



# Platinum Temperature Sensors

**3FW – Product Series**

**Temperature Range: –200°C...+300°C**

**Platinum temperature sensor elements with flat wire (FW) connections  
RoHS compliant**

**Advantage: Best price-performance ratio**

## Technical Data

<b>Specification:</b>	DIN EN 60751	
<b>Temperature range:</b>	-200°C to +300°C	
<b>Temperature Coefficient:</b>	TCR = 3850 ppm/K	
<b>Tolerance Classes:</b>	F 0.1 (Class Y)	-50°C to +150°C
	F 0.15 (Class A)	-90°C to +300°C
	F 0.3 (Class B)	-200°C to +300°C
	F 0.6 (Class C)	-200°C to +300°C
	1/5 F 0.3 (Class K)	on request
	1/10 F 0.3 (Class K)	on request
<b>Leads:</b>	Ni/Au wire, 0.2 x 0.4 mm (H x W) Recommended connection technology: Soldering, Welding, Crimping	
<b>Lead Lengths:</b>	7/10 mm	
<b>Long-term stability:</b>	Max. Drift = Less than 0.03% after 1000h at max. operating temperature	



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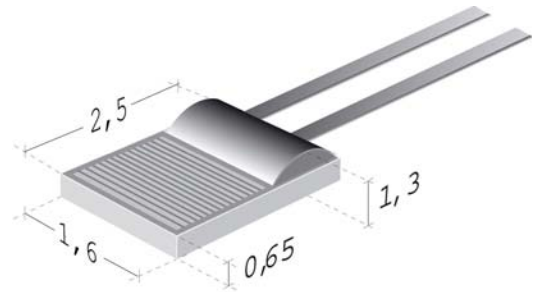
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## 3FW – Product Series

Temperature Range:  $-200^{\circ}\text{C} \dots +300^{\circ}\text{C}$

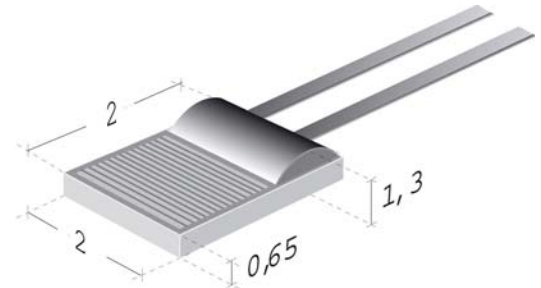
### 3FW 216

<b>Chip Dimensions, L x W:</b>	2.5 x 1.6 mm	
<b>Nominal Resistance at 0°C (ohm) :</b>	100/1000	
<b>Self Heating (mK):</b>	Water (v= 0 m/s) Air (v= 0 m/s)	$\Delta T_w = 2.8$ at $0^{\circ}\text{C}$ $\Delta T_a = 28$ at $0^{\circ}\text{C}$
<b>Response Time (s):</b>	Water (v= 0.4 m/s)  Air (v= 1 m/s)	$T_{0.5} = 0.12$ $T_{0.63} = 0.18$ $T_{0.9} = 0.42$ $T_{0.5} = 4$ $T_{0.63} = 5.4$ $T_{0.9} = 11$
<b>Measuring Current (mA):</b>	100 $\Omega$ : 1 1000 $\Omega$ : 0.3	



### 3FW 202

<b>Dimensions, LxW:</b>	2.0 x 2.0 mm	
<b>Nominal Resistance at 0°C (ohm):</b>	100/500/1000	
<b>Self Heating (mK):</b>	Water (v= 0 m/s) Air (v= 0 m/s)	$\Delta T_w = 3.1$ at $0^{\circ}\text{C}$ $\Delta T_a = 31$ at $0^{\circ}\text{C}$
<b>Response Time (s):</b>	Water (v= 0.4 m/s)  Air (v= 1 m/s)	$T_{0.5} = 0.11$ $T_{0.63} = 0.16$ $T_{0.9} = 0.38$ $T_{0.5} = 3.6$ $T_{0.63} = 4.9$ $T_{0.9} = 10.2$
<b>Measuring Current (mA):</b>	100 $\Omega$ : 1 500 $\Omega$ : 0.5 1000 $\Omega$ : 0.3	



