

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


RoHS
COMPLIANT

| 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 85 °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 | 1.2 (0402), 6 (0603), 8 (0805) | mg |

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.

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/

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|--|------------------------------|--------------------|---------------------------------|----------------------------------|
| R_{25} (Ω) | R_{25} -TOL. (\pm %) | $B_{25/85}$ (K) | $B_{25/85}$ -TOL. (\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 ± 0.15 | 1.6 ± 0.15 | 2 ± 0.2 | |
| 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 | |
| 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 ± 0.5 %, which represents a temperature drift less than ± 0.1 °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.

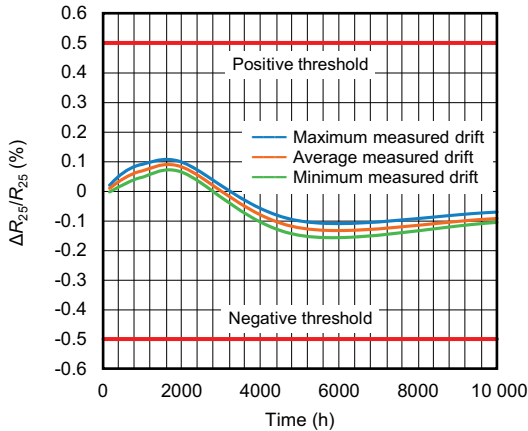


Fig. 1 - $R_{25}^{\circ C}$ Drift after Storage at 125 °C for 0603 Case

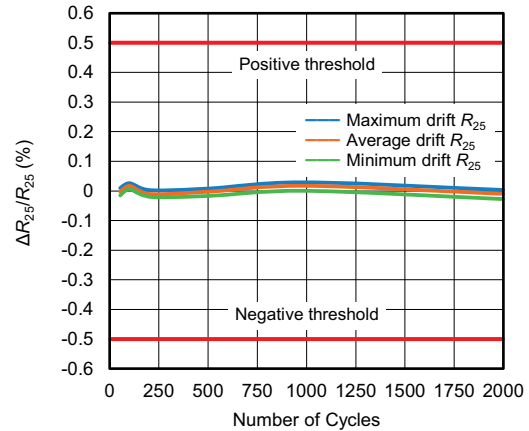


Fig. 3 - $R_{25}^{\circ C}$ Drift in Thermal Shocks -40 °C, 15 min/125 °C, 15 min

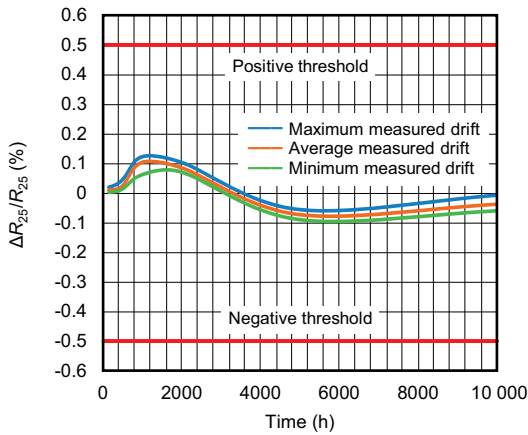


Fig. 2 - Drift in Storage at 125 °C for 0402 Case



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