NTCLE203E3



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Vishay BCcomponents

NTC Thermistors, Radial Leaded, Accuracy Line





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	К					
Tolerance on B _{25/85} -value	± 0.5 to ± 2.0	%					
Operating temperature range at:							
Zero dissipation (continuously)	-40 to +125	°C					
Zero dissipation (for short periods) ⁽²⁾	≤ 150	J					
Maximum power dissipation	100	mW					
Dissipation factor $\delta^{(1)}$	2.2	mW/K					
Response time ⁽¹⁾	≈ 1.7						
Thermal time constant τ	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 k\Omega, 22 k\Omega and 470 kΩ

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 <u>www.vishay.com/doc?99912</u>

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 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	Ν	Violet	Violet		

Note

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

Revision: 26-Jun-17





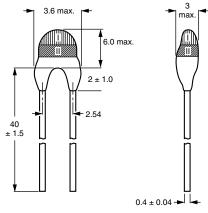
COMPLIANT

NTCLE203E3

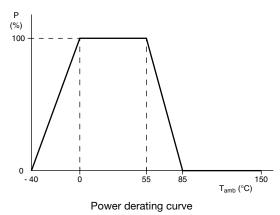
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DIMENSIONS in millimeters

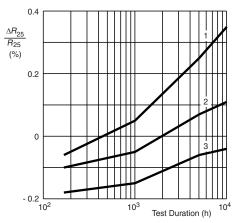


DERATING AND LONG TERM STABILITY



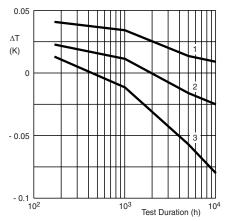
Note
Zero power is considered as measuring power max. 1 % of max. power

LONG TERM STABILITY OF R25 AS A FUNCTION OF TEST DURATION AT MAXIMUM TEMPERATURE (150 °C)



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



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