

## NTC Thermistors, 2-Point Mini Chip Sensor, Flexible Leads



### ADDITIONAL RESOURCES



3D Models



Design Tools

| QUICK REFERENCE DATA   |               |                 |
|--|---------------|-----------------|
| PARAMETER  | VALUE         | UNIT            |
| Resistance value at 25 °C  | 3K to 10K     | $\Omega$        |
| Tolerance on $R_{25}$ -value   | $\pm 2.18$    | %               |
| $B_{25/85}$ -value   | 3977          | K               |
| Tolerance on $B_{25/85}$ -value  | $\pm 0.75$    | %               |
| Operating temperature range at zero dissipation                        | -40 to +125   | °C              |
| Accuracy for T measured between 0 °C and 50 °C                         | $\pm 0.5$     | °C              |
| Maximum power dissipation at 55 °C                                     | 100           | mW              |
| Min. dielectric withstanding voltage between terminals and coated body | 500           | V <sub>AC</sub> |
| Weight   | $\approx 0.2$ | g               |

### FEATURES

- Accuracy of 0.5 °C between 0 °C and 50 °C
- Small 2.4 mm diameter
- High stability over a long life
- Long and flexible leads for special mounting or assembly requirements
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### APPLICATIONS

- Temperature measurement, sensing and control in automotive, industrial and consumer electronic equipment

### DESCRIPTION

These negative temperature coefficient thermistors consist of a mini-chip soldered between two AWG#30 ETFE insulated (LE300) or non-insulated (LE201) 0.3 mm nickel leads and coated with a solid other color epoxy lacquer

### PACKAGING

The thermistors are packed in cardboard boxes; the smallest packing quantity is 1000 units

### MARKING

The coated body has no markings

### MOUNTING

By soldering in any position.

### DESIGN-IN SUPPORT

For complete curve computation, please visit: [www.vishay.com/thermistors/ntc-curve-list/](http://www.vishay.com/thermistors/ntc-curve-list/)

| ELECTRICAL DATA AND ORDERING INFORMATION |                              |                    |                                 |                                   |                  |
|--|------------------------------|--------------------|---------------------------------|-----------------------------------|------------------|
| $R_{25}$<br>( $\Omega$ )                 | $R_{25}$ -TOL.<br>( $\pm$ %) | $B_{25/85}$<br>(K) | $B_{25/85}$ -TOL.<br>( $\pm$ %) | SAP MATERIAL AND ORDERING NUMBER  |                  |
|  |                              |                    |                                 | RoHS COMPLIANT WITH EXEMPTION (1) | RoHS COMPLIANT   |
| 3000                                     | 2.18                         | 3977               | 0.75                            | NTCLE201E3302SB                   | NTCLE201E3302SBA |
| 5000                                     | 2.18                         | 3977               | 0.75                            | NTCLE201E3502SB                   | NTCLE201E3502SBA |
| 10 000                                   | 2.18                         | 3977               | 0.75                            | NTCLE201E3103SB                   | NTCLE201E3103SBA |
| 3000                                     | 2.18                         | 3977               | 0.75                            | NTCLE300E3302SB                   | NTCLE300E3302SBA |
| 5000                                     | 2.18                         | 3977               | 0.75                            | NTCLE300E3502SB                   | NTCLE300E3502SBA |
| 10 000                                   | 2.18                         | 3977               | 0.75                            | NTCLE300E3103SB                   | NTCLE300E3103SBA |

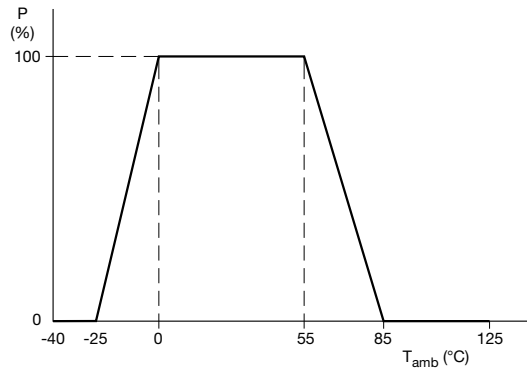
#### Note

- (1) RoHS exemption 7(c)-I: electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezo-electronic devices, or in a glass or ceramic matrix compound

| DIMENSIONS in millimeters           |          |            |                |                                     |                   |                   |                   |
|-------------------------------------|----------|------------|----------------|-------------------------------------|-------------------|-------------------|-------------------|
| Component outline for NTCLE201E3... |          |            |                | Component outline for NTCLE300E3... |                   |                   |                   |
|                                     |          |            |                |                                     |                   |                   |                   |
| T                                   | B        | L          | L <sub>1</sub> | L <sub>2</sub>                      | $\varnothing d_1$ | $\varnothing d_2$ | $\varnothing d_3$ |
| 2.4 max.                            | 2.4 max. | 38 $\pm$ 2 | 8.0 max.       | 6 $\pm$ 1                           | 0.30 $\pm$ 0.03   | 0.58 max.         | 0.25 $\pm$ 0.025  |



