NTC Thermistors, Radial Leaded, Accuracy Line

LINKS TO ADDITIONAL RESOURCES

3D Models | Design Tools | SPICE Models | Related Documents

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
- cULus recognized, file E148885 (UL category XGPU2/XGPU8)
- Mounting: radial
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS COMPLIANT

APPLICATIONS

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

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/en/thermistors/ntc-rt-calculator/.

MARKING

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

CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions:
see www.vishay.com/doc?29222.

By soldering in any position. Not intended for potting.

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 power dissipation (continuously) Zero power dissipation (for short periods) (2)	 -40 to +125 ≤ 150	°C
Maximum power dissipation at 55 °C	100	mW
Dissipation factor δ in still air (for info)	2.2	mW/K
Response time (1)	≈ 1.7	s
Thermal time constant τ (1)	13	s
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

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (Ω)	R_{25}-TOL. (± %)	$B_{25/85}$ (K)	$B_{25/85}$-TOL. (± %)	CODING (see dimensions)		UL RECOG.	SAP MATERIAL AND ORDERING NUMBER (1)	
				I	II		RoHS COMPLIANT WITH EXEMPTION (2)	RoHS COMPLIANT
2000	1, 2, 3, 5	3528	0.5	Orange	Orange	✓	NTCLE203E3202*B0	NTCLE203E3202*B0A
2700	1, 2, 3, 5	3977	0.75	Red	Red	✓	NTCLE203E3272*B0	NTCLE203E3272*B0A
4700	1, 2, 3, 5	3977	0.75	Green	Green	✓	NTCLE203E3472*B0	NTCLE203E3472*B0A
5000	1, 2, 3, 5	3977	0.75	Black	White	✓	NTCLE203E3502*B0	NTCLE203E3502*B0A
10 000	1, 2, 3, 5	3977	0.75	Blue	Blue	✓	NTCLE203E3103*B0	NTCLE203E3103*B0A
12 000	1, 2, 3, 5	3740	2	Yellow	Yellow	✓	NTCLE203E3123*B0	NTCLE203E3123*B0A
22 000	1, 2, 3, 5	3740	2	White	White	✓	NTCLE203E3223*B0	NTCLE203E3223*B0A
47 000	1, 2, 3, 5	4090	1.5	Black	Black	✓	NTCLE203E3473*B0	NTCLE203E3473*B0A
68 000	1, 2, 3, 5	4190	1.5	Grey	Grey	✓	NTCLE203E3683*B0	NTCLE203E3683*B0A
100 000	1, 2, 3, 5	4190	1.5	Brown	Brown	✓	NTCLE203E3104*B0	NTCLE203E3104*B0A
470 000	1, 2, 3, 5	4570	1.5	Violet	Violet		NTCLE203E3474*B0	NTCLE203E3474*B0A

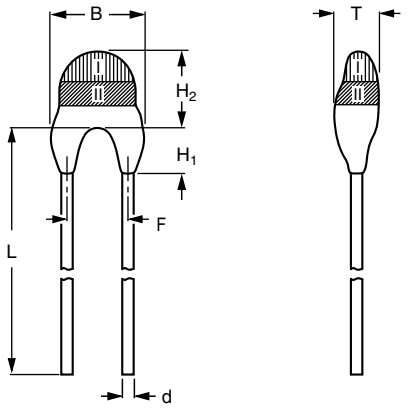
Notes

Preferred versions for new designs

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

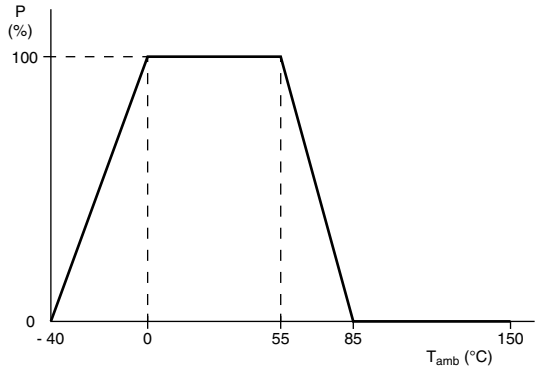
(2) RoHS exemption 7(c)-I: electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezo-electronic devices, or in a glass or ceramic matrix compound

DIMENSIONS in millimeters



B max.	T max.	H_1	H_2 max.	L	d	F
3.6	3.0	2.0 ± 1.0	6.0	40 ± 1.5	0.4 ± 0.04	2.54

DERATING



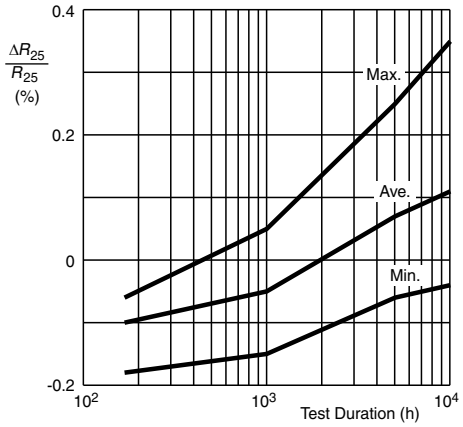
Power derating curve

Note

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

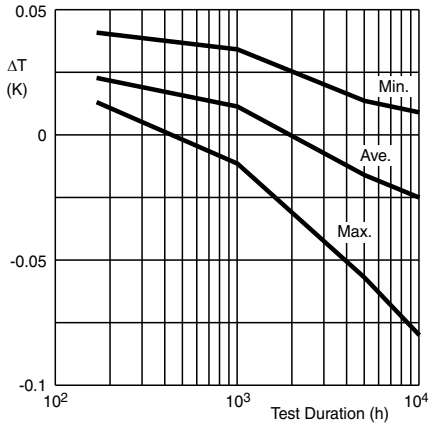
LONG TERM STABILITY AS A FUNCTION OF TEST DURATION AT MAXIMUM TEMPERATURE (150 °C)

TYPICAL R_{25} STABILITY



Typical curves valid for 2.2 kΩ to 10 kΩ

TYPICAL ROOM TEMPERATURE STABILITY



Typical curves valid for 2.2 kΩ to 10 kΩ

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