

## SMD NTC Thermistors With Enhanced Stability



### FEATURES

- Monolithic SMD with nickel barrier and pure tin
- Wide temperature range from -40 °C to +125 °C
- Enhanced stability throughout the lifetime (maximum variation of initial  $R_{25\text{ °C}}$  of  $\pm 0.5\%$  after 10 000 hours at any temperature)
- Ideal for wave and reflow soldering
- Delivered on punched paper tape on reel
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### APPLICATIONS

- All applications that require the utmost stability in time (medical application, heat counting, billing meters)

### CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions:  
see [www.vishay.com/doc?29224](http://www.vishay.com/doc?29224).

### PACKAGING

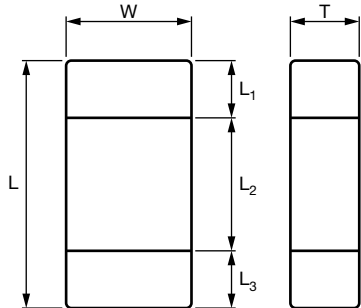
Available in 8 mm punched paper tape on reel package of 4000 units (case 0603 and case 0805) and 10 000 (case 0402).

### DESIGN-IN SUPPORT

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

| QUICK REFERENCE DATA                                                     |                                         |          |
|--------------------------------------------------------------------------|-----------------------------------------|----------|
| PARAMETER                                                                | VALUE                                   | UNIT     |
| Resistance value at 25 °C                                                | 100K to 210K                            | $\Omega$ |
| Tolerance on $R_{25\text{ °C}}$ -value                                   | 1                                       | %        |
| $B_{25/85}$ -value                                                       | 3590                                    | K        |
| Tolerance on $B_{25/85}$ -value                                          | $\pm 1$                                 | %        |
| Maximum power dissipation (by case)                                      | 70 (0402),<br>120 (0603),<br>210 (0805) | mW       |
| Response time (63.2 %)<br>25 °C to 85 °C still air<br>(for info by case) | 4 (0402),<br>6 (0603),<br>10 (0805)     | s        |
| Dissipation factor $\delta$<br>in still air (for each case)              | 2 (0402),<br>3 (0603),<br>3.5 (0805)    | mW/K     |
| Operating temperature range                                              | -40 to +125                             | °C       |
| Weight                                                                   | 1.2 (0402),<br>6 (0603),<br>8 (0805)    | mg       |

| ELECTRICAL DATA AND ORDERING INFORMATION |                                               |                    |                                        |                                  |
|------------------------------------------|-----------------------------------------------|--------------------|----------------------------------------|----------------------------------|
| $R_{25}$<br>( $\Omega$ )                 | $R_{25\text{ °C}}\text{-TOL.}$<br>( $\pm\%$ ) | $B_{25/85}$<br>(K) | $B_{25/85}\text{-TOL.}$<br>( $\pm\%$ ) | SAP MATERIAL AND ORDERING NUMBER |
| 100 000                                  | 1                                             | 3590               | 1                                      | NTCS0805E3104SMT                 |
| 122 000                                  | 1                                             | 3590               | 1                                      | NTCS0603E3124SMT                 |
| 210 000                                  | 1                                             | 3590               | 1                                      | NTCS0402E3214SMT                 |

| DIMENSIONS in millimeters                                                           |                 |                |                |                 |
|-------------------------------------------------------------------------------------|-----------------|----------------|----------------|-----------------|
|  | PARAMETER       | VALUE          |                |                 |
|                                                                                     | Case            | 0402           | 0603           | 0805            |
|                                                                                     | L               | $1 \pm 0.15$   | $1.6 \pm 0.15$ | $2 \pm 0.2$     |
|                                                                                     | W               | $0.5 \pm 0.15$ | $0.8 \pm 0.15$ | $1.25 \pm 0.15$ |
|                                                                                     | T               | $0.5 \pm 0.15$ | $0.8 \pm 0.15$ | $0.8 \pm 0.15$  |
|                                                                                     | $L_1, L_3$ min. | 0.1            | 0.2            | 0.2             |
|                                                                                     | $L_2$ min.      | 0.3            | 0.4            | 0.55            |

#### Note

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

## RELIABILITY INFORMATION

After a test of storage at any temperature within the temperature range, the drift of electrical resistance at 25 °C is always lower than  $\pm 0.5\%$ , which represents a temperature drift less than  $\pm 0.1\text{ °C}$  (see here under typical figures for drift after storage during 10 000 h at maximal temperature 125 °C). The same type of stability is also observed in thermal shocks between the two extreme values of the temperature range. The tests are performed according to IEC 60068-2-2 and 2-14.

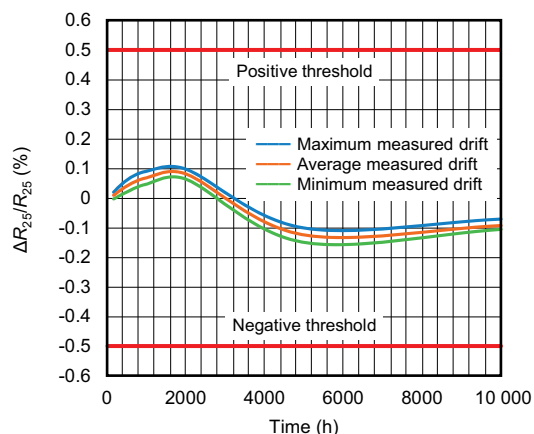


Fig. 1 -  $R_{25\text{ °C}}$  Drift after Storage at 125 °C for 0603 Case

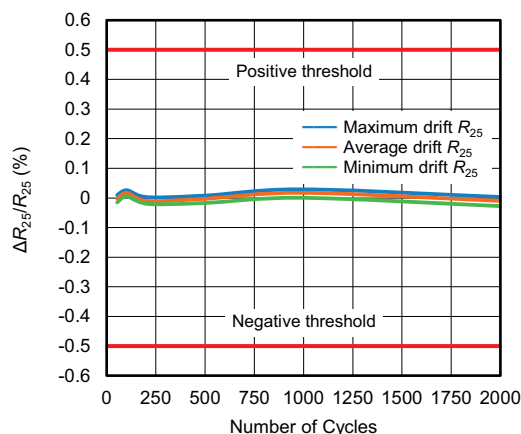


Fig. 3 -  $R_{25\text{ °C}}$  Drift in Thermal Shocks -40 °C, 15 min/125 °C, 15 min

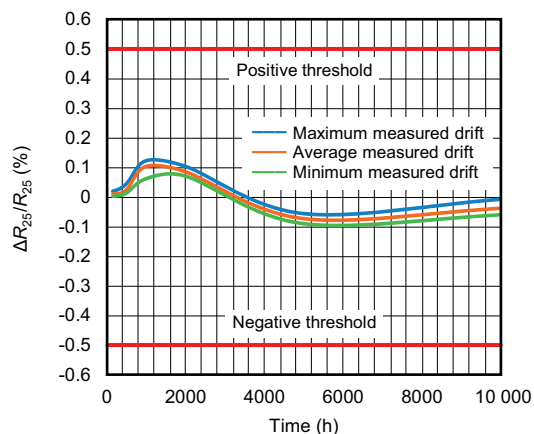


Fig. 2 - Drift in Storage at 125 °C for 0402 Case



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