | 801 to 850 |
| T | 851 to 900 |
| U | 901 to 950 |
| V | 951 to 999 |

(5) B constant tolerance

This code indicates tolerances using the following code.

| Code | Tolerance(%) |
|------|--------------|
| F | ±1 |
| G | ±2 |
| H | ±3 |
| J | ±5 |
| K | ±10 |
| X | Others |

(6) Nominal resistance

This code indicates the resistance value existing at the specified ambient temperature by two significant digits followed by the digit 0(zero).

(Example)

| | |
|-------|-----|
| 470Ω | 471 |
| 5kΩ | 502 |
| 10kΩ | 103 |
| 150kΩ | 154 |

(7) Nominal resistance tolerance

Tolerance is identified by the following codes.

| Code | Tolerance(%) |
|------|--------------|
| F | ±1 |
| G | ±2 |
| H | ±3 |
| J | ±5 |
| K | ±10 |
| X | Others |

(8) Ambient temperature for nominal resistance

Ambient temperatures for specified nominal-resistance values are indicated using the following codes.

| Code | Ambient temperature(°C) |
|------|-------------------------|
| A | -20 |
| B | 0 |
| C | 25 |
| D | 100 |
| E | 200 |
| F | 300 |
| G | 20 |
| X | Others |

(9) Dimensional code

| | |
|---|------------------------------------|
| 3 | 3018 type |
| 4 | 4020 type |
| 5 | Resin DIP shape(Resin DIP type: G) |

(10) Plating specification code of lead wire

| | |
|---|----|
| N | Ni |
| S | Sn |

(11) Packaging style

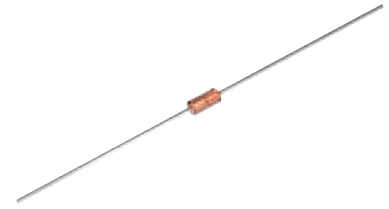
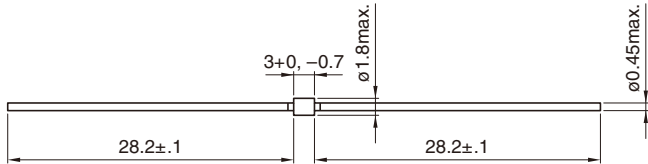
| | |
|---|--------------------------|
| B | Bulk |
| T | Taping(Tape width: 52mm) |
| K | Taping(Tape width: 26mm) |
| X | Others |

(12) TDK internal code

NTCDS Series (Glass-encapsulated NTC thermistors, Dimensional code 3)

SHAPE & DIMENSIONS

Dimensional code 3 (3.0×ø1.8mm)



CHARACTERISTICS

| | |
|---|--------------------|
| Dimensional code | 3(3.0×ø1.8mm) |
| Heat dissipation constant[in still air] | 1mW/°C |
| Thermal time constant[in still air] | 10s max. |
| Insulation resistance[between lead and glass] | 50MΩ min.[DC.500V] |

Temperature coefficient

The relationship between temperature coefficient α and B constant can be expressed as follows:

$$\alpha = -\frac{B}{T^2} \times 100(\%/^{\circ}\text{C})$$

Example: The temperature coefficient at 20°C with B=3400K can be calculated at -4%/°C.

