

# NTC DISC THERMISTOR

FOR TEMPERATURE SENSING / FOR TEMPERATURE COMPENSATION



## NTC - 10K D-5 J

① ② ③ ④

- ① SYMBOL
- ② RESISTANCE AT 25°C (10K : 10kΩ)
- ③ NOMINAL DIA. OF DISC (D-2: 2mm, D-5: 5mm)
- ④ RESISTANCE TOLERANCE  
(F:±1%, G:±2%, H:±3%, J:±5%, K:±10%, L:±15%)

### RATINGS

| PART No. | Rtaed power at 25°C | Dissipation constant | Time constant | Operating temp. range |
|----------|---------------------|----------------------|---------------|-----------------------|
| D - 2    | 100 mW              | 2.0mW/°C             | 10 sec        | -40°C~120°C           |
| D - 3    | 250 mW              | 3.0mW/°C             | 15 sec        |                       |
| D - 5    | 500 mW              | 7.5mW/°C             | 20 sec        |                       |

### SPECIFICATION

#### D-2

| PART No.  | Resistance (25°C) | B Value (25°C/85°C) |
|-----------|-------------------|---------------------|
| 100D - 2  | 100 Ω             | 3000                |
| 1KD - 2   | 1 kΩ              | 3100/3200           |
| 2KD - 2   | 2 kΩ              | 3200                |
| 5KD - 2   | 5 kΩ              | 3300                |
| 10KD - 2  | 10 kΩ             | 3300/3435/3970      |
| 20KD - 2  | 20 kΩ             | 3300                |
| 30KD - 2  | 30 kΩ             | 3300                |
| 50KD - 2  | 50 kΩ             | 4000/4400           |
| 100KD - 2 | 100 kΩ            | 4400/4700           |
| 150KD - 2 | 150 kΩ            | 4400/4700           |
| 500KD - 2 | 500 kΩ            | 4700                |
| 1MD - 2   | 1 MΩ              | 5000                |

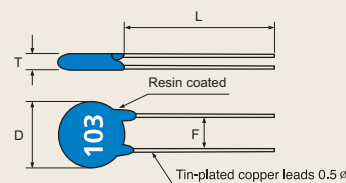
#### D-3

| PART No.  | Resistance (25°C) | B Value (25°C/85°C) |
|-----------|-------------------|---------------------|
| 100D - 3  | 100 Ω             | 3200                |
| 500D - 3  | 500 Ω             | 3400                |
| 1KD - 3   | 1 kΩ              | 3650                |
| 2KD - 3   | 2 kΩ              | 3650                |
| 3KD - 3   | 3 kΩ              | 3800                |
| 5KD - 3   | 5 kΩ              | 3800/3970           |
| 10KD - 3  | 10 kΩ             | 3700/3970           |
| 20KD - 3  | 20 kΩ             | 4000/4200           |
| 30KD - 3  | 30 kΩ             | 4000/4200           |
| 40KD - 3  | 40 kΩ             | 4000/4400           |
| 50KD - 3  | 50 kΩ             | 4000/4400           |
| 100KD - 3 | 100 kΩ            | 4400/4700           |
| 150KD - 3 | 150 kΩ            | 4400/4700           |
| 200KD - 3 | 200 kΩ            | 4400/4700           |
| 500KD - 3 | 500 kΩ            | 4850                |
| 1MD - 3   | 1 MΩ              | 4850                |

### DIMENSIONS

| PART No. | D        | T        | L       | F           |
|----------|----------|----------|---------|-------------|
| D - 2    | 3.0 max. | 2.0 max. | 25 min. | 2.0/5.0±0.5 |
| D - 3    | 3.5 max. | 3.0 max. | 25 min. | 2.0/5.0±0.5 |
| D - 5    | 5.5 max. | 4.0 max. | 25 min. | 2.5/5.0±0.5 |

