



# NTC thermistors for temperature measurement

## Bondable NTC

Series/Type : **NTCWS Series**  
Part No. : **NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\***  
Date : 2026/5/21  
Version : 6

Department : TDK corporation  
Temperature & Pressure Sensors Business Group

## NTC thermistors for temperature measurement

NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

#### Features

- High accuracy,  $\pm 1\%$  resistance and B value tolerance available
- Available to place in LD package, and wire bonding by Au wire
- Small dimensions
- RoHS Compatible
- REACH SVHC Free
- Lead free

#### Applications

- Temperature measurement of laser diode of optical transceiver and LiDAR

#### Options

- 3 types of resistance temperature characteristic available

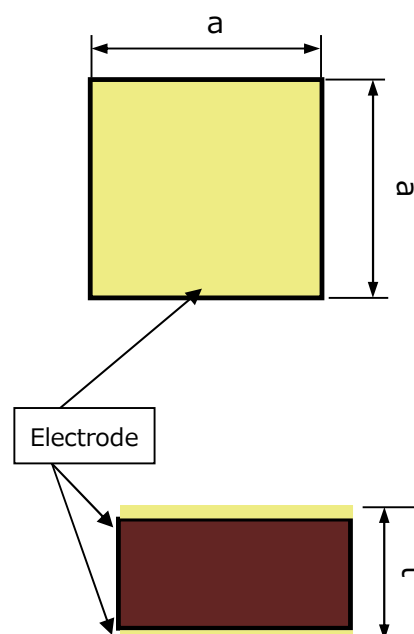
#### Package type

- Tray (2inch) - MOQ: 9,600pcs (24 Tray)
- Film with GripRing (6inch) - MOQ: 10,000pcs (5 Grip ring)

#### Ratings and characteristics

- Operating temperature :  $-40\sim 125^{\circ}\text{C}$
- Thermal time constant (in Air)  $1\tau[\text{s}]$  :  $< 2\text{s}$

Dimensional drawings



## NTC thermistors for temperature measurement

NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

#### Part No. , Resistance R25 , B25/85 and Dimensions , Package

| Part No.            | R25<br>KΩ | R25<br>Tolerance | B25/85       | Dimensions<br>(mm)             | Package<br>type |
|---------------------|-----------|------------------|--------------|--------------------------------|-----------------|
| NTCWS3JF103FC1GT*** | 10        | ±1%              | 3410K<br>±1% | L,W:0.48±0.04<br>T : 0.25 max  | Tray            |
| NTCWS3JF103FC1GG*** |           |                  |              |                                | Film            |
| NTCWS3JF103HC1GT*** |           | ±3%              |              |                                | Tray            |
| NTCWS3JF103HC1GG*** |           |                  |              |                                | Film            |
| NTCWS3UF103FC1GT90B | 10        | ±1%              | 3930K<br>±1% | L,W:0.33±0.04<br>T : 0.25 max  | Tray            |
| NTCWS3UF103FC1GG90D |           |                  |              |                                | Film            |
| NTCWS3UF103HC1GT90A |           | ±3%              |              |                                | Tray            |
| NTCWS3UF103HC1GG90C |           |                  |              |                                | Film            |
| NTCWS4AF104FC1GT91F | 100       | ±1%              | 4050K<br>±1% | L,W:0.31±0.04<br>T : 0.25±0.05 | Tray            |
| NTCWS4AF104FC1GG91H |           |                  |              |                                | Film            |
| NTCWS4AF104HC1GT91E |           | ±3%              |              |                                | Tray            |
| NTCWS4AF104HC1GG91G |           |                  |              |                                | Film            |

#### Reliability Test

Part No. NTCWS3UF103\*C1G\*90\* , NTCWS3JF103\*C1G\*\*\*\*

| No. | Items                            | Performance             | Test Requirement                                |
|-----|----------------------------------|-------------------------|-------------------------------------------------|
| 1   | Dry Heat Test                    | $\Delta R \leq \pm 1\%$ | Temperature: 125±2°C<br>Test Time: 1000+48/0h   |
| 2   | Cold Test                        | $\Delta R \leq \pm 1\%$ | Temperature: -40±5°C<br>Test Time: 1000+48/0h   |
| 3   | Damp heat Test<br>(Steady state) | $\Delta R \leq \pm 1\%$ | 85±5%RH at 85°C±2°C<br>Test Time: 1000+48/0h    |
| 4   | Thermal Shock Test               | $\Delta R \leq \pm 1\%$ | -40°C/30min-125°C/30min<br>Test Cycle : 1000Cyc |

