# 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 $R_{25\ °C}$ of ± 0.5 % after 10 000 hours at any temperature)
- Ideal for wave and reflow soldering
- One $R_{25\ °C}$-value per case 0402, 0603, 0805
- Delivered on punched paper tape on reel
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

## APPLICATIONS

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

## MOUNTING

Please refer to information provided for generic NTCS serie.

## PACKAGING

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

## DESIGN-IN SUPPORT

For complete Curve Computation, visit:
www.vishay.com/resistors-non-linear/ntc-curve-list/

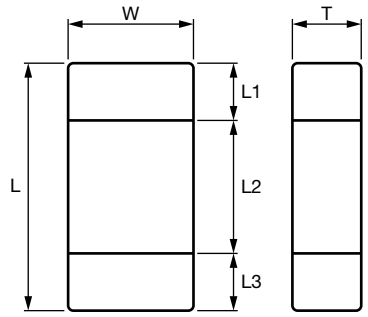
## QUICK REFERENCE DATA

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Resistance value at 25 °C | 100K to 210K | Ω |
| Tolerance on $R_{25}$-value | 1 | % |
| $B_{25/85}$-value | 3590 | K |
| Tolerance on $B_{25/85}$-value | ± 1 | % |
| Maximum power dissipation (by case) | 70 (0402), 120 (0603), 210 (0805) | mW |
| Response time (63.2 %) 25 °C to 750 °C still air (for info by case) | 4 (0402), 6 (0603), 10 (0805) | s |
| Dissipation factor δ in still air (for each case) | 2 (0402), 3 (0603), 3.5 (0805) | mW/K |
| Operating temperature range | - 40 to + 125 | °C |
| Weight | 1 to 7 | mg |

## ELECTRICAL DATA AND ORDERING INFORMATION

| VISHAY SAP ORDERING NUMBER | $R_{25}$-VALUE (kΩ) | TOLERANCE ON $R_{25}$ (%) | $B_{25/85}$-VALUE (K) | $B_{25/85}$-TOLERANCE (%) | DESCRIPTION |
|---|---|---|---|---|---|
| NTCS0402E3214SMT | 210 | 1 | 3590 | ± 1 | SMD NTC thermistor 0402 Ni barrier |
| NTCS0603E3124SMT | 122 | 1 | 3590 | ± 1 | SMD NTC thermistor 0603 Ni barrier |
| NTCS0805E3104SMT | 100 | 1 | 3590 | ± 1 | SMD NTC thermistor 0805 Ni barrier |

## DIMENSIONS in millimeters




| PARAMETER | VALUE | | |
|---|---|---|---|
| Case | 0402 | 0603 | 0805 |
| W | 0.5 ± 0.15 | 0.8 ± 0.15 | 1.25 ± 0.15 |
| T | 0.5 ± 0.15 | 0.8 ± 0.15 | 0.8 ± 0.15 |
| L1, L3 | 0.1 min. | 0.2 min. | 0.2 min. |
| L2 | 0.3 min. | 0.4 min. | 0.55 min. |
| L | 1 ± 0.15 | 1.6 ± 0.15 | 2 ± 0.2 |