Outline drawing



#### D-5

| PART No.  | Resistance (25°C) | B Value (25°C/85°C) |
|-----------|-------------------|---------------------|
| 10D - 5   | 10 Ω              | 2800                |
| 20D - 5   | 20 Ω              | 3000                |
| 50D - 5   | 50 Ω              | 3100/3250           |
| 80D - 5   | 80 Ω              | 3300                |
| 100D - 5  | 100 Ω             | 3200/3300           |
| 200D - 5  | 200 Ω             | 3200/3400           |
| 250D - 5  | 250 Ω             | 3200/3400           |
| 300D - 5  | 300 Ω             | 3200/3500           |
| 360D - 5  | 360 Ω             | 3500                |
| 500D - 5  | 500 Ω             | 3200/3650           |
| 650D - 5  | 650 Ω             | 3200/3650           |
| 800D - 5  | 800 Ω             | 3650/3850           |
| 1KD - 5   | 1 kΩ              | 3650/3850/3950      |
| 1.2KD - 5 | 1.2 kΩ            | 3650/3850/3950      |
| 1.5KD - 5 | 1.5 kΩ            | 3650/3850/3950      |
| 2KD - 5   | 2 kΩ              | 4000                |
| 3KD - 5   | 3 kΩ              | 4000                |
| 5KD - 5   | 5 kΩ              | 4100                |
| 6.8KD - 5 | 6.8 kΩ            | 4100                |
| 8KD - 5   | 8 kΩ              | 4200                |
| 10KD - 5  | 10 kΩ             | 4200                |
| 15KD - 5  | 15 kΩ             | 4200/4300           |
| 20KD - 5  | 20 kΩ             | 4200/4400           |
| 30KD - 5  | 30 kΩ             | 4200/4400           |
| 50KD - 5  | 50 kΩ             | 4100/4400/4650      |
| 100KD - 5 | 100 kΩ            | 4100/4650/4850      |
| 150KD - 5 | 150 kΩ            | 4100/4850           |
| 200KD - 5 | 200 kΩ            | 4100/4850           |
| 250KD - 5 | 250 kΩ            | 4850                |
| 330KD - 5 | 330 kΩ            | 5000                |
| 400KD - 5 | 400 kΩ            | 5000                |
| 470KD - 5 | 470 kΩ            | 5000/5500           |
| 680KD - 5 | 680 kΩ            | 5000/5500           |
| 1MD - 5   | 1 MΩ              | 5000/5500           |