Part No. NTCWS4AF104\*FC1G\*91\*

| No. | ITEMS                            | PERFORMANCE             | TEST REQUIREMENT                                |
|-----|----------------------------------|-------------------------|-------------------------------------------------|
| 1   | Dry Heat Test                    | $\Delta R \leq \pm 2\%$ | Temperature: 125±2°C<br>Test Time: 1000+48/0h   |
| 2   | Cold Test                        | $\Delta R \leq \pm 2\%$ | Temperature: -40±5°C<br>Test Time: 1000+48/0h   |
| 3   | Damp heat Test<br>(Steady state) | $\Delta R \leq \pm 2\%$ | 85±5%RH at 85°C±2°C<br>Test Time: 1000+48/0h    |
| 4   | Thermal Shock Test               | $\Delta R \leq \pm 2\%$ | -40°C/30min-125°C/30min<br>Test Cycle : 1000Cyc |

## NTC thermistors for temperature measurement

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### Bondable NTC

## NTC resistance temperature curve

NTCWS3JF103HC1GT×××  
NTCWS3JF103HC1GG×××

R25 : 10.00kΩ±3.0%  
B25/85 : 3410K±1.0%

| Temp.<br>(°C) | R min<br>(KΩ) | R nom<br>(KΩ) | R max<br>(KΩ) |
|---------------|---------------|---------------|---------------|
| -40           | 196.6         | 208.9         | 221.9         |
| -35           | 147.9         | 156.7         | 165.9         |
| -30           | 112.5         | 118.9         | 125.5         |
| -25           | 86.45         | 91.12         | 95.95         |
| -20           | 67.09         | 70.53         | 74.08         |
| -15           | 52.53         | 55.09         | 57.72         |
| -10           | 41.48         | 43.40         | 45.36         |
| -5            | 33.02         | 34.47         | 35.94         |
| 0             | 26.48         | 27.58         | 28.70         |
| 5             | 21.39         | 22.23         | 23.08         |
| 10            | 17.39         | 18.03         | 18.69         |
| 15            | 14.23         | 14.73         | 15.23         |
| 20            | 11.71         | 12.10         | 12.49         |
| 25            | 9.700         | 10.00         | 10.30         |
| 30            | 8.046         | 8.310         | 8.575         |
| 35            | 6.710         | 6.943         | 7.177         |
| 40            | 5.625         | 5.830         | 6.037         |
| 45            | 4.738         | 4.919         | 5.103         |
| 50            | 4.010         | 4.170         | 4.333         |
| 55            | 3.409         | 3.551         | 3.696         |
| 60            | 2.911         | 3.037         | 3.166         |
| 65            | 2.496         | 2.608         | 2.723         |
| 70            | 2.148         | 2.248         | 2.350         |
| 75            | 1.856         | 1.945         | 2.037         |
| 80            | 1.610         | 1.689         | 1.771         |
| 85            | 1.401         | 1.472         | 1.545         |
| 90            | 1.223         | 1.287         | 1.353         |
| 95            | 1.070         | 1.128         | 1.187         |
| 100           | 0.9400        | 0.9917        | 1.045         |
| 105           | 0.8275        | 0.8742        | 0.9226        |
| 110           | 0.7303        | 0.7725        | 0.8163        |
| 115           | 0.6460        | 0.6841        | 0.7238        |
| 120           | 0.5726        | 0.6070        | 0.6430        |
| 125           | 0.5084        | 0.5396        | 0.5723        |

