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
- Delivered on punched paper tape on reel
- Material categorization: for definitions of compliance please see 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.

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/

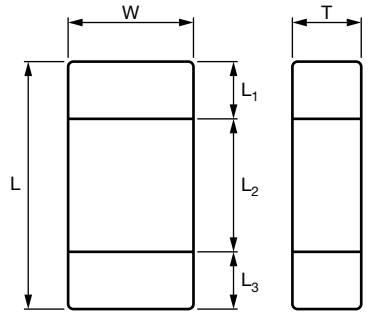
QUICK REFERENCE DATA

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

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (Ω)	R_{25}-TOL. (± %)	$B_{25/85}$ (K)	$B_{25/85}$-TOL. (± %)	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.

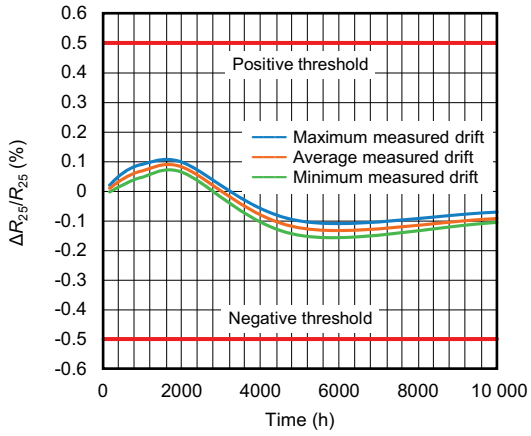


Fig. 1 - $R_{25\,°C}$ Drift after Storage at 125 °C for 0603 Case

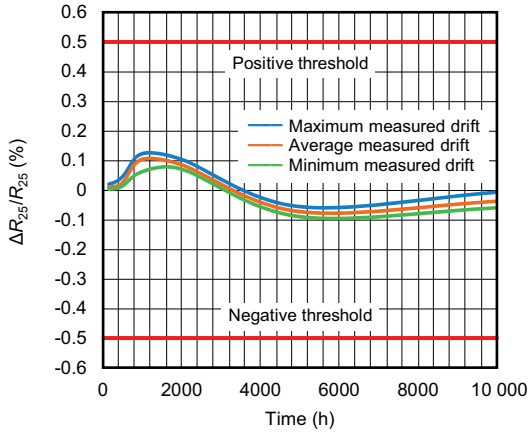


Fig. 2 - Drift in Storage at 125 °C for 0402 Case

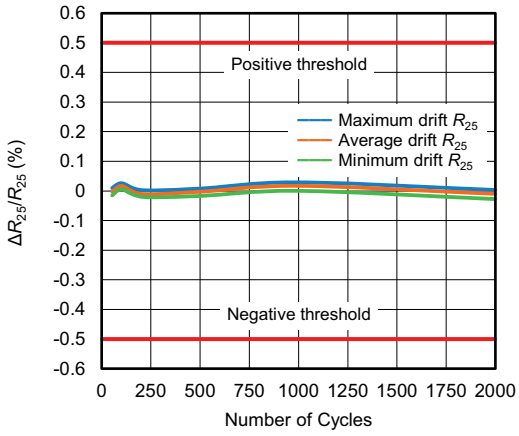


Fig. 3 - $R_{25\,°C}$ Drift in Thermal Shocks -40 °C, 15 min/125 °C, 15 min

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