| NTC 5 KD - 2J<br>RESISTANCE |        |        |         | NTC 20 KD - 2J<br>RESISTANCE |         |           | NTC 10 KD - 3J<br>RESISTANCE |         |         | NTC 100 KD - 3J<br>RESISTANCE |           |           | TEMP.<br>(°C) |
|-----------------------------|--------|--------|---------|------------------------------|---------|-----------|------------------------------|---------|---------|-------------------------------|-----------|-----------|---------------|
| TEMP.<br>(°C)               | (kΩ)   |        |         | (kΩ)                         |         |           | (kΩ)                         |         |         | (kΩ)                          |           |           |               |
|                             | min.   | center | max.    | min.                         | center  | max.      | min.                         | center  | max.    | min.                          | center    | max.      |               |
| -40                         | 76.765 | 88.067 | 100.781 | 725.850                      | 855.174 | 1,005.019 | 314.377                      | 368.748 | 431.440 | 4,350.999                     | 5,155.043 | 6,092.402 | -40           |
| -35                         | 59.587 | 67.827 | 77.013  | 516.348                      | 601.971 | 700.037   | 225.592                      | 261.906 | 303.305 | 3,041.577                     | 3,563.964 | 4,165.629 | -35           |
| -30                         | 46.592 | 52.632 | 59.308  | 371.682                      | 428.932 | 493.764   | 163.927                      | 188.444 | 216.087 | 2,153.051                     | 2,496.021 | 2,886.390 | -30           |
| -25                         | 36.690 | 41.142 | 46.019  | 270.582                      | 309.208 | 352.466   | 120.542                      | 137.259 | 155.904 | 1,542.412                     | 1,769.760 | 2,025.541 | -25           |
| -20                         | 29.093 | 32.389 | 35.969  | 199.112                      | 225.388 | 254.494   | 89.642                       | 101.143 | 113.835 | 1,117.623                     | 1,269.645 | 1,438.739 | -20           |
| -15                         | 23.223 | 25.675 | 28.315  | 148.032                      | 166.039 | 185.769   | 67.378                       | 75.354  | 84.064  | 818.671                       | 921.118   | 1,033.795 | -15           |
| -10                         | 18.658 | 20.489 | 22.443  | 111.141                      | 123.559 | 137.022   | 51.158                       | 56.729  | 62.750  | 605.934                       | 675.445   | 751.047   | -10           |
| -5                          | 15.085 | 16.456 | 17.908  | 84.228                       | 92.839  | 102.076   | 39.218                       | 43.133  | 47.620  | 452.937                       | 500.372   | 551.393   | -5            |
| 0                           | 12.270 | 13.300 | 14.381  | 64.405                       | 70.403  | 76.768    | 30.340                       | 33.105  | 36.032  | 341.784                       | 374.305   | 408.894   | 0             |
| 5                           | 10.038 | 10.814 | 11.621  | 49.670                       | 53.861  | 58.260    | 23.677                       | 25.637  | 27.690  | 260.245                       | 282.615   | 306.140   | 5             |
| 10                          | 8.260  | 8.844  | 9.447   | 38.620                       | 41.554  | 44.600    | 18.630                       | 20.023  | 21.467  | 199.874                       | 215.290   | 231.315   | 10            |
| 15                          | 6.833  | 7.274  | 7.724   | 30.264                       | 32.319  | 34.427    | 14.774                       | 15.766  | 16.782  | 154.777                       | 165.401   | 176.313   | 15            |
| 20                          | 5.683  | 6.015  | 6.351   | 23.894                       | 25.330  | 26.786    | 11.805                       | 12.510  | 13.224  | 120.803                       | 128.110   | 135.518   | 20            |
| 25                          | 4.750  | 5.000  | 5.250   | 19.000                       | 20.000  | 21.000    | 9.500                        | 10.000  | 10.500  | 95.000                        | 100.000   | 105.000   | 25            |
| 30                          | 3.947  | 4.177  | 4.410   | 15.004                       | 15.903  | 16.813    | 7.597                        | 8.049   | 8.507   | 74.171                        | 78.640    | 83.169    | 30            |
| 35                          | 3.296  | 3.507  | 3.722   | 11.931                       | 12.731  | 13.550    | 6.118                        | 6.523   | 6.937   | 58.336                        | 62.285    | 66.335    | 35            |
| 40                          | 2.766  | 2.958  | 3.155   | 9.552                        | 10.258  | 10.989    | 4.959                        | 5.320   | 5.693   | 46.205                        | 49.669    | 53.259    | 40            |
| 45                          | 2.332  | 2.506  | 2.687   | 7.695                        | 8.317   | 8.965     | 4.045                        | 4.365   | 4.699   | 36.844                        | 39.868    | 43.032    | 45            |
| 50                          | 1.975  | 2.133  | 2.298   | 6.238                        | 6.783   | 7.357     | 3.320                        | 3.603   | 3.901   | 29.570                        | 32.202    | 34.982    | 50            |
| 55                          | 1.680  | 1.823  | 1.973   | 5.087                        | 5.564   | 6.071     | 2.740                        | 2.991   | 3.256   | 23.879                        | 26.167    | 28.603    | 55            |
| 60                          | 1.435  | 1.564  | 1.701   | 4.171                        | 4.589   | 5.036     | 2.274                        | 2.496   | 2.732   | 19.398                        | 21.387    | 23.519    | 60            |
| 65                          | 1.231  | 1.348  | 1.472   | 3.439                        | 3.805   | 4.199     | 1.898                        | 2.093   | 2.304   | 15.849                        | 17.576    | 19.443    | 65            |
| 70                          | 1.060  | 1.165  | 1.278   | 2.856                        | 3.171   | 3.519     | 1.591                        | 1.765   | 1.952   | 13.020                        | 14.522    | 16.157    | 70            |
| 75                          | 0.915  | 1.011  | 1.114   | 2.374                        | 2.656   | 2.963     | 1.341                        | 1.494   | 1.661   | 10.753                        | 12.060    | 13.493    | 75            |
| 80                          | 0.794  | 0.881  | 0.974   | 1.987                        | 2.234   | 2.506     | 1.135                        | 1.271   | 1.420   | 8.925                         | 10.065    | 11.322    | 80            |
| 85                          | 0.691  | 0.770  | 0.855   | 1.671                        | 1.888   | 2.128     | 0.965                        | 1.086   | 1.219   | 7.445                         | 8.440     | 9.544     | 85            |
| 90                          | 0.604  | 0.675  | 0.753   | 1.412                        | 1.603   | 1.815     | 0.825                        | 0.932   | 1.051   | 6.239                         | 7.109     | 8.081     | 90            |
| 95                          | 0.529  | 0.594  | 0.665   | 1.197                        | 1.366   | 1.555     | 0.707                        | 0.803   | 0.909   | 5.252                         | 6.015     | 6.871     | 95            |
| 100                         | 0.465  | 0.524  | 0.589   | 1.020                        | 1.169   | 1.337     | 0.609                        | 0.694   | 0.790   | 4.440                         | 5.110     | 5.867     | 100           |
| 105                         | 0.410  | 0.464  | 0.523   | 0.872                        | 1.004   | 1.154     | 0.526                        | 0.603   | 0.689   | 3.770                         | 4.359     | 5.029     | 105           |
| 110                         | 0.363  | 0.411  | 0.466   | 0.749                        | 0.866   | 0.999     | 0.457                        | 0.525   | 0.602   | 3.214                         | 3.734     | 4.327     | 110           |
| 115                         | 0.322  | 0.366  | 0.416   | 0.645                        | 0.750   | 0.869     | 0.397                        | 0.459   | 0.529   | 2.750                         | 3.210     | 3.737     | 115           |
| 120                         | 0.286  | 0.327  | 0.372   | 0.558                        | 0.651   | 0.758     | 0.347                        | 0.403   | 0.466   | 2.363                         | 2.769     | 3.238     | 120           |
| β (25/85) = 3300 °k ±3%     |        |        |         | β (25/85) = 4200 °k ±3%      |         |           | β (25/85) = 3970 °k ±3%      |         |         | β (25/85) = 4400 °k ±3%       |           |           |               |