NTCWS3JF103FC1GT×××  
NTCWS3JF103FC1GG×××

R25 : 10.00kΩ±1.0%  
B25/85 : 3410K±1.0%

| Temp.<br>(°C) | R min<br>(KΩ) | R nom<br>(KΩ) | R max<br>(KΩ) |
|---------------|---------------|---------------|---------------|
| -40           | 200.7         | 208.9         | 217.5         |
| -35           | 150.9         | 156.7         | 162.7         |
| -30           | 114.8         | 118.9         | 123.1         |
| -25           | 88.23         | 91.12         | 94.08         |
| -20           | 68.47         | 70.53         | 72.64         |
| -15           | 53.62         | 55.09         | 56.60         |
| -10           | 42.34         | 43.40         | 44.48         |
| -5            | 33.70         | 34.47         | 35.24         |
| 0             | 27.03         | 27.58         | 28.14         |
| 5             | 21.83         | 22.23         | 22.63         |
| 10            | 17.75         | 18.03         | 18.32         |
| 15            | 14.52         | 14.73         | 14.93         |
| 20            | 11.96         | 12.10         | 12.24         |
| 25            | 9.900         | 10.00         | 10.10         |
| 30            | 8.212         | 8.310         | 8.409         |
| 35            | 6.848         | 6.943         | 7.038         |
| 40            | 5.741         | 5.830         | 5.920         |
| 45            | 4.836         | 4.919         | 5.004         |
| 50            | 4.093         | 4.170         | 4.249         |
| 55            | 3.480         | 3.551         | 3.624         |
| 60            | 2.971         | 3.037         | 3.104         |
| 65            | 2.547         | 2.608         | 2.670         |
| 70            | 2.193         | 2.248         | 2.305         |
| 75            | 1.895         | 1.945         | 1.997         |
| 80            | 1.643         | 1.689         | 1.737         |
| 85            | 1.430         | 1.472         | 1.515         |
| 90            | 1.248         | 1.287         | 1.326         |
| 95            | 1.093         | 1.128         | 1.164         |
| 100           | 0.9593        | 0.9917        | 1.025         |
| 105           | 0.8446        | 0.8742        | 0.9047        |
| 110           | 0.7454        | 0.7725        | 0.8004        |
| 115           | 0.6593        | 0.6841        | 0.7097        |
| 120           | 0.5844        | 0.6070        | 0.6305        |
| 125           | 0.5189        | 0.5396        | 0.5612        |

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### Bondable NTC

## NTC resistance temperature curve

**NTCWS3UF103HC1GT90A**  
**NTCWS3UF103HC1GG90C**

R25 : 10.00kΩ±3.0%  
B25/85 : 3930K±1.0%

| Temp.<br>(°C) | R min<br>(KΩ) | R nom<br>(KΩ) | R max<br>(KΩ) |
|---------------|---------------|---------------|---------------|
| -40           | 342.2         | 365.8         | 390.5         |
| -35           | 245.0         | 261.0         | 277.7         |
| -30           | 177.6         | 188.5         | 200.0         |
| -25           | 130.2         | 137.7         | 145.6         |
| -20           | 96.40         | 101.7         | 107.2         |
| -15           | 72.12         | 75.87         | 79.74         |
| -10           | 54.47         | 57.14         | 59.89         |
| -5            | 41.52         | 43.43         | 45.40         |
| 0             | 31.93         | 33.31         | 34.73         |
| 5             | 24.76         | 25.77         | 26.79         |
| 10            | 19.36         | 20.10         | 20.85         |
| 15            | 15.26         | 15.81         | 16.35         |
| 20            | 12.12         | 12.52         | 12.93         |
| 25            | 9.700         | 10.00         | 10.30         |
| 30            | 7.784         | 8.042         | 8.301         |
| 35            | 6.290         | 6.513         | 6.737         |
| 40            | 5.118         | 5.310         | 5.504         |
| 45            | 4.191         | 4.357         | 4.525         |
| 50            | 3.454         | 3.598         | 3.744         |
| 55            | 2.864         | 2.988         | 3.115         |
| 60            | 2.388         | 2.497         | 2.607         |
| 65            | 2.003         | 2.097         | 2.194         |
| 70            | 1.689         | 1.771         | 1.856         |
| 75            | 1.431         | 1.503         | 1.578         |
| 80            | 1.219         | 1.282         | 1.348         |
| 85            | 1.043         | 1.099         | 1.157         |
| 90            | 0.8962        | 0.9460        | 0.9976        |
| 95            | 0.7736        | 0.8178        | 0.8637        |
| 100           | 0.6706        | 0.7099        | 0.7508        |
| 105           | 0.5836        | 0.6186        | 0.6552        |
| 110           | 0.5098        | 0.5411        | 0.5739        |
| 115           | 0.4470        | 0.4751        | 0.5044        |
| 120           | 0.3932        | 0.4185        | 0.4449        |
| 125           | 0.3471        | 0.3699        | 0.3937        |

