

Data sheet

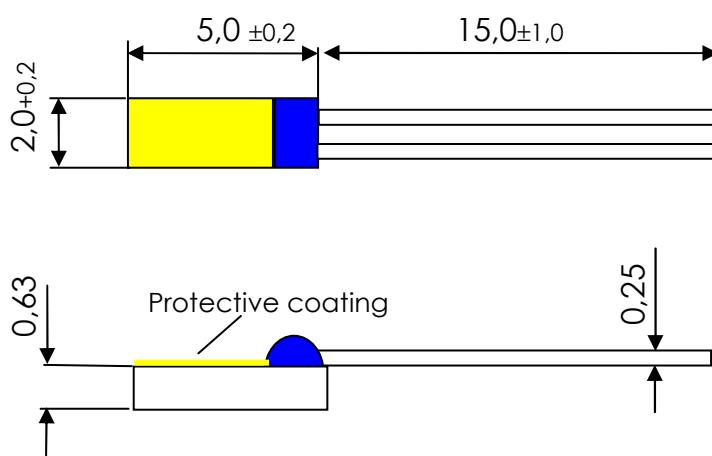
Nickel Thin Film Temperature Sensor

Ni 1000 TC 5000
Part number: 100 084

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Nickel thin film elements are characterized by a relatively high temperature coefficient. Typical applications include bearing temperature monitoring, HVAC temperature monitoring, and stator winding temperature monitoring.

Dimensions in mm



Nominal value R_0	1000 ohm
Characteristic	TK5000
Temperature coefficient 0°C/100°C	5000 ppm/K
Tolerance	DIN 43760
Operating temperature range	-60°C to 250°C
Self heating in air	0,3 K/mW
Thermal response time $t_{0,9}$ (Water 0,2 m/sec)	0,3 sec
Thermal response time $t_{0,9}$ (air 1 m/sec)	9 sec
Operation current max.	5 mA
Connector wire material	nickel
Protective coating	high-temperature epoxy

Polynomial of a nickel resistor as a function of temperature:

$$R(\vartheta) = R_0 \times (1 + 4,427 \times 10^{-3} \times \vartheta + 5,172 \times 10^{-6} \times \vartheta^2 + 5,585 \times 10^{-9} \times \vartheta^3)$$

Maximum permissible tolerance as a function of temperature (DIN 43760):

$$\vartheta < 0^\circ\text{C}: \quad F = \pm(0,4 + 0,028 \times \vartheta) \text{ } ^\circ\text{C}$$

$$\vartheta > 0^\circ\text{C}: \quad F = \pm(0,4 + 0,007 \times \vartheta) \text{ } ^\circ\text{C}$$

All technical data serves as a guideline and does not guarantee any particular properties to the product.