| NTC 10 KD - 5J<br>RESISTANCE |         |         |         | NTC 50 KD- 5J<br>RESISTANCE |           |           | NTC 150 KD - 5J<br>RESISTANCE |            |            | NTC 470 KD-5J<br>RESISTANCE |            |            | TEMP.<br>(°C) |
|------------------------------|---------|---------|---------|-----------------------------|-----------|-----------|-------------------------------|------------|------------|-----------------------------|------------|------------|---------------|
| TEMP.<br>(°C)                | (kΩ)    |         |         | (kΩ)                        |           |           | (kΩ)                          |            |            | (kΩ)                        |            |            |               |
|                              | min.    | center  | max.    | min.                        | center    | max.      | min.                          | center     | max.       | min.                        | center     | max.       |               |
| -40                          | 267.215 | 311.858 | 363.048 | 2,729.109                   | 3,256.188 | 3,875.350 | 9,815.911                     | 1,1777.577 | 14,095.946 | 307.566                     | 36,903.179 | 44,167.422 | -40           |
| -35                          | 199.515 | 230.753 | 266.214 | 1,866.595                   | 2,201.083 | 2,589.022 | 6,597.369                     | 7819.143   | 9,244.013  | 20,671.801                  | 24,500.039 | 28,964.641 | -35           |
| -30                          | 149.834 | 171.765 | 196.414 | 1,293.941                   | 1,508.617 | 1,754.513 | 4,497.369                     | 5267.447   | 6,153.961  | 14,091.782                  | 16,504.698 | 19,282.449 | -30           |
| -25                          | 113.194 | 128.642 | 145.832 | 908.522                     | 1,047.732 | 1,205.252 | 3,107.395                     | 3598.092   | 4,155.861  | 9,736.520                   | 11,274.041 | 13,021.720 | -25           |
| -20                          | 86.029  | 96.944  | 108.969 | 645.728                     | 736.849   | 838.726   | 2,174.722                     | 2490.496   | 2,844.992  | 6,814.136                   | 7,803.566  | 8,914.321  | -20           |
| -15                          | 65.780  | 73.513  | 81.949  | 464.309                     | 524.452   | 590.905   | 1,540.688                     | 1745.691   | 1,973.027  | 4,827.494                   | 5,469.837  | 6,182.157  | -15           |
| -10                          | 50.602  | 56.094  | 62.026  | 337.577                     | 377.564   | 421.231   | 1,104.279                     | 1238.392   | 1,385.321  | 3,460.077                   | 3,880.299  | 4,340.678  | -10           |
| -5                           | 39.160  | 43.067  | 47.246  | 248.041                     | 274.790   | 303.663   | 800.312                       | 888.617    | 984.198    | 2,507.647                   | 2,784.335  | 3,083.824  | -5            |
| 0                            | 30.487  | 33.270  | 36.216  | 184.098                     | 202.080   | 221.263   | 586.183                       | 644.624    | 707.118    | 1,836.709                   | 2,019.822  | 2,215.638  | 0             |
| 5                            | 23.873  | 25.856  | 27.934  | 137.959                     | 150.089   | 162.876   | 433.700                       | 472.515    | 513.517    | 1,358.928                   | 1,480.548  | 1,609.020  | 5             |
| 10                           | 18.803  | 20.215  | 21.679  | 104.337                     | 112.534   | 121.072   | 323.988                       | 34.981     | 376.755    | 1,015.162                   | 1,096.085  | 1,180.500  | 10            |
| 15                           | 14.893  | 15.897  | 16.925  | 79.604                      | 85.142    | 90.839    | 244.266                       | 261.443    | 279.129    | 765.367                     | 819.190    | 874.606    | 15            |
| 20                           | 11.862  | 12.573  | 13.292  | 61.245                      | 64.977    | 68.765    | 185.786                       | 197.175    | 208.740    | 582.131                     | 617.817    | 654.052    | 20            |
| 25                           | 9.500   | 10.000  | 10.500  | 47.500                      | 50.000    | 52.500    | 142.500                       | 150.000    | 157.500    | 446.500                     | 470.000    | 493.500    | 25            |
| 30                           | 7.546   | 7.996   | 8.453   | 36.561                      | 38.780    | 41.030    | 108.441                       | 115.060    | 121.778    | 339.783                     | 360.523    | 381.573    | 30            |
