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)

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 case 0805) and 10 000 (case 0402).

DESIGN-IN SUPPORT

For complete curve computation, please visit:
www.vishay.com/thermistors/curve-computation-list/

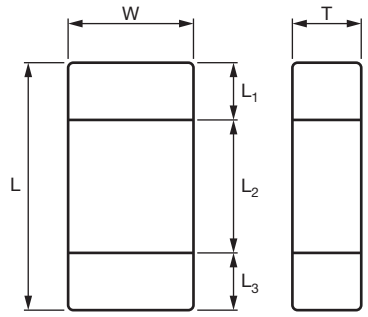
QUICK REFERENCE DATA

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 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	DESCRIPTION
100 000	1	3590	1	NTCS0805E3104SMT	SMD NTC thermistor 0805 Ni barrier
122 000	1	3590	1	NTCS0603E3124SMT	SMD NTC thermistor 0603 Ni barrier
210 000	1	3590	1	NTCS0402E3214SMT	SMD NTC thermistor 0402 Ni barrier

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
L1, L3 min.	0.1	0.2	0.2
L2 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.

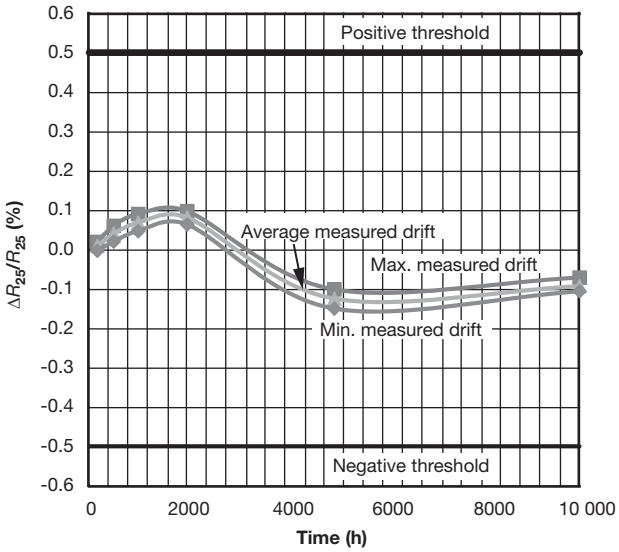


Fig. 1 - $R_{25\,°C}$ Drift after Storage at 125 °C for 0603 Case

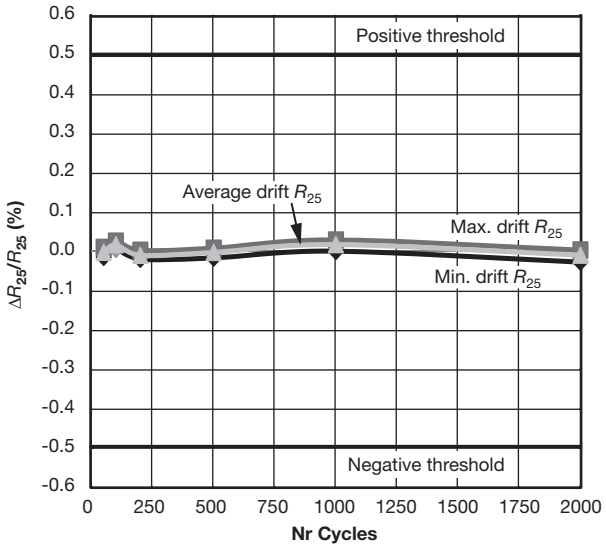


Fig. 3 - $R_{25\,°C}$ Drift in Thermal Shocks -40 °C, 15 min/125 °C, 15 min

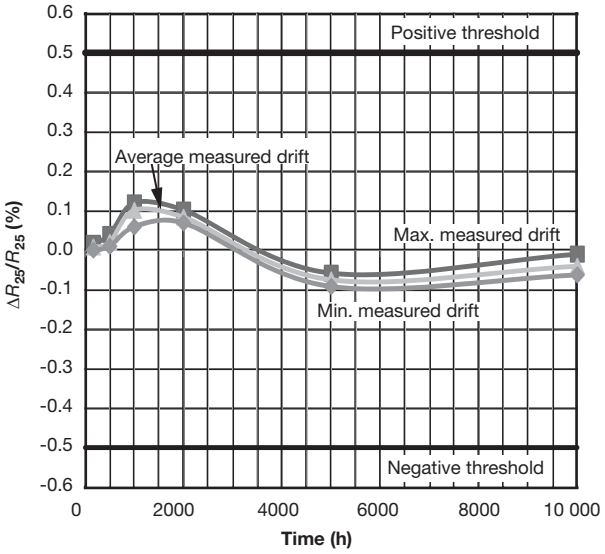


Fig. 2 - Drift in Storage at 125 °C for 0402 Case

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:
NTCS0402E3214SMT NTCS0603E3124SMT NTCS0805E3104SMT