**NTCWS3UF103FC1GT90B**  
**NTCWS3UF103FC1GG90D**

R25 : 10.00kΩ±1.0%  
B25/85 : 3930K±1.0%

| Temp.<br>(°C) | R min<br>(KΩ) | R nom<br>(KΩ) | R max<br>(KΩ) |
|---------------|---------------|---------------|---------------|
| -40           | 349.3         | 365.8         | 382.9         |
| -35           | 250.1         | 261.0         | 272.4         |
| -30           | 181.3         | 188.5         | 196.1         |
| -25           | 132.8         | 137.7         | 142.8         |
| -20           | 98.39         | 101.7         | 105.1         |
| -15           | 73.60         | 75.87         | 78.20         |
| -10           | 55.59         | 57.14         | 58.72         |
| -5            | 42.37         | 43.43         | 44.52         |
| 0             | 32.58         | 33.31         | 34.05         |
| 5             | 25.27         | 25.77         | 26.27         |
| 10            | 19.76         | 20.10         | 20.44         |
| 15            | 15.58         | 15.81         | 16.04         |
| 20            | 12.37         | 12.52         | 12.68         |
| 25            | 9.900         | 10.00         | 10.10         |
| 30            | 7.944         | 8.042         | 8.140         |
| 35            | 6.420         | 6.513         | 6.606         |
| 40            | 5.223         | 5.310         | 5.397         |
| 45            | 4.278         | 4.357         | 4.437         |
| 50            | 3.525         | 3.598         | 3.671         |
| 55            | 2.923         | 2.988         | 3.055         |
| 60            | 2.438         | 2.497         | 2.557         |
| 65            | 2.044         | 2.097         | 2.152         |
| 70            | 1.723         | 1.771         | 1.820         |
| 75            | 1.460         | 1.503         | 1.548         |
| 80            | 1.244         | 1.282         | 1.322         |
| 85            | 1.064         | 1.099         | 1.135         |
| 90            | 0.9147        | 0.9460        | 0.9782        |
| 95            | 0.7896        | 0.8178        | 0.8469        |
| 100           | 0.6844        | 0.7099        | 0.7362        |
| 105           | 0.5956        | 0.6186        | 0.6424        |
| 110           | 0.5203        | 0.5411        | 0.5627        |
| 115           | 0.4562        | 0.4751        | 0.4946        |
| 120           | 0.4014        | 0.4185        | 0.4363        |
| 125           | 0.3543        | 0.3699        | 0.3861        |

