

## NTC Thermistor, Epoxy Coated Mini Sensor



### QUICK REFERENCE DATA

| PARAMETER                                                                    | VALUE                  | UNIT            |
|------------------------------------------------------------------------------|------------------------|-----------------|
| Resistance value at 25 °C                                                    | 2.1K to 100K           | $\Omega$        |
| Tolerance on $R_{25}$ -value                                                 | $\pm 1$ to $\pm 5$     | %               |
| $B_{25/85}$ -value                                                           | 3511 to 4190           | K               |
| Tolerance on $B_{25/85}$ -value                                              | $\pm 0.5$ to $\pm 1.5$ | %               |
| Operating temperature range                                                  | -55 to +150            | °C              |
| Response time (63.2 %)<br>25 °C to 85 °C still air (for info)                | 5                      | s               |
| Dissipation factor $\delta$ in still air<br>(for info)                       | 1.8                    | mW              |
| Maximum power dissipation                                                    | 100                    | mW              |
| Min. dielectric withstanding<br>voltage between terminals<br>and coated body | 500                    | V <sub>AC</sub> |
| Insulation resistance at 100 V <sub>DC</sub>                                 | > 10M                  | $\Omega$        |
| Weight                                                                       | ≈ 100                  | mg              |

### FEATURES

- Advanced NTC technology
- Temperature range from -55 °C to +150 °C
- Highly resistant to thermal shocks
- Small body diameter of max. 2.5 mm
- AEC-Q200 qualified
- Fast response time
- High sensitivity
- Delivery in bulk or in tape with extra long leads (for automatic mounting)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### APPLICATIONS

Temperature sensing, control and compensation.  
E.g. inlet air temperature sensing thermistors or ECT in automotive applications, sensor elements in industrial and commercial applications, heating systems and industrial systems.

### MOUNTING

The thermistors are suitable for all standard assembly processes like crimping, soldering, welding. The parameters of the assembly process should be chosen in accordance with the lead-wire material (tinned nickel) and validated in application.

The mounting process should be in compliance with the following guidelines and recommendations:

- Peeling forces on the leads should be reduced to a minimum and should never exceed 3 N
- Avoid large temperature gradients between the welding region and the sensor

### PACKAGING

- Bulk components are delivered in boxes of 500 components
- Taped components are delivered on a reel of 1500 components (according to IEC 60286-2 but with extra long leads: H0 = 32 mm)

### DESIGN IN SUPPORT

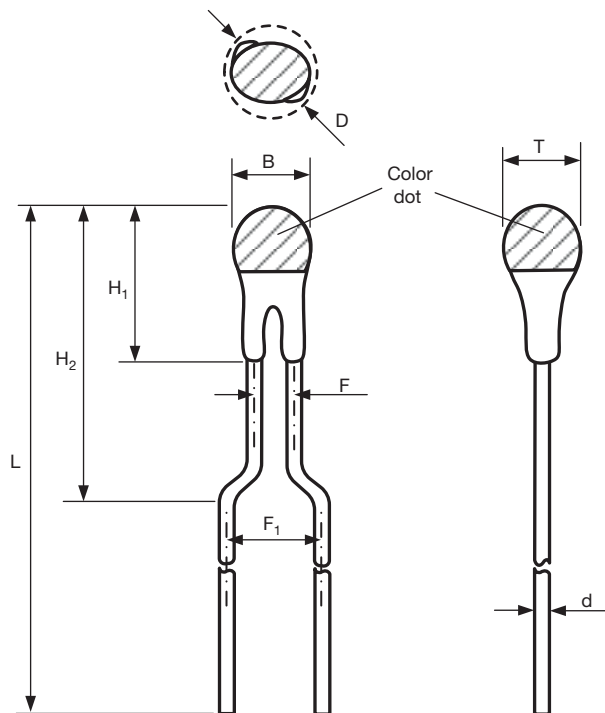
For complete curve computation, please visit:  
[www.vishay.com/thermistors/ntc-curve-list/](http://www.vishay.com/thermistors/ntc-curve-list/).

### 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<br>ORDERING NUMBER <sup>(1)</sup> | COLOR DOT<br>(see next page) |
|--------------------------|------------------------------|--------------------|---------------------------------|----------------------------------------------------|------------------------------|
| 2100                     | 1, 2, 3, 5                   | 3511               | 1                               | NTCLE213E3212xMyy                                  | Orange                       |
| 10 000                   | 1, 2, 3, 5                   | 3435               | 1                               | NTCLE213E3103xLyy                                  | Red                          |
| 10 000                   | 1, 2, 3, 5                   | 3984               | 0.5                             | NTCLE213E3103xHyy                                  | Blue                         |
| 12 000                   | 1, 2, 3, 5                   | 3740               | 1                               | NTCLE213E3123xMyy                                  | Black                        |
| 30 000                   | 1, 2, 3, 5                   | 3935               | 0.75                            | NTCLE213E3303xHyy                                  | Green                        |
| 100 000                  | 1, 2, 3, 5                   | 4190               | 1.5                             | NTCLE213E3104xXyy                                  | Brown                        |

#### Note

- <sup>(1)</sup> Replace the x-digit by J for  $R_{25}$ -tolerance of 5 %, H for 3 %, G for 2 %, and F for 1 %.  
Replace the y-digits by B0 for bulk delivery and by T1 for tape and reel delivery

**DIMENSIONS** in millimeters


| PARAMETER                  | VALUE           |
|----------------------------|-----------------|
| B max.                     | 2.5             |
| T max.                     | 2.5             |
| F                          | 1.1             |
| F1                         | 2.54            |
| D max. (mounting diameter) | 2.5             |
| d                          | $0.4 \pm 10 \%$ |
| H1 max.                    | 5.5             |
| H2 max.                    | 10              |
| L                          | $41 \pm 1$      |

**Note**

- Non-dimensioned details do not affect the performance of the thermistors



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