Technical data

Resistance at 0°C	100 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes to DIN EN 60751	A, B
Operating temperature range depending on lead material:	
AgPd5	-50 °C up to 400 °C
Pt	-50 °C up to 600 °C
Self-heating at 0 °C	< 0.2 K/mW
Thermal response time	
Flowing water (v = 0.2 m/s)	$T_{0.5} \leq 1.3$ s, $T_{0.9} \leq 5.0$ s
Flowing air (v = 1 m/s)	$T_{0.5} \leq 15$ s, $T_{0.9} \leq 50$ s
Resistance value	
at 0 °C (Tolerance class A)	100.00 Ω ± 0.06 Ω
at 100 °C (Tolerance class A)	138.51 Ω ± 0.13 Ω
at 0 °C (Tolerance class B)	100.00 Ω ± 0.12 Ω
at 100 °C (Tolerance class B)	138.51 Ω ± 0.30 Ω
Maximal Resistance Change at UCT 250 h	< 0.1 %

Operating conditions

Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

Remark

For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, Ka etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

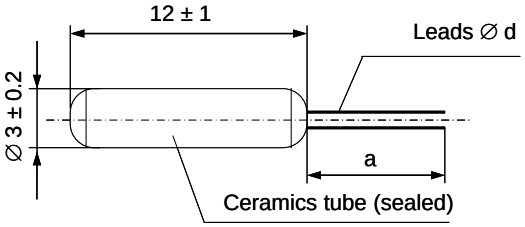
Technology

Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramic protective tube

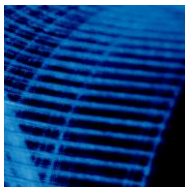
Conformity

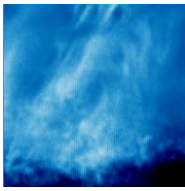
2011/65/EU Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



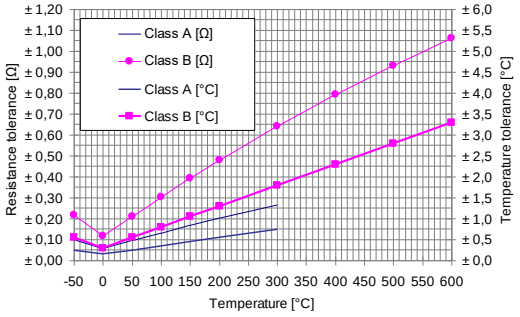
Leads	AgPd5	Pt
a [mm]	15 ± 1	7 ± 1
d [mm]	0,25	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 Ø3x12 (Pt-Leads)

Temperature range from -50 °C up to 0 °C:

$R_t = R_o \cdot (1 + A \cdot t + B \cdot t^2 + C \cdot (t - 100\,°C) \cdot t^3)$

Temperature range from 0 °C up to +600 °C:

$R_t = R_o \cdot (1 + A \cdot t + B \cdot t^2)$

Tolerance classes:

Class A: $\Delta t = \pm (0.15 + 0.002 \cdot |t|)$

Class B: $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Whereby:

R_t … Resistance [Ω] at temperature t

R_o … Resistance [Ω] at 0 °C

t … Temperature [°C]

Δt …Permissible temperature deviation at t [°C]

A = 3.9083 · 10^{-3} $°C^{-1}$

B = - 5.775 · 10^{-7} $°C^{-2}$

C = - 4.183 · 10^{-12} $°C^{-4}$

Fields of application

- Automotive electronics
- Industrial electronics
- Building automation
- Energy and environmental engineering
- Safety and medical engineering

Ordering information

Please use the following code example:

Temperature sensor Pt100, Ceramics tube Ø 3x12mm sealed, Pt-Leads Ø 0,2 mm, l = 7 mm

(Other wire lengths are available on request)

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Errors excepted. Subject to alterations for this information and technological changes.

Made in Germany

UST Umweltsensortechnik GmbH, Dieselstr. 2 und 4,
99331 Geratal OT Geschwenda, Germany
Tel. +49 36205 713-0 info@umweltsensortechnik.de
Fax +49 36205 713-10 www.umweltsensortechnik.de