**DERATING**



Power derating curve

**Note**

- Zero power is considered as measuring power max. 1 % of max. power

| <b>RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES</b> |                                 |                 |              |  |              |              |
|---|---------------------------------|-----------------|--------------|--|--------------|--------------|
| T <sub>OPER</sub><br>(°C)                             | R <sub>T</sub> /R <sub>25</sub> | T-TOL.<br>(± K) | TCR<br>(%/K) | R <sub>T</sub> -VALUE (kΩ)               |              |              |
|   |                                 |                 |              | NTCLE201E3...SB(A) OR NTCLE300E3...SB(A) |              |              |
|   |                                 |                 |              | 302                                      | 502          | 103          |
| -40   | 33.21                           | 0.68            | -6.57        | 99.63                                    | 166.1        | 332.1        |
| -35   | 23.99                           | 0.66            | -6.36        | 71.97                                    | 120.0        | 239.9        |
| -30   | 17.52                           | 0.64            | -6.15        | 52.56                                    | 87.60        | 175.2        |
| -25   | 12.93                           | 0.62            | -5.95        | 38.79                                    | 64.65        | 129.3        |
| -20   | 9.636                           | 0.59            | -5.76        | 28.91                                    | 48.18        | 96.36        |
| -15   | 7.250                           | 0.57            | -5.58        | 21.75                                    | 36.25        | 72.50        |
| -10   | 5.505                           | 0.55            | -5.40        | 16.51                                    | 27.52        | 55.05        |
| -5  | 4.216                           | 0.52            | -5.24        | 12.65                                    | 21.08        | 42.16        |
| 0   | 3.255                           | 0.50            | -5.08        | 9.766                                    | 16.28        | 32.56        |
| 5   | 2.534                           | 0.50            | -4.92        | 7.602                                    | 12.67        | 25.34        |
| 10  | 1.987                           | 0.50            | -4.78        | 5.962                                    | 9.936        | 19.87        |
| 15  | 1.570                           | 0.50            | -4.64        | 4.710                                    | 7.849        | 15.70        |
| 20  | 1.249                           | 0.50            | -4.50        | 3.746                                    | 6.244        | 12.49        |
| <b>25</b>   | <b>1.000</b>                    | <b>0.50</b>     | <b>-4.37</b> | <b>3.000</b>                             | <b>5.000</b> | <b>10.00</b> |
| 30  | 0.8059                          | 0.50            | -4.25        | 2.418                                    | 4.030        | 8.059        |
| 35  | 0.6535                          | 0.50            | -4.13        | 1.960                                    | 3.267        | 6.535        |
| 40  | 0.5330                          | 0.50            | -4.02        | 1.599                                    | 2.665        | 5.330        |
| 45  | 0.4372                          | 0.50            | -3.91        | 1.312                                    | 2.186        | 4.372        |
| 50  | 0.3605                          | 0.50            | -3.80        | 1.082                                    | 1.803        | 3.606        |
| 55  | 0.2989                          | 0.55            | -3.70        | 0.8966                                   | 1.494        | 2.989        |
| 60  | 0.2490                          | 0.61            | -3.60        | 0.7470                                   | 1.245        | 2.490        |
| 65  | 0.2084                          | 0.66            | -3.51        | 0.6253                                   | 1.042        | 2.084        |
| 70  | 0.1753                          | 0.72            | -3.42        | 0.5259                                   | 0.8765       | 1.753        |
| 75  | 0.1481                          | 0.77            | -3.33        | 0.4443                                   | 0.7405       | 1.481        |
| 80  | 0.1256                          | 0.83            | -3.25        | 0.3769                                   | 0.6282       | 1.256        |
| 85  | 0.1070                          | 0.89            | -3.16        | 0.3211                                   | 0.5352       | 1.070        |
| 90  | 0.09154                         | 0.95            | -3.09        | 0.2746                                   | 0.4577       | 0.9154       |
| 95  | 0.07860                         | 1.02            | -3.01        | 0.2358                                   | 0.3930       | 0.7860       |
| 100   | 0.06773                         | 1.08            | -2.94        | 0.2032                                   | 0.3387       | 0.6773       |
| 105   | 0.05858                         | 1.14            | -2.87        | 0.1757                                   | 0.2929       | 0.5858       |
| 110   | 0.05083                         | 1.21            | -2.80        | 0.1525                                   | 0.2542       | 0.5083       |
| 115   | 0.04426                         | 1.27            | -2.73        | 0.1328                                   | 0.2213       | 0.4426       |
| 120   | 0.03866                         | 1.34            | -2.67        | 0.1160                                   | 0.1933       | 0.3866       |
| 125   | 0.03387                         | 1.41            | -2.61        | 0.1016                                   | 0.1694       | 0.3387       |



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