| 35                           | 6.027   | 6.429   | 6.840   | 28.362                      | 30.306    | 32.303    | 83.199                        | 88.962     | 94.885     | 260.693                     | 278.748    | 297.309    | 35            |
| 40                           | 4.840   | 5.195   | 5.563   | 22.166                      | 23.856    | 25.612    | 64.334                        | 69.307     | 74.478     | 201.582                     | 217.164    | 233.365    | 40            |
| 45                           | 3.906   | 4.220   | 4.547   | 17.448                      | 18.910    | 20.443    | 50.121                        | 54.389     | 58.873     | 157.046                     | 170.420    | 184.471    | 45            |
| 50                           | 3.169   | 3.444   | 3.734   | 13.829                      | 15.089    | 16.424    | 39.329                        | 42.980     | 46.854     | 123.231                     | 134.673    | 146.810    | 50            |
| 55                           | 2.584   | 2.825   | 3.081   | 11.033                      | 12.118    | 13.277    | 31.073                        | 34.192     | 37.531     | 97.364                      | 107.138    | 117.597    | 55            |
| 60                           | 2.117   | 2.328   | 2.553   | 8.858                       | 9.791     | 10.796    | 24.714                        | 27.376     | 30.250     | 77.437                      | 85.780     | 94.785     | 60            |
| 65                           | 1.742   | 1.927   | 2.125   | 7.155                       | 7.958     | 8.830     | 19.780                        | 22.054     | 24.528     | 61.980                      | 69.104     | 76.855     | 65            |
| 70                           | 1.440   | 1.602   | 1.777   | 5.813                       | 6.505     | 7.261     | 15.929                        | 17.872     | 20.002     | 49.910                      | 56.000     | 62.675     | 70            |
| 75                           | 1.196   | 1.337   | 1.492   | 4.749                       | 5.346     | 6.002     | 12.902                        | 14.565     | 16.402     | 40.427                      | 45.639     | 51.393     | 75            |
| 80                           | 0.997   | 1.121   | 1.257   | 3.901                       | 4.416     | 4.987     | 10.509                        | 11.935     | 13.521     | 32.930                      | 37.398     | 42.366     | 80            |
| 85                           | 0.835   | 0.944   | 1.064   | 3.221                       | 3.667     | 4.164     | 8.607                         | 9.831      | 11.202     | 26.969                      | 30.806     | 35.102     | 85            |
| 90                           | 0.702   | 0.797   | 0.903   | 2.672                       | 3.059     | 3.493     | 7.085                         | 8.139      | 9.327      | 22.201                      | 25.505     | 29.226     | 90            |
| 95                           | 0.593   | 0.676   | 0.770   | 2.228                       | 2.564     | 2.943     | 5.862                         | 6.771      | 7.803      | 18.368                      | 21.218     | 24.449     | 95            |
| 100                          | 0.502   | 0.576   | 0.659   | 1.866                       | 2.159     | 2.491     | 4.873                         | 5.660      | 6.557      | 15.271                      | 17.735     | 20.546     | 100           |
| 105                          | 0.427   | 0.492   | 0.565   | 1.570                       | 1.825     | 2.117     | 4.070                         | 4.752      | 5.534      | 12.754                      | 14.890     | 17.341     | 105           |
| 110                          | 0.364   | 0.422   | 0.487   | 1.326                       | 1.550     | 1.806     | 3.415                         | 4.007      | 4.690      | 10.700                      | 12.556     | 14.698     | 110           |
| 115                          | 0.312   | 0.363   | 0.421   | 1.125                       | 1.321     | 1.547     | 2.877                         | 3.393      | 3.992      | 9.016                       | 10.633     | 12.508     | 115           |
| 120                          | 0.268   | 0.313   | 0.365   | 0.958                       | 1.130     | 1.330     | 2.434                         | 2.885      | 3.410      | 7.628                       | 9.040      | 10.686     | 120           |
| β (25/85) = 4200 °k ±3%      |         |         |         | β (25/85) = 4650 °k ±3%     |           |           | β (25/85) = 4850 °k ±3%       |            |            | β (25/85) = 5000 °k ±3%     |            |            |               |