**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 ± 0.5 % (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.

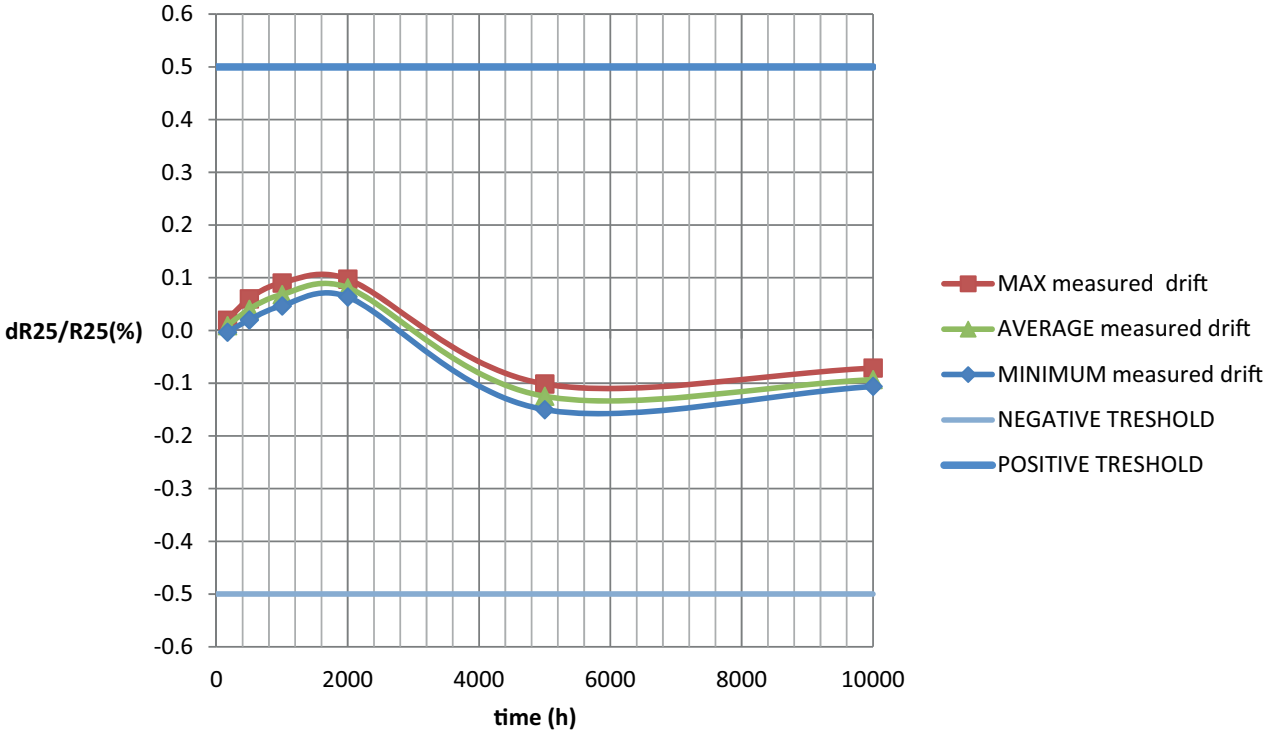



Fig. 1 - $R_{25\ °C}$ Drift after Storage at 125 °C for 0603 Case