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLES

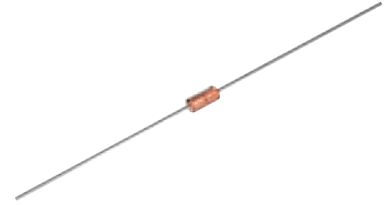
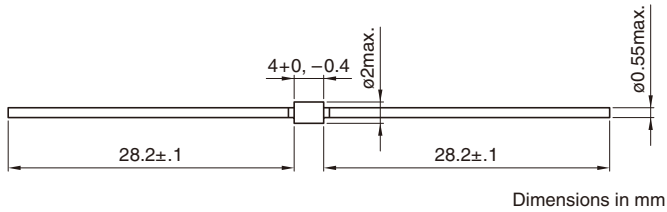
| Part No. | Nominal resistance | | Resistance (25°C) | B constant | Lead wire plating | Operating temperature ranges |
|------------------|--------------------|----------|----------------------|--------------------------------------|----------------------|---------------------------------|
| | (0°C) | (100°C) | | | | |
| NTCDS3HG552HB3N□ | 5.499kΩ | — | 2.000kΩ | B25/85: 3392K±2% B0/100: 3366K±2% | Ni | -40 to 250°C |
| NTCDS3HG602HB3N□ | 6kΩ | — | 2.186kΩ | B25/85: 3392K±2% B0/100: 3366K±2% | | |
| NTCDS3HG273HB3N□ | 27.18kΩ | — | 10.00kΩ | B25/85: 3400K±2% B0/100: 3368K±2% | | |
| NTCDS3KG471HD3N□ | — | 0.470kΩ | 4.961kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3KG153HB3N□ | 15kΩ | — | 5.369kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3KG303HB3N□ | 30kΩ | — | 10.74kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3LG181HD3N□ | — | 0.184kΩ | 1.991kΩ | B25/85: 3528K±2% B0/100: 3503K±2% | | |
| NTCDS3LG161HD3N□ | — | 0.1553kΩ | 1.684kΩ | B25/85: 3528K±2% B0/100: 3503K±2% | | |
| NTCDS3NG802HB3N□ | 8.013kΩ | — | 2.677kΩ | B25/85: 3650K±2% B0/100: 3645K±2% | | |
| NTCDS3UG661HD3N□ | — | 0.662kΩ | 9.382kΩ | B25/85: 3940K±2% B0/100: 3932K±2% | | |
| NTCDS4AG173HB3N□ | 17kΩ | — | 4.918kΩ | B25/85: 4000K±2% B0/100: 3999K±2% | | |
| NTCDS4AG353HB3N□ | 34.67kΩ | — | 10.00kΩ | B25/85: 4000K±2% B0/100: 3999K±2% | | |
| NTCDS4AG993HB3N□ | 99.91kΩ | — | 30.00kΩ | B25/85: 3992K±2% B0/100: 3970K±2% | | |
| NTCDS4AG332HD3N□ | — | 3.3kΩ | 49.12kΩ | B25/85: 3992K±2% B0/100: 3970K±2% | | |
| NTCDS3HG552HB3S□ | 5.499kΩ | — | 2.000kΩ | B25/85: 3392K±2% B0/100: 3366K±2% | Sn | -40 to 160°C |
| NTCDS3KG471HD3S□ | — | 0.470kΩ | 4.961kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3UG661HD3S□ | — | 0.662kΩ | 9.382kΩ | B25/85: 3940K±2% B0/100: 3932K±2% | | |

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NTCDS Series (Glass-encapsulated NTC thermistors, Dimensional code 4)

SHAPE & DIMENSIONS

Dimensional code 4 (4.0×ø2.0mm)



CHARACTERISTICS

| | |
|---|--------------------|
| Dimensional code | 4(4.0×ø2.0mm) |
| Heat dissipation constant[in still air] | 2mW/°C |
| Thermal time constant[in still air] | 20s max. |
| Insulation resistance[between lead and glass] | 50MΩ min.[DC.500V] |

Temperature coefficient

The relationship between temperature coefficient α and B constant can be expressed as follows:

$$\alpha = -\frac{B}{T^2} \times 100(\%/^{\circ}\text{C})$$

Example: The temperature coefficient at 20°C with B=3400K can be calculated at -4%/°C.