## NTC thermistors for temperature measurement

NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

## NTC resistance temperature curve

**NTCWS4AF104HC1GT91A**  
**NTCWS4AF104HC1GG91C**

R25 : 100.0kΩ±3.0%  
B25/85 : 4050K±1.0%

| Temp.<br>(°C) | R min<br>(KΩ) | R nom<br>(KΩ) | R max<br>(KΩ) |
|---------------|---------------|---------------|---------------|
| -40           | 3461          | 3699          | 3950          |
| -35           | 2475          | 2636          | 2806          |
| -30           | 1792          | 1903          | 2019          |
| -25           | 1313          | 1390          | 1470          |
| -20           | 972.4         | 1026          | 1082          |
| -15           | 727.5         | 765.4         | 804.6         |
| -10           | 549.4         | 576.4         | 604.2         |
| -5            | 418.7         | 438.1         | 458.0         |
| 0             | 321.9         | 335.9         | 350.1         |
| 5             | 249.4         | 259.6         | 269.9         |
| 10            | 194.8         | 202.2         | 209.8         |
| 15            | 153.3         | 158.8         | 164.3         |
| 20            | 121.5         | 125.5         | 129.6         |
| 25            | 97.00         | 100.0         | 103.0         |
| 30            | 77.62         | 80.20         | 82.79         |
| 35            | 62.53         | 64.74         | 66.97         |
| 40            | 50.68         | 52.58         | 54.51         |
| 45            | 41.32         | 42.96         | 44.63         |
| 50            | 33.89         | 35.30         | 36.74         |
| 55            | 27.94         | 29.17         | 30.41         |
| 60            | 23.16         | 24.22         | 25.30         |
| 65            | 19.30         | 20.22         | 21.16         |
| 70            | 16.16         | 16.95         | 17.77         |
| 75            | 13.59         | 14.28         | 15.00         |
| 80            | 11.48         | 12.09         | 12.72         |
| 85            | 9.741         | 10.27         | 10.82         |
| 90            | 8.299         | 8.767         | 9.252         |
| 95            | 7.099         | 7.511         | 7.939         |
| 100           | 6.096         | 6.459         | 6.838         |
| 105           | 5.254         | 5.575         | 5.911         |
| 110           | 4.545         | 4.830         | 5.128         |
| 115           | 3.945         | 4.198         | 4.463         |
| 120           | 3.435         | 3.661         | 3.897         |
| 125           | 3.001         | 3.202         | 3.414         |

**NTCWS4AF104FC1GT91B**  
**NTCWS4AF104FC1GG91D**

R25 : 100.0kΩ±1.0%  
B25/85 : 4050K±1.0%

| Temp.<br>(°C) | R min<br>(KΩ) | R nom<br>(KΩ) | R max<br>(KΩ) |
|---------------|---------------|---------------|---------------|
| -40           | 3532          | 3699          | 3874          |
| -35           | 2526          | 2636          | 2751          |
| -30           | 1829          | 1903          | 1979          |
| -25           | 1340          | 1390          | 1441          |
| -20           | 992.4         | 1026          | 1061          |
| -15           | 742.5         | 765.4         | 788.9         |
| -10           | 560.8         | 576.4         | 592.5         |
| -5            | 427.4         | 438.1         | 449.1         |
| 0             | 328.5         | 335.9         | 343.4         |
| 5             | 254.6         | 259.6         | 264.7         |
| 10            | 198.8         | 202.2         | 205.7         |
| 15            | 156.4         | 158.8         | 161.1         |
| 20            | 124.0         | 125.5         | 127.1         |
| 25            | 99.00         | 100.0         | 101.0         |
| 30            | 79.22         | 80.20         | 81.18         |
| 35            | 63.81         | 64.74         | 65.67         |
| 40            | 51.72         | 52.58         | 53.45         |
| 45            | 42.18         | 42.96         | 43.76         |
| 50            | 34.59         | 35.30         | 36.03         |
| 55            | 28.52         | 29.17         | 29.82         |
| 60            | 23.64         | 24.22         | 24.81         |
| 65            | 19.70         | 20.22         | 20.75         |
| 70            | 16.49         | 16.95         | 17.43         |
| 75            | 13.87         | 14.28         | 14.71         |
| 80            | 11.72         | 12.09         | 12.47         |
| 85            | 9.941         | 10.27         | 10.61         |
| 90            | 8.470         | 8.767         | 9.072         |
| 95            | 7.246         | 7.511         | 7.785         |
| 100           | 6.222         | 6.459         | 6.705         |
| 105           | 5.363         | 5.575         | 5.796         |
| 110           | 4.639         | 4.830         | 5.028         |
| 115           | 4.026         | 4.198         | 4.376         |
| 120           | 3.506         | 3.661         | 3.822         |
| 125           | 3.063         | 3.202         | 3.348         |

