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## Platinum-chip temperature sensors in SMD style to EN 60 751

- for temperatures from -50 to +150°C
- standard nominal values and tolerances
- wrap-around contact with diffusion blockage
- for insertion in automatic large-scale production
- supplied in belt package

The SMD temperature sensors feature electro-tinned solder connections at both ends. Compared to styles using connecting wires, they are particularly rugged and are mainly intended for automatic insertion in large-scale production. Their universal application is ensured thanks to their distinctive features, such as standard nominal value to EN, high accuracy and long-term stability, as well as excellent reproducibility of the electrical properties. They are used for surface and environmental temperature measurement on circuit boards, and for temperature compensation.

### Type designation

P	platinum resistance material to EN 60 751
C	chip style
S	SMD style (size 1206 [3216])
1.	1 measurement winding
15	width W in 0.1mm (1.5mm)
03	length L in mm (3mm)
.1	nominal value 100Ω at 0°C
.5	nominal value 500Ω at 0°C
.10	nominal value 1000Ω at 0°C



## Temperature sensors with a nominal value of 100, 500 and 1000Ω at 0°C

Type	Sensor body		Sales No.		
	W	L	H	L1	
<b>Tolerance class B <math>\pm(0.3 + 0.005 \cdot l)^\circ\text{C}</math>, <math>\alpha = 3.850 \cdot 10^{-3}\text{C}^{-1}</math></b>					
PCS 1.1503.1	1.5	3.1	0.8	0.5	90/00309087 ●
PCS 1.1503.5	1.5	3.1	0.8	0.5	90/00358356 ●
PCS 1.1503.10	1.5	3.1	0.8	0.5	90/00374853 ●

### Note:

Platinum SMD temperature sensors must not be used unprotected in a humid environment.  
The style meets the requirements of CECC 40401-004 / DIN 45 921.

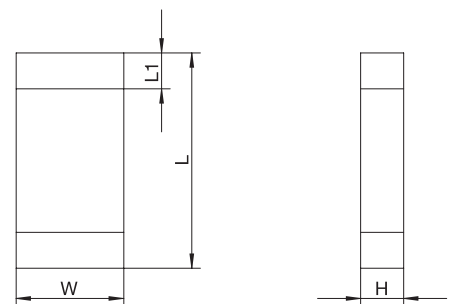
### Packaging:

Platinum SMD temperature sensors are supplied in a belt package to IEC 286-3. Small quantities can also be supplied loose.

### Processing:

- Reflow soldering (soldering temperature/time  $\leq 240^\circ\text{C}/8\text{sec}$ )
- Wave soldering (soldering temperature/time  $\leq 260^\circ\text{C}/10\text{sec}$ )

All dimensions in mm.



● Available from stock.

Item 1

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## Self-heat coefficients, response times and measurement tolerances of the temperature sensors

Item	Type	Nominal value in $\Omega$ at 0°C	Self-heat coefficient E in °C/mW		Response times in sec	
			water	air	$t_{0.5}$	$t_{0.9}$
1	PCS 1.1503.1 ●	1 x 100	0.02	0.20	0.1	0.3
	PCS 1.1503.5 ●	1 x 500	0.02	0.20	0.1	0.3
	PCS 1.1503.10 ●	1 x 1000	0.02	0.20	0.1	0.3

### Response times:

The values for  $t_{0.5}$  and  $t_{0.9}$  were determined in circulating water ( $v = 0.4\text{m/sec}$ ).

### Measurement conditions for self-heat coefficient:

flow velocity for water  $v = 0.2\text{m/sec}$  and air  $v = 2\text{m/sec}$

### Self-heating:

A current has to pass through a temperature sensor in order to measure its electrical resistance. This current produces a certain amount of self-heating of the temperature sensor, depending on external influences. The size of the self-heat error depends on the power supplied  $P = I^2 \cdot R$ , the heat dissipated via the measured medium, the thermal mass of the sensor and its surface area. The specific properties are combined into a coefficient, so that the self-heat error is given by:

$$\Delta t = I^2 \cdot R \cdot E$$

The coefficient E varies with the measurement conditions and changes if the sensor is mounted inside a protective fitting.

### Measurement tolerances

#### Tolerances in mm

L	W	H	L1
±0.2	±0.2	±0.2	±0.2

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