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLES

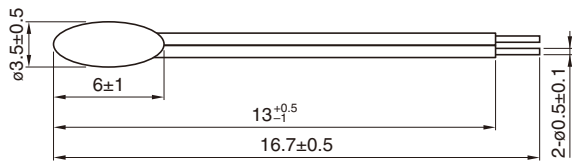
| Part No. | Nominal resistance (0°C) | Nominal resistance (100°C) | Resistance (25°C) | B constant | Lead wire plating | Operating temperature ranges |
|------------------|-----------------------------|-------------------------------|----------------------|--------------------------------------|----------------------|---------------------------------|
| NTCDS3HG552HB4N□ | 5.499kΩ | — | 2.000kΩ | B25/85: 3392K±2% B0/100: 3366K±2% | Ni | -40 to 250°C |
| NTCDS3HG602HB4N□ | 6kΩ | — | 2.186kΩ | B25/85: 3392K±2% B0/100: 3366K±2% | | |
| NTCDS3HG273HB4N□ | 27.18kΩ | — | 10.00kΩ | B25/85: 3400K±2% B0/100: 3368K±2% | | |
| NTCDS3KG471HD4N□ | — | 0.470kΩ | 4.961kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3KG153HB4N□ | 15kΩ | — | 5.369kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3KG303HB4N□ | 30kΩ | — | 10.74kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3LG181HD4N□ | — | 0.184kΩ | 1.991kΩ | B25/85: 3528K±2% B0/100: 3503K±2% | | |
| NTCDS3LG161HD4N□ | — | 0.1553kΩ | 1.684kΩ | B25/85: 3528K±2% B0/100: 3503K±2% | | |
| NTCDS3NG802HB4N□ | 8.013kΩ | — | 2.677kΩ | B25/85: 3650K±2% B0/100: 3645K±2% | | |
| NTCDS3RG642HB4N□ | 6.418kΩ | — | 2.016kΩ | B25/85: 3800K±2% B0/100: 3792K±2% | | |
| NTCDS3SG652HB4N□ | 6.508kΩ | — | 2.020kΩ | B25/85: 3850K±2% B0/100: 3834K±2% | | |
| NTCDS3UG661HD4N□ | — | 0.662kΩ | 9.382kΩ | B25/85: 3940K±2% B0/100: 3932K±2% | | |
| NTCDS4AG173HB4N□ | 17kΩ | — | 4.918kΩ | B25/85: 4000K±2% B0/100: 3999K±2% | | |
| NTCDS4AG353HB4N□ | 34.67kΩ | — | 10.00kΩ | B25/85: 4000K±2% B0/100: 3999K±2% | | |
| NTCDS4AG993HB4N□ | 99.91kΩ | — | 30.00kΩ | B25/85: 3992K±2% B0/100: 3970K±2% | | |
| NTCDS4AG332HD4N□ | — | 3.3kΩ | 49.12kΩ | B25/85: 3992K±2% B0/100: 3970K±2% | | |
| NTCDS3HG602HB4S□ | 6kΩ | — | 2.186kΩ | B25/85: 3392K±2% B0/100: 3366K±2% | Sn | -40 to 160°C |
| NTCDS3KG153HB4S□ | 15kΩ | — | 5.369kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS3KG303HB4S□ | 30kΩ | — | 10.74kΩ | B25/85: 3480K±2% B0/100: 3450K±2% | | |
| NTCDS4AG353HB4S□ | 34.67kΩ | — | 10.00kΩ | B25/85: 4000K±2% B0/100: 3999K±2% | | |

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NTCGF Series (Resin coated NTC thermistors, Dimensional code 5)

SHAPE & DIMENSIONS

Dimensional code 5



Dimensions in mm



CHARACTERISTICS

| | |
|---|--------------------|
| Dimensional code | 5 (Resin DIP type) |
| Heat dissipation constant [in still air] | 4mW/°C |
| Thermal time constant [in still air] | 30s max. |
| Insulation resistance [between lead and thermistor] | 5MΩ min. [DC.500V] |

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLES

| Part No. | Nominal resistance (0°C) | Resistance (25°C) | B constant | Lead wire plating | Operating temperature ranges |
|------------------|--------------------------|-------------------|--------------------------------------|-------------------|------------------------------|
| NTCGF3LG222HC5SB | 6.204kΩ | 2.185kΩ | B25/85: 3535K±2% B0/100: 3505K±2% | Sn | -40 to 125°C |