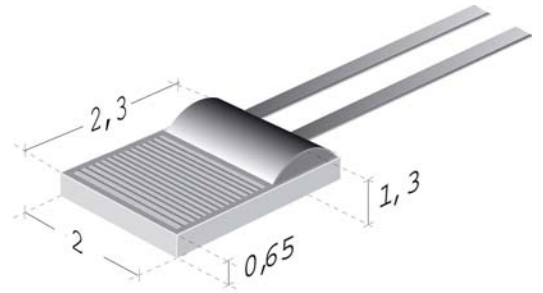
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## 3FW – Product Series

Temperature Range:  $-200^{\circ}\text{C} \dots +300^{\circ}\text{C}$

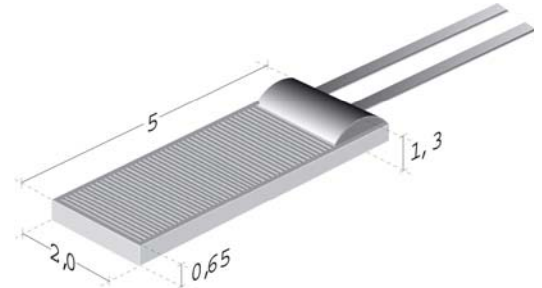
### 3FW 232

<b>Dimensions, LxW:</b>	2.3 x 2.0 mm	
<b>Nominal Resistance at 0°C (ohm):</b>	100/500/1000	
<b>Self Heating (mK):</b>	Water (v= 0 m/s)	$\Delta T_w = 2.5$ at $0^{\circ}\text{C}$
	Air (v= 0 m/s)	$\Delta T_a = 25$ at $0^{\circ}\text{C}$
<b>Response Time (s):</b>	Water (v= 0.4 m/s)	$T_{0.5} = 0.15$ $T_{0.63} = 0.2$
	Air (v= 1 m/s)	$T_{0.5} = 4.5$ $T_{0.63} = 6$ $T_{0.9} = 12$
<b>Measuring Current (mA):</b>	100 $\Omega$ : 1	
	500 $\Omega$ : 0.5	
	1000 $\Omega$ : 0.3	



### 3FW 520

<b>Dimensions, LxW:</b>	5.0 x 2.0 mm	
<b>Nominal Resistance at 0°C (ohm):</b>	500/10,000	
<b>Self Heating (mK):</b>	Water (v= 0 m/s)	$\Delta T_w = 1.3$ at $0^{\circ}\text{C}$
	Air (v= 0 m/s)	$\Delta T_a = 14$ at $0^{\circ}\text{C}$
<b>Response Time (s):</b>	Water (v= 0.4 m/s)	$T_{0.5} = 0.25$ $T_{0.63} = 0.3$ $T_{0.9} = 0.75$
	Air (v= 1 m/s)	$T_{0.5} = 6$ $T_{0.63} = 8.5$ $T_{0.9} = 18$
<b>Measuring Current (mA):</b>	500 $\Omega$ : 0.5	
	10,000 $\Omega$ : 0.1	



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**Order Example:**     **P**   **1K0.**   **232.**   **3**   **FW.**   **B.**   **010**  
                          1    2        3       4       5       6       7

1. *Material Identification = Platinum temperature sensor*
2. *Resistance Value in ohm = 1000Ω / 0°C*
3. *Chip Dimension = 2.3 x 2.0 mm*
4. *Temperature Range = -200 °C to +300 °C*
5. *Extension = Flat Wire*
6. *Tolerance Class = DIN EN 60751 F 0.3 (former Class B)*
7. *Connection length = 10 mm*



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