## NTC thermistors for temperature measurement

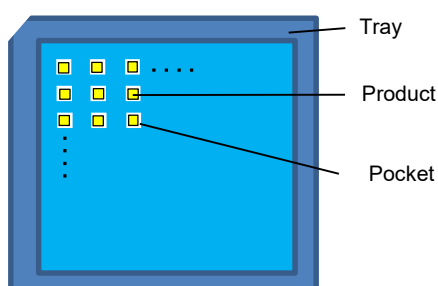
NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

#### Package type ① (Part No. NTCWS3UF103HC1GT90A,NTCWS3UF103FC1GT90B)

##### Tray package

##### •Tray specification

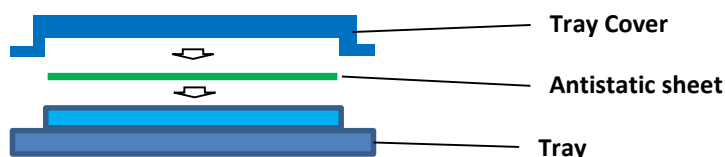


| Items              | Dimensions                |
|--------------------|---------------------------|
| Tray Size          | □ : 50.8mm                |
|                    | Thickness : 3.96mm        |
| Pocket Size        | □ : 0.46mm                |
|                    | Depth : 0.23mm            |
| Pocket Pitch       | 2.156mm                   |
| Number of products | 400pcs/Tray (20pcs×20pcs) |

##### •Packaging condition

Place the antistatic sheet and tray cover on the tray and fix them with clip. Label the tray cover.

On the label, write the product name (p #), lot number, quantity, and manufacturer name.



##### •Delivery unit

MOQ: 9,600pcs (24 Tray)

Please contact us for packaging specifications for other products.

# NTC thermistors for temperature measurement

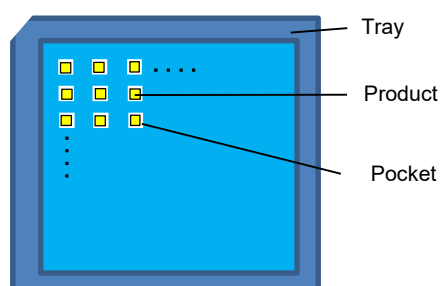
NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

## Bondable NTC

### Package type ② (Part No. NTCWS4AF104HC1GT91A,NTCWS4AF104FC1GT91B)

#### Tray package

##### •Tray specification

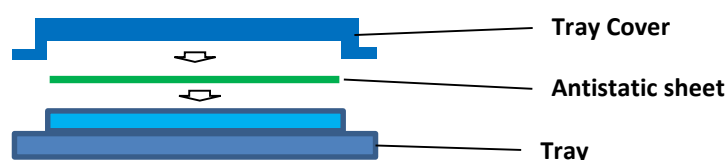


| Items              | Dimensions                |
|--------------------|---------------------------|
| Tray Size          | □ : 50.8mm                |
|                    | Thickness : 3.96mm        |
| Pocket Size        | □ : 0.56mm                |
|                    | Depth : 0.30mm            |
| Pocket Pitch       | 1.83mm                    |
| Number of products | 400pcs/Tray (20pcs×20pcs) |

##### •Packaging condition

Place the antistatic sheet and tray cover on the tray and fix them with clip. Label the tray cover.

On the label, write the product name (p #), lot number, quantity, and manufacturer name.



##### •Delivery unit

MOQ: 9,600pcs (24 Tray)

Please contact us for packaging specifications for other products.

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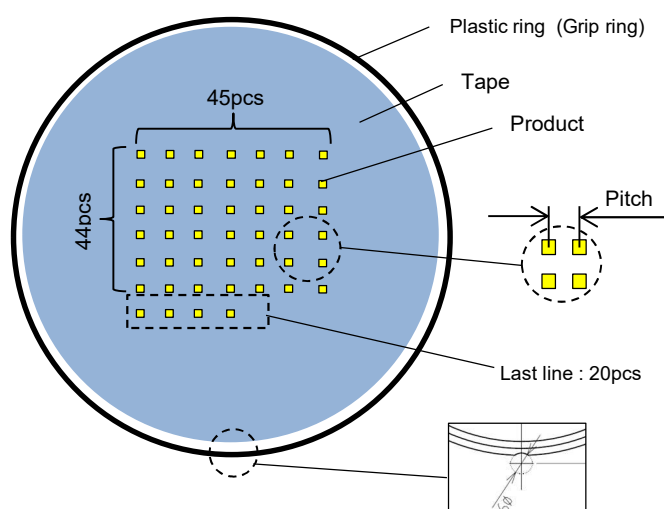
NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

