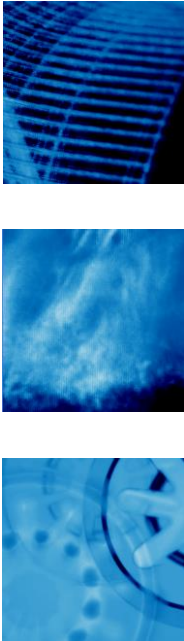


Technical Data

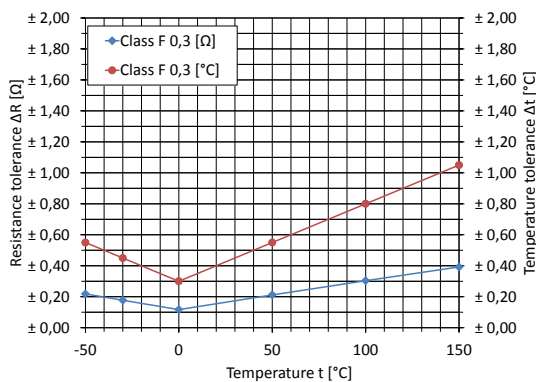
Resistance at 0°C (R ₀)	100 Ω
Temperature coefficient (0°C up to +100°C)	3.85 · 10 ⁻³ K ⁻¹
Tolerance class according to DIN EN 60751	F 0,3
Operating temperature range	-50 °C up to +150 °C
Measurement current (DC) at 25 °C	0.1 mA
Maximal permissible peak current (DC) at 25 °C	0.3 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0.4 K / mW
Thermal response time	
Flowing water (v = 0.2 m/s)	T _{0,5} = 0.2 s, T _{0,9} = 0.5 s
Flowing air (v = 1 m/s)	T _{0,5} = 4 s, T _{0,9} = 10 s
Resistance value [Ω] at	
Temperature	Tolerance class
	F 0,3 [Ω]
0 °C	100 ± 0.12
+100 °C	138.51 ± 0.3
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751

Type	Film sensor
Design	SMD 0805 (fd)
Application/Mounting	Only face down
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2011/65/EU - Restriction of the use of Hazardous Substances Directive (RoHS)	
Dimensions [mm]	



Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100

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

$$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2 + C \cdot (t - 100 \text{ °C}) \cdot t^3)$$

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

$$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2)$$

Tolerance classes according to DIN EN 60751:

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Please attend: operating temperature range of the Pt100 SMD 0805 fd: -50 °C up to +150 °C!

Whereby:

R_t ... Resistance [Ω] at temperature t

R₀ ... Resistance [Ω] at 0 °C

t ... Temperature [°C]

Δt ... Permissible temperature deviation at t [°C]

$$A = 3.9083 \cdot 10^{-3} \text{ °C}^{-1}$$

$$B = -5.775 \cdot 10^{-7} \text{ °C}^{-2}$$

$$C = -4.183 \cdot 10^{-12} \text{ °C}^{-4}$$

Fields of application

Application on PCB for

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

Ordering examples

Construction	Operating temperature range	Class of accuracy
Pt100 SMD 0805 fd	-50 °C - +150 °C	F 0,3

Type of packaging on request.

Other classes of accuracy are available on request.

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