

## 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 to ± 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 $\delta$ in still air (for info, non-mounted die)	3	mW
Maximum power dissipation	50	mW
Weight	3	mg

DIMENSIONS in millimeters	
PARAMETER	VALUE
W	2 ± 0.1
T	0.7 max.

**Note**

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

ELECTRICAL DATA AND ORDERING INFORMATION					
VISHAY SAP ORDERING NUMBER (1)	$R_{25}$ -VALUE (kΩ)	$\Delta R_{25}$ -VALUE (%)	$B_{25/85}$ -VALUE (K)	$B_{25/85}$ -TOL. (%)	DESCRIPTION
NTCC200E4472*T	4.7	1, 2, 3, 5	3435	1	Bare die with top /bottom silver terminations
NTCC200E4123*T	12	1, 2, 3, 5	3740	1	Bare die with top /bottom silver terminations
NTCC200E4203*T	20	1, 2, 3, 5	3865	1	Bare die with top /bottom silver terminations
NTCC300E4472*T	4.7	1, 2, 3, 5	3435	1	Bare die with top /bottom gold terminations
NTCC300E4123*T	12	1, 2, 3, 5	3740	1	Bare die with top /bottom gold terminations
NTCC300E4203*T	20	1, 2, 3, 5	3865	1	Bare die with top /bottom gold terminations

**Note**

- (1) In order to define  $R_{25}$ -tolerance, replace \* in SAP part number by F (± 1 %), G (± 2 %), H (± 3 %) of J (± 5 %).

**FEATURES**

- Flat chip contacted top and bottom (gold: NTCC300E4 series or silver: NTCC200E4 series)
- Wide temperature range from -55 °C to +175 °C
- Highly resistant to thermal shocks
- Ideal for wire bonding (aluminum or gold depending on metallization type)
- Resistance to leaching
- Delivered on blister tape
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

**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

**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.

**Cleaning:**

- Detergent spraying.
- Ultrasonic cleaning is not recommended.

**Wire bonding:**

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

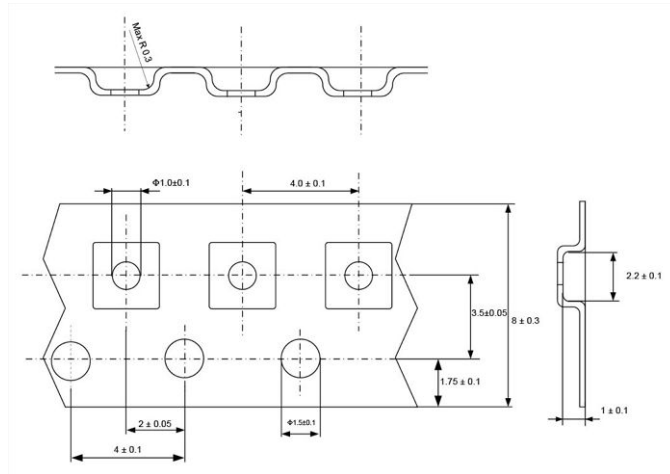
**Encapsulation:**

- 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.



## PACKAGING INFORMATION

The components are delivered on 8mm embossed blister tape (conductive PS) conforming to EIA-481 and IEC 60286-3, with 2000 parts per reel.





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