## Bondable NTC

Package type (Part No. NTCWS3UF103HC1GG90C,NTCWS3UF103FC1GT90D)

### Film package

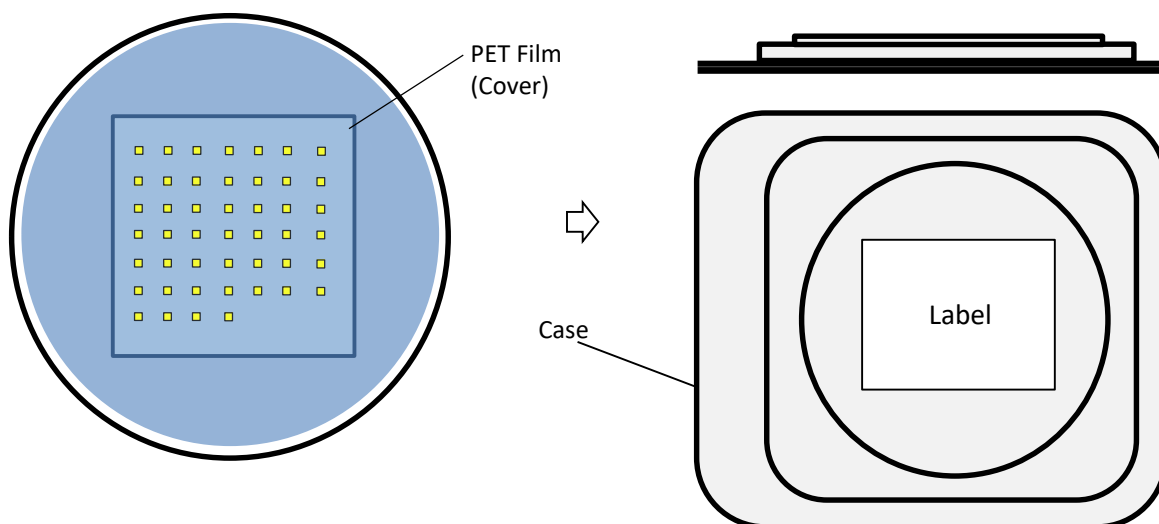
#### •Film package specification



| Items              | Dimensions               |
|--------------------|--------------------------|
| Ring Size (Inner)  | φ140 mm                  |
|                    | Thickness : 6mm          |
| Ring Size (Outer)  | φ152mm                   |
|                    | Thickness : 6mm          |
| Pitch Products     | 1.3mm                    |
| Number of products | 2000pcs<br>(45×44+20)pcs |

#### •Packaging condition

Case label includes product name, lot number, and package quantity.



#### •Delivery unit

MOQ: 10,000pcs (5 Grip ring)

