

Vishay BCcomponents

Leadless NTC Thermistor Die Suitable for Wire Bonding



QUICK REFERENCE DATA					
PARAMETER	VALUE	UNIT			
Resistance value at 25 °C	4.7K to 20K	Ω			
Tolerance on R ₂₅ -value	± 1; ± 2; ± 3; ± 5	%			
B _{25/85} -value	3435 to 3865	K			
Tolerance on B _{25/85} -value	± 1	%			
Operating temperature range	-55 to +175	°C			
Response time (63.2 %) 25 °C to 85 °C still air (for info)	3	S			
Dissipation factor δ in still air (for info, non-mounted die)	3	mW			
Maximum power dissipation	50	mW			
Weight	3	mg			

MOUNTING

The thermistors are primarily intended for wire bonding. The parameters of the assembly process should be chosen in accordance with the lead-wire material.

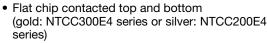
The mounting process should be in compliance with the following guidelines and recommendations:

Die bonding:

- Gold electrode: silver epoxy gluing
- Silver electrode: (vacuum) reflow soldering silver epoxy gluing - nano silver sintering

Soldering process under reducing atmosphere (e.g. forming or formic gases) and ultrasonic cleaning processes can be applied under the condition that NTC die is not damaged. Consult Vishay for further assistance.

FEATURES





RoHS

HALOGEN

FREE

GREEN

- Green thermistor does not use RoHS exemptions
- Wide temperature range from -55 °C to +175 °C
- · Highly resistant to thermal shocks
- Ideal for wire bonding (aluminum or gold depending on metalization type)
- · Resistance to leaching
- Delivered on blister tape
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

- High temperature sensing, control and compensation.
 E.g. IGBT modules (inverters in EV and HEV vehicles)
- · IC and semiconductor protecting
- DC/AC power inverters and HIC overheat protecting

DESIGN-IN SUPPORT

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

MARKING

The thermistors have no marking and have electrode termination design without orientation.

Wire bondina:

- The gold electrode has been tested for gold wire bonding with a wire diameter of max. 32 µm
- \bullet The silver electrode has been tested for aluminum wire bonding with a wire diameter of max. 300 μm

Encapsulation:

- In order to preserve the characteristics of the bonded die at long term an encapsulation is mandatory
- The encapsulation is defined by the user. Silicon and epoxy encapsulations have been tested. For recommendations on compatible encapsulants contact Vishay

ELECTRICAL DATA AND ORDERING INFORMATION						
R ₂₅ (Ω)	R ₂₅ -TOL. (± %)	B _{25/85} (K)	B _{25/85} -TOL. (± %)	DESCRIPTION	SAP MATERIAL AND ORDERING NUMBER (1)	
4700	1, 2, 3, 5	3435	1	Bare die with top / bottom silver terminations	NTCC200E4472*T	
12 000	1, 2, 3, 5	3740	1	Bare die with top / bottom silver terminations	NTCC200E4123*T	
20 000	1, 2, 3, 5	3865	1	Bare die with top / bottom silver terminations	NTCC200E4203*T	
4700	1, 2, 3, 5	3435	1	Bare die with top / bottom gold terminations	NTCC300E4472*T	
12 000	1, 2, 3, 5	3740	1	Bare die with top / bottom gold terminations	NTCC300E4123*T	
20 000	1, 2, 3, 5	3865	1	Bare die with top / bottom gold terminations	NTCC300E4203*T	

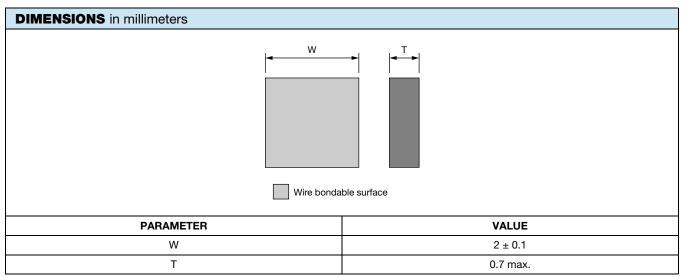
Note

(1) In order to define R₂₅-tolerance, replace * in SAP part number by F (± 1 %), G (± 2 %), H (± 3 %), or J (± 5 %)

Revision: 09-Dec-2020 **1** Document Number: 29153 For technical questions, contact: nlr@vishay.com

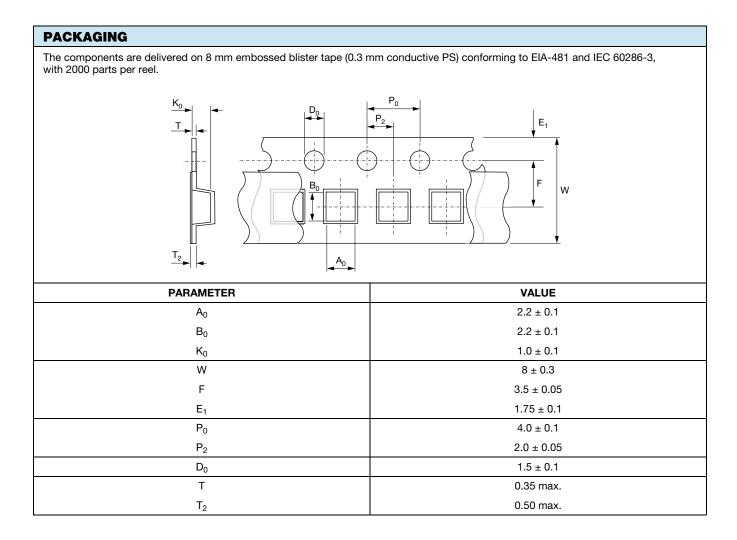
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Note

• Non-dimensioned details do not affect the performance of the thermistors



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