

SMD 1206 sinterable, Pt Temperature Sensor according to DIN EN 60751

Temperature range $-50\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$

Power electronics represent the main application focus of the sinterable temperature sensor. Mass production, precision, long-term stability and low costs were in the foreground of its design. The design allows a potential free positioning direct to the heat source/die. The topside metallization is adapted for thick wire bonding and the backside is designed for silver sinter processes. Both sides (metallization) are electrically isolated from each other.

Nominal Resistance R_0	Tolerance	Order Number	Packaging
1000 Ohm at $0\text{ }^{\circ}\text{C}$	F 0.6 (Class 2B)	50 333 44	Substrate on wafer frame in plastic bag

Temperature and tolerance range

Tolerance class F 0,6 (2B): $-50\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$
(continuous operation)

Temperature coefficient

TCR = 3850 ppm/K

Measuring current

1000 Ω : 0.1 to 0.3 mA
(self-heating has to be considered)

Long-term stability

Max. R_0 -Drift $\leq 0.23\%$ after each:
1000 hours at $+200\text{ }^{\circ}\text{C}$, $\geq 0.1\text{ mA}$
1000 hours at $+85\text{ }^{\circ}\text{C}$, 85 % Hrel.
1000 cycles at $+150\text{ }^{\circ}\text{C}/-40\text{ }^{\circ}\text{C}$

Self-heating

$< 0.4\text{ K/mW}$ (unassembled)

Isolation resistance

$> 1000\text{ M}\Omega$ at $20\text{ }^{\circ}\text{C}$

Top side metallization (Bonding)

AgPt surface in thick film technology for thick wire ultrasonic bonding process.

Recommendation:

Heraeus Al H11 thick wires ($\varnothing 300\text{ }\mu\text{m}$)

All tests were done with recommended wire (see above).

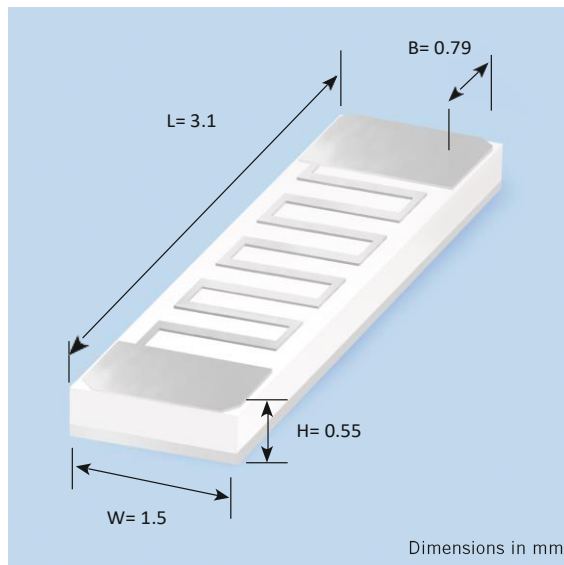
Back side metallization (Sintering)

AgPd surface in thick film technology for silver sintering process.

Recommendation:

Heraeus sinter paste (ASP 338 and 043 series)

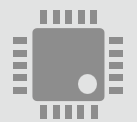
All tests were done with recommended paste (see above).



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Temperature range -50 °C to +200 °C

Connection technology

Suitable for sintering on backside, for optimized heat transfer and on topside for ultrasonic wire bonding

Shear Test backside/sinter

- > 10 N/mm² (single value)
- > 20 N/mm² (mean value)

Pull Test topside / bonding

> 210 cN (equals 75 % wire load limit of Al H11 thick wires (Ø = 300 µm))

Packaging

On wafer frame in aluminized vacuum bag

Storage life

In unopened in original packing (minimum half a year)

Note

Other tolerances and values of resistance are available on request.

California Proposition 65



WARNING:

This product can expose you to chemicals including nickel, which is known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov.



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