NTC Thermistors, Radial Leaded, Accuracy Line

FEATURES

- Accurate over a wide temperature range (tolerance on B-value down to 0.5 %)
- Good stability over a long life
- Excellent price/performance ratio
- Low heat conductivity through 0.4 mm Ni-leads
- UL recognized, file E148885
- RoHS compliant, available with or without exemption
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

e3

RoHS COMPLIANT

APPLICATIONS

- Temperature measurement, sensing and control in industrial, consumer and telecom applications. For on-board sensing or accurate remote sensing

QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Resistance value at 25 °C	2K to 470K	Ω
Tolerance on R_{25}-value	± 1; ± 2; ± 3; ± 5	%
$B_{25/85}$-value	3528 to 4570	K
Tolerance on $B_{25/85}$-value	± 0.5 to ± 2.0	%
Operating temperature range at: Zero dissipation (continuously) Zero dissipation (for short periods) (2)	 -40 to +125 ≤ 150	°C
Maximum power dissipation	100	mW
Dissipation factor δ (1)	2.2	mW/K
Response time (1)	≈ 1.7	s
Thermal time constant τ	13	
Mass	≈ 0.11	g

Notes

(1) Response time in silicone oil MS200/50. This is the time needed for the sensor to reach 63.2 % of the total temperature difference when subjected to a temperature change from 25 °C in air to 85 °C in oil. Thermal time constant by cooling from electrically pre-heated body

(2) Valid for all types with the exception of the R_{25} values 12 kΩ, 22 kΩ and 470 kΩ

DESCRIPTION

These thermistors are made of NTC ceramic material. The device consists of a chip with two tinned nickel leads. The parts are coated and color band marked. Tape and reel versions available on request.

PACKAGING

The thermistors are packed in cardboard boxes; the smallest packing quantity is 500 units.

DESIGN-IN SUPPORT

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

MARKING

The thermistors are marked with color bands on a grey epoxy base coating; see Dimensions and “Electrical Data and Ordering Information”.

MOUNTING

By soldering in any position. Not intended for potting.

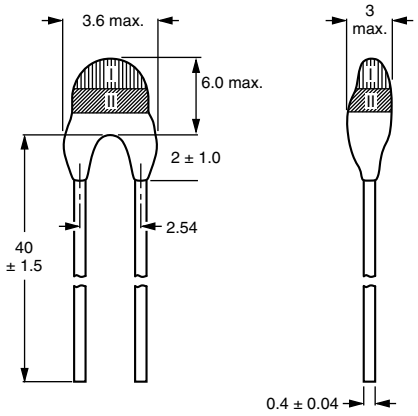
ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (Ω)	R_{25}-TOL. (± %)	$B_{25/85}$ (K)	$B_{25/85}$-TOL. (± %)	SAP MATERIAL NUMBER (WITH RoHS EXEMPTIONS) NTCLE203E3..... (1)	SAP MATERIAL NUMBER (WITHOUT RoHS EXEMPTIONS) NTCLE203E3..... (1)	UL APPROVED	CODING (see dimensions)	
						Y/N	I	II
2000	1, 2, 3, 5	3528	0.5	202*B0	202*B0A	Y	Orange	Orange
2700	1, 2, 3, 5	3977	0.75	272*B0	272*B0A	Y	Red	Red
4700	1, 2, 3, 5	3977	0.75	472*B0	472*B0A	Y	Green	Green
5000	1, 2, 3, 5	3977	0.75	502*B0	502*B0A	Y	Black	White
10 000	1, 2, 3, 5	3977	0.75	103*B0	103*B0A	Y	Blue	Blue
12 000	1, 2, 3, 5	3740	2	123*B0	123*B0A	Y	Yellow	Yellow
22 000	1, 2, 3, 5	3740	2	223*B0	223*B0A	Y	White	White
47 000	1, 2, 3, 5	4090	1.5	473*B0	473*B0A	Y	Black	Black
68 000	1, 2, 3, 5	4190	1.5	683*B0	683*B0A	Y	Grey	Grey
100 000	1, 2, 3, 5	4190	1.5	104*B0	104*B0A	Y	Brown	Brown
470 000	1, 2, 3, 5	4570	1.5	474*B0	474*B0A	N	Violet	Violet

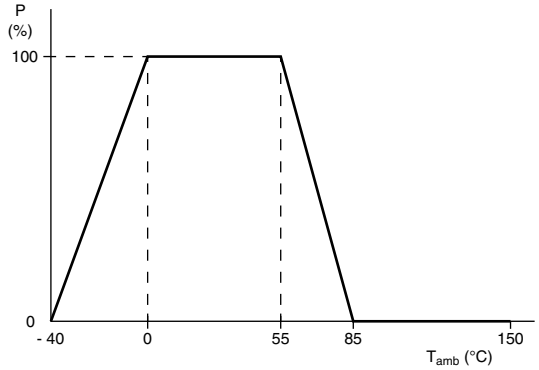
Note

(1) Replace * in SAP by J for ± 5 %, H for ± 3 %, G for ± 2 %, F for ± 1 %

DIMENSIONS in millimeters



DERATING AND LONG TERM STABILITY

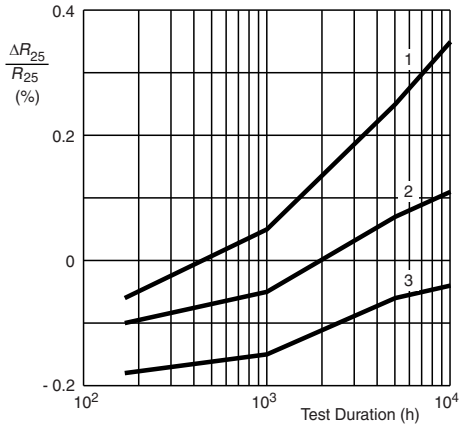


Power derating curve

Note

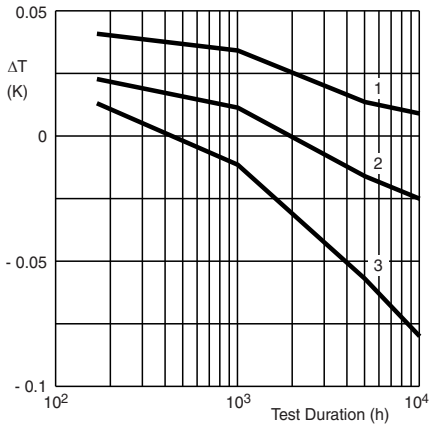
- Zero power is considered as measuring power max. 1 % of max. power

LONG TERM STABILITY OF R_{25} AS A FUNCTION OF TEST DURATION AT MAXIMUM TEMPERATURE (150 °C)



Curves valid for 2.2 kΩ to 10 kΩ. Curve 1, 2 and 3 as max., average, and min. % drift on R_{25}

LONG TERM STABILITY OF T AS A FUNCTION OF TEST DURATION AT MAXIMUM TEMPERATURE (150 °C)



Curves valid for 2.2 kΩ to 10 kΩ. Curve 1, 2, and 3 as min., average, and max. temperature deviation

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