

SMD 1206 SC Solder, Pt Temperature Sensor according to DIN EN IEC 60751

Temperature range $-50\text{ }^{\circ}\text{C}$ to $+175\text{ }^{\circ}\text{C}^*$, designed for soldering

- Excellent thermal coupling and quick response time via soldering connections
- Optimized long-term stability and high precision over entire operating life
- Electrically isolated bottom surface enables mounting on or near heat-generating components
- Contacts optimized for state-of-the-art bonding solutions

The SMD 1206 SC is designed for mounting to power electronic boards via soldering. The precision, low drift and long-term stability of a Pt RTD is delivered in an economical package. The isolation provided by the top-mounted terminations enables positioning of the chip anywhere on the board. Mounting in proximity to the heat source/die increases measurement accuracy and facilitates more compact designs.

Nominal Resistance R_0 [Ω]	Tolerance Class	Order Number	Packaging
Pt1000	F 0.6 (2B)	5147921	Wafer Frame

Temperature Range of Tolerance Class

Validity of Class F 0.6 (2B) $+50\text{ }^{\circ}\text{C}$ to $+175\text{ }^{\circ}\text{C}$
The specified tolerance classes refer to continuous operation.

Temperature Coefficient

TCR = 3850 ppm/K

Measuring Current

Pt1000 Ω : 0.1 to 0.3 mA
(self-heating has to be considered)

Long-Term Stability

Max. R_0 - drift $\leq 0.23\%$ after the following, independently performed standard tests:

- 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 $-40\text{ }^{\circ}\text{C}/+150\text{ }^{\circ}\text{C}$

Self-Heating

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

Insulation Resistance

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

Topside 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 performed with recommended wire

Backside Metallization

Soldering: AgPd surface in thick film technology for soldering process.

Recommendation: Heraeus soldering paste (F645)

All tests were performed with recommended paste F645

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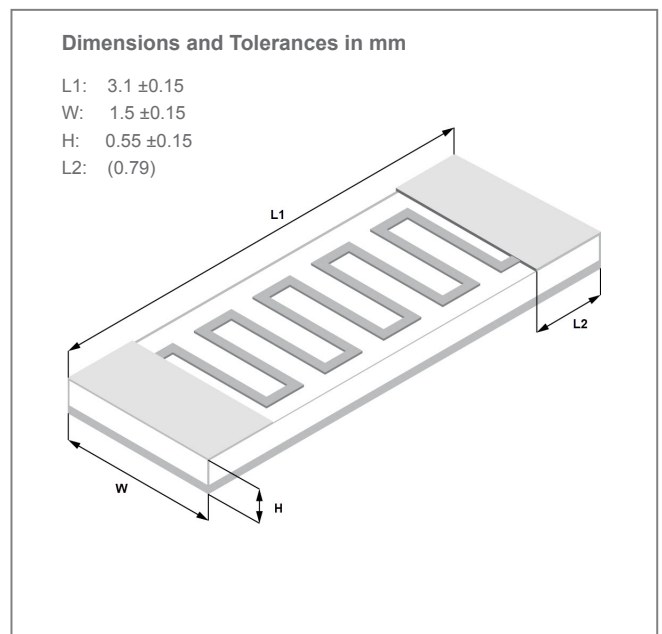


Image for illustration purposes only
Color, shape and forming of metallization may vary

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Connection Technology

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

Shear Test Backside

Soldering

Typical mean value >15N/mm²

Soldering paste Heraeus F645 on Ni/Au coated DCB substrate

Solder depot 2mg

Fired at peak temperature 250 °C for 90 sec in vacuum solder furnace

Pull Test Topside

Bonding

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

Dielectric Strength

7.5 kV

Based on theoretical material substrate properties and given sensor geometry. Processing during assembly, employed potting material and potting meniscus can reduce the dielectric strength in the application.

Packaging

Wafer Frame

Substrate on wafer frame in aluminized vacuum plastic bag

Storage Life

In unopened original packing (minimum half a year)

Note

Other tolerances and values of resistance are available on request.

*The maximum operation temperature is determined by the solder material.

California Proposition 65



WARNING

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



The information provided in this data sheet describes certain technical characteristics of the product, but shall not be qualified or construed as quality guarantee (Beschaffenheitsgarantie) in the meaning of sections 443 and 444 German Civil Code. The information provided in this data sheet regarding measurement values (including, but not limited to, response time, long-term stability, vibration and shock resistance, insulation resistance and self-heating) are average values that have been obtained under laboratory conditions in tests of large numbers of the product. Product results or measurements achieved by customer or any other person in any production, test, or other environment may vary depending on the specific conditions of use. YAGEO Nexensos does not recommend the use of standard catalogue products or automotive grades for aerospace applications or manned space flight. The customer is solely responsible to determine whether the product is suited for the customer's intended use; in this respect YAGEO Nexensos cannot assume any liability. The sale of any products by YAGEO Nexensos is exclusively subject to the General Terms of Sale and Delivery of YAGEO Nexensos in their current version at the time of purchase, which is available under www.yageo-nexensos.com/tc or may be furnished upon request. This data sheet is subject to changes without prior notice.

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