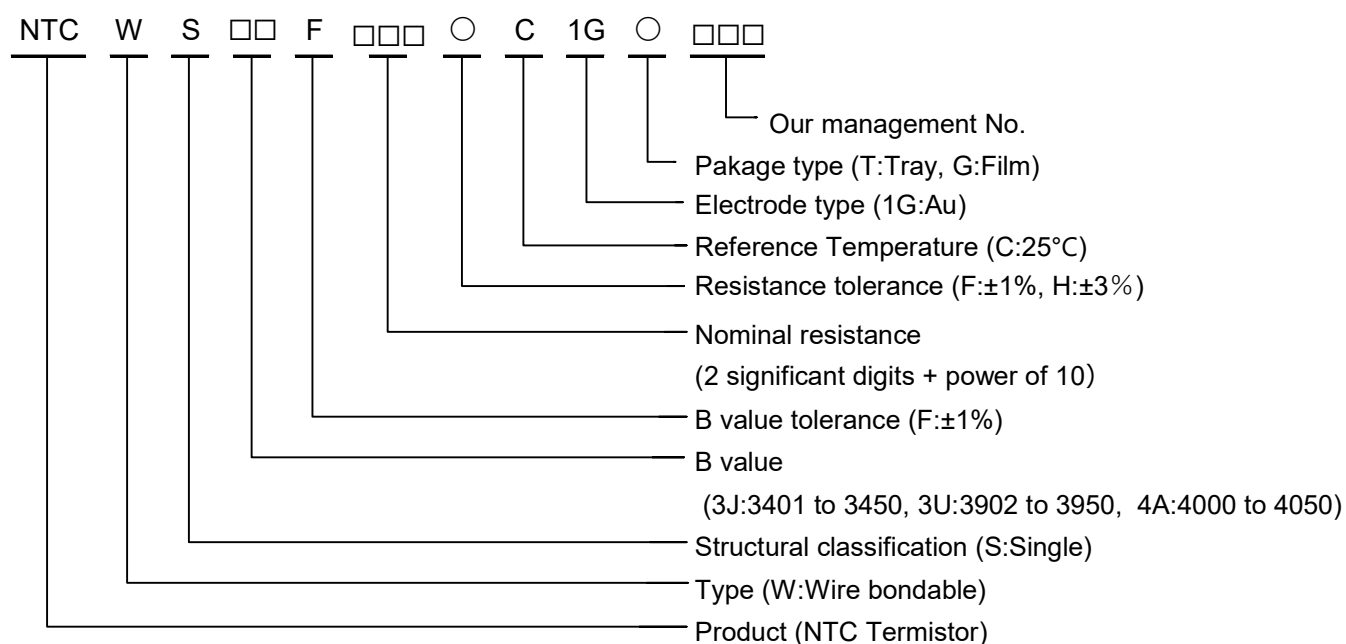
Please contact us for packaging specifications for other products.

## NTC thermistors for temperature measurement

NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

#### Part Number Construction



## NTC thermistors for temperature measurement

NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

## INSTRUCTIONS BEFORE USING NTC THERMISTORS

Be sure to read these instruction before using the NTC thermistor.

### SAFETY WARNING

Operate in accordance with safety specifications.

Improper use, may result in failure or damage to NTC thermistor and other electronic systems.

### CAUTION

Ensure to use thermistors under proper operating and mounting condition and only as specified in a product specification.

Use thermistors only within the specified operating temperature range.

Prevent solder paste and conductive paste from adhering to the sides of the product during mounting.

Over exposure to vibration, shock, power, or pressure may damage the element.

The thermistor in the application should not be touched by bare hands to avoid oils affecting solderability and environmental stability.

The thermistor should be stored in original packaging under the following environmental conditions :

Temperature:  $-10^{\circ}\text{C}\sim+40^{\circ}\text{C}$

Relative humidity: less than 75%

Avoid rapid temperature change, direct sunshine, corrosive gas, dust, mechanical stress or pressure.

The material contacted by the thermistor must be carefully selected to avoid electric potential difference between the thermistor and surface to avoid corrosion.

## NTC thermistors for temperature measurement

NTCWS3JF103\*C1G\*\*\*\*,NTCWS3UF103\*C1G\*90\*,NTCWS4AF104\*FC1G\*91\*

### Bondable NTC

Thermistor should be used within 1 year after receipt from TDK.

Avoid exposure to the following substances and environments.

- Corrosive gases (Cl<sub>2</sub>, NH<sub>3</sub>, SO<sub>x</sub>, NO<sub>x</sub>, etc.)

- Liquids such as acids, alkalis, solvents etc.

- Liquids such as electrolytes, water, and salt water etc.

- Dusty environments

- Environments where static electricity or electromagnetic waves are generated

- Environments where condensation occurs on the product

Please take consideration an appropriate fail-safe function in customer application which requires a very high level of operational safety and reliability or could endanger society or human life.

Please contact us before using the NTC thermistor assembled for the following applications if the functional safety may result if the failure might have serious damage to human life, health or one's property and severe influence on society.

- Application : cars, aerospace/aviation equipment, medical equipment,  
nuclear power plant equipment