Vishay BCcomponents





ADDITIONAL RESOURCES \square

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3-0 3D Models

SPICE **Design Tools** Models

QUICK REFERENCE DATA							
PARAMETER	VALUE	UNIT					
Resistance value at 25 °C	2K to 470K	Ω					
Tolerance on R ₂₅ -value	\pm 1; \pm 2; \pm 3; \pm 5	%					
B _{25/85} -value	3528 to 4570	К					
Tolerance on B _{25/85} -value	± 0.5 to ± 2.0	%					
Operating temperature range at:							
Zero power dissipation (continuously)	-40 to +125	°C					
Zero power dissipation (for short periods) ⁽²⁾	≤ 150	J					
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 $\tau^{(1)}$	(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 $^\circ$ C in air to 85 $^\circ$ 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 k Ω , 22 k Ω and 470 k Ω

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

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/thermistors/ntc-curve-list/

MARKING

The thermistors are marked with color bands on a gray 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. (± %)	CODING (see dimensions)		UL APPROVED	SAP MATERIAL AND ORDERING NUMBER ⁽¹⁾		
				I	Ш	Y/N	RoHS COMPLIANT WITH EXEMPTION ⁽²⁾	RoHS COMPLIANT	
2000	1, 2, 3, 5	3528	0.5	Orange	Orange	Y	202*B0	202*B0A	
2700	1, 2, 3, 5	3977	0.75	Red	Red	Y	272*B0	272*B0A	
4700	1, 2, 3, 5	3977	0.75	Green	Green	Y	472*B0	472*B0A	
5000	1, 2, 3, 5	3977	0.75	Black	White	Y	502*B0	502*B0A	
10 000	1, 2, 3, 5	3977	0.75	Blue	Blue	Y	103*B0	103*B0A	
12 000	1, 2, 3, 5	3740	2	Yellow	Yellow	Y	123*B0	123*B0A	
22 000	1, 2, 3, 5	3740	2	White	White	Y	223*B0	223*B0A	
47 000	1, 2, 3, 5	4090	1.5	Black	Black	Y	473*B0	473*B0A	
68 000	1, 2, 3, 5	4190	1.5	Grey	Grey	Y	683*B0	683*B0A	
100 000	1, 2, 3, 5	4190	1.5	Brown	Brown	Y	104*B0	104*B0A	
470 000	1, 2, 3, 5	4570	1.5	Violet	Violet	N	474*B0	474*B0A	

Notes

 $^{(1)}$ Replace * in SAP by J for \pm 5 %, H for \pm 3 %, G for \pm 2 %, F for \pm 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

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1 For technical questions, contact: nlr@vishay.com

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RoHS

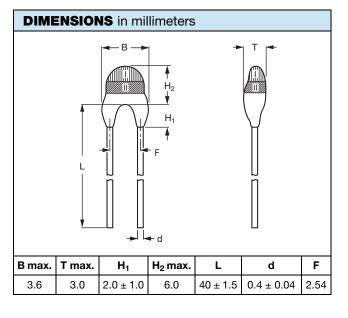
COMPLIANT



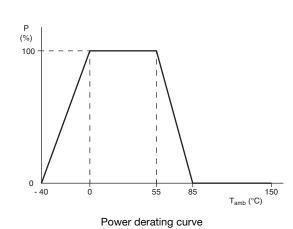
NTCLE203E3

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DERATING

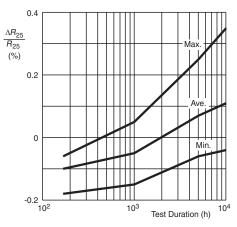


Note

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

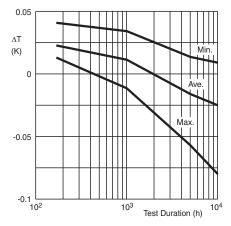
LONG TERM STABILITY AS A FUNCTION OF TEST DURATION AT MAXIMUM TEMPERATURE (150 °C)

TYPICAL R₂₅ STABILITY



Typical curves valid for 2.2 k Ω to 10 k Ω

TYPICAL ROOM TEMPERATURE STABILITY



Typical curves valid for 2.2 k Ω to 10 k Ω



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