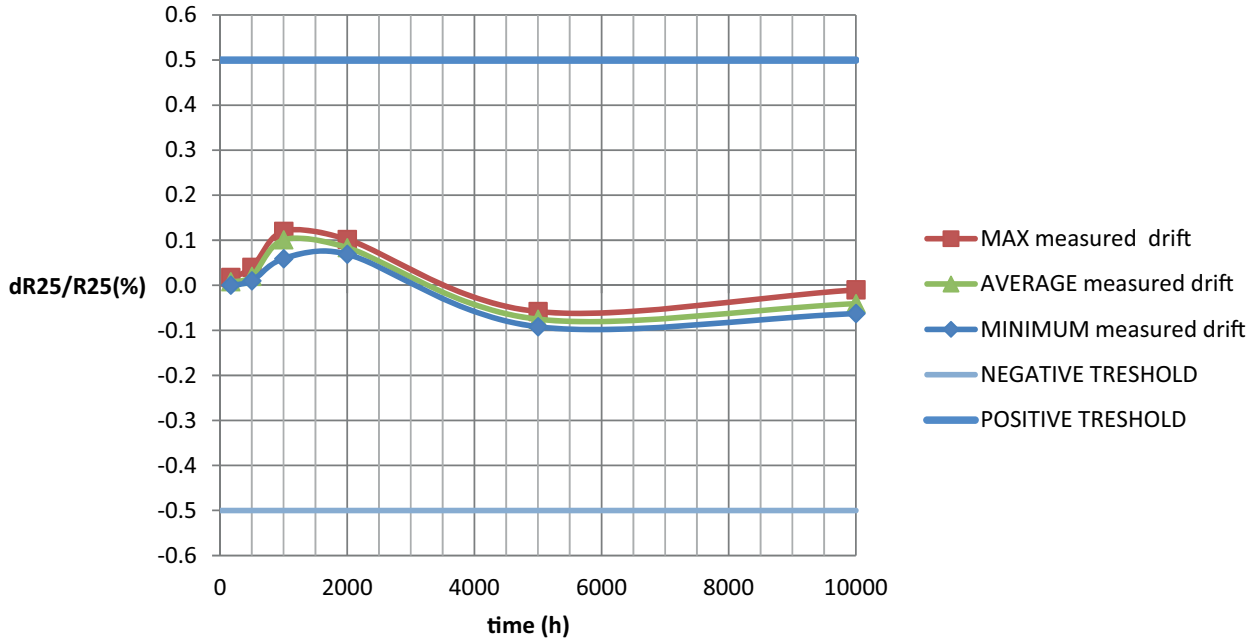



Fig. 2 - Drift in Storage at 125 °C for 0402 Case

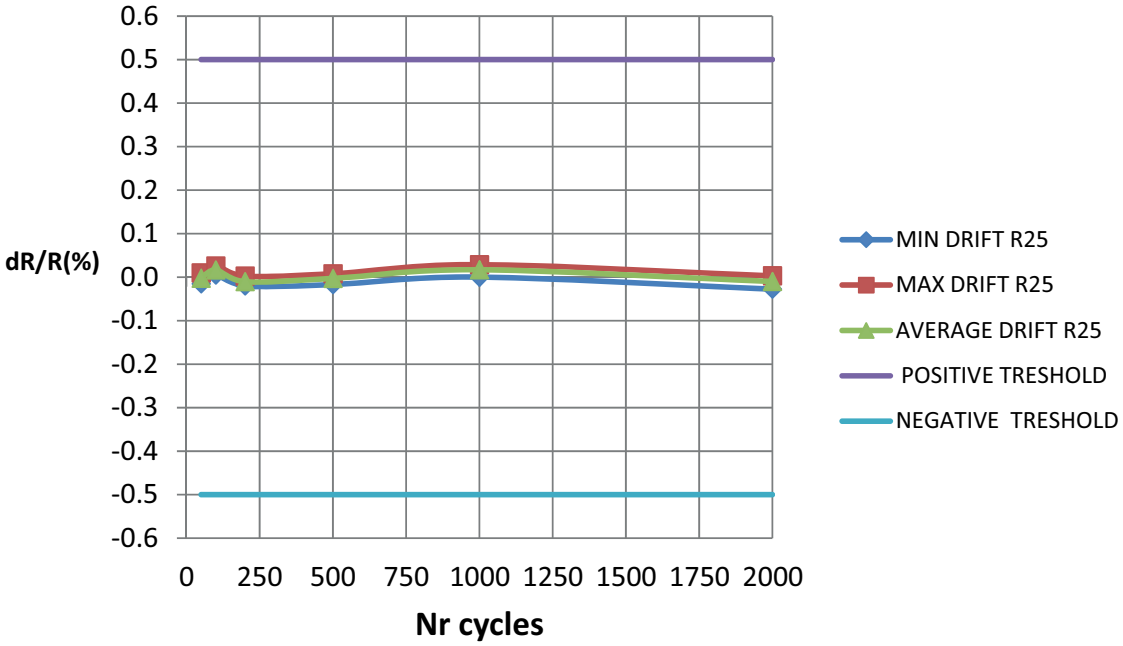



Fig. 3 - $R_{25\ °C}$ Drift in Thermal Shocks - 40 °C, 15 min/125 °C, 15 min

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