



Platinum Temperature Sensors

6W – Product Series

Temperature Range: $-200^{\circ}\text{C} \dots +600^{\circ}\text{C}$

Platinum temperature sensors elements with wire connections

Technical Data

Specification:	DIN EN 60751	
Temperature range:	-200°C to $+600^{\circ}\text{C}$	
Temperature Coefficient:	TCR = 3850 ppm/K	
Tolerance Classes:	F 0.1 (Class Y)	-50°C to $+150^{\circ}\text{C}$
	F 0.15 (Class A)	-90°C to $+300^{\circ}\text{C}$
	F 0.3 (Class B)	-200°C to $+600^{\circ}\text{C}$
	F 0.6 (Class C)	-200°C to $+600^{\circ}\text{C}$
	1/5 F 0.3 (Class K)	on request
	1/10 F 0.3 (Class K)	on request
Leads:	Platinum-coated nickel wire ($\varnothing = 0.2 \text{ mm}$) Recommended connection technology: Soldering, Welding, Crimping	
Lead Lengths:	7/10/15 mm	
Long-term stability:	Max. Drift = Less than 0.03% after 1000h at max. operating temperature	
Note:	Other connection lengths on request	



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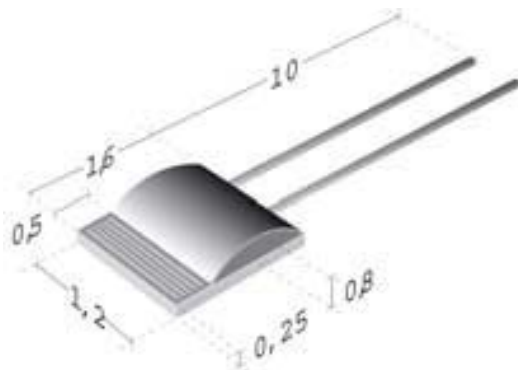
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e-mail info@ist-ag.com, www.ist-ag.com

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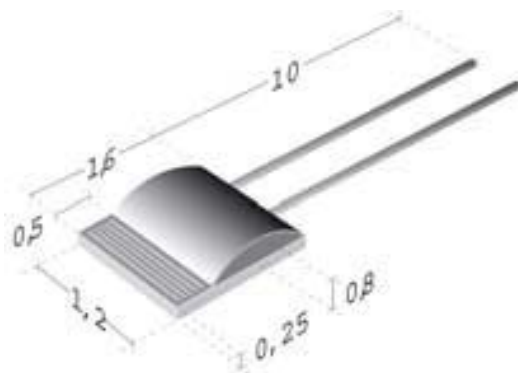
6W 161

Chip Dimensions, L x W:	1.6 x 1.2 mm	
Nominal Resistance at 0°C (ohm) :	100/500/1000	
Self Heating (mK):	Water ($v = 0 \text{ m/s}$)	$\Delta T_w = 8.3 \text{ at } 0^{\circ}\text{C}$
	Air ($v = 0 \text{ m/s}$)	$\Delta T_a = 56 \text{ at } 0^{\circ}\text{C}$
Response Time (s):	Water ($v = 0.4 \text{ m/s}$)	$T_{0.5} = 0.05$
		$T_{0.63} = 0.08$
		$T_{0.9} = 0.18$
	Air ($v = 1 \text{ m/s}$)	$T_{0.5} = 1$
		$T_{0.63} = 1.2$ $T_{0.9} = 2.5$
Measuring Current (mA):	100 Ω : 1	
	500 Ω : 0.5	
	1000 Ω : 0.3	



7W 161

Chip Dimensions, L x W:	1.6 x 1.2 mm	
Nominal Resistance at 0°C (ohm) :	100/1000	
Self Heating (mK):	Water ($v = 0 \text{ m/s}$)	$\Delta T_w = 8.3 \text{ at } 0^{\circ}\text{C}$
	Air ($v = 0 \text{ m/s}$)	$\Delta T_a = 56 \text{ at } 0^{\circ}\text{C}$
Response Time (s):	Water ($v = 0.4 \text{ m/s}$)	$T_{0.5} = 0.05$
		$T_{0.63} = 0.08$
		$T_{0.9} = 0.18$
	Air ($v = 1 \text{ m/s}$)	$T_{0.5} = 1$
		$T_{0.63} = 1.2$ $T_{0.9} = 2.5$
Measuring Current (mA):	100 Ω : 1	
	1000 Ω : 0.3	
Note:	Pure platinum wire, 0.2 mm diameter	



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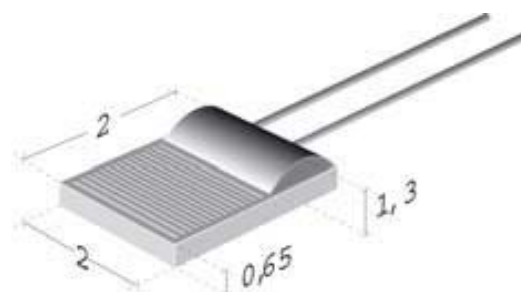
7W 308

Dimensions, LxW:	3.0 x 0.8 mm	
Nominal Resistance at 0°C (ohm):	100/500/1000	
Self Heating (mK):	Water (v= 0 m/s)	$\Delta T_w = 6.7$ at 0°C
	Air (v= 0 m/s)	$\Delta T_a = 46$ at 0°C
Response Time (s):	Water (v= 0.4 m/s)	$T_{0.5} = 0.08$
		$T_{0.63} = 0.10$
		$T_{0.9} = 0.25$
	Air (v= 1 m/s)	$T_{0.5} = 1.2$
		$T_{0.63} = 1.5$
		$T_{0.9} = 3.5$
Measuring Current (mA):	100 Ω : 1	
	500 Ω : 0.5	
	1000 Ω : 0.3	
Note:	Pure platinum wire, 0.15 mm diameter	



6W 202

Dimensions, LxW:	2.0 x 2.0 mm	
Nominal Resistance at 0°C (ohm):	100/500/1000/2000	
Self Heating (mK):	Water (v= 0 m/s)	$\Delta T_w = 3.1$ at 0°C
	Air (v= 0 m/s)	$\Delta T_a = 31$ at 0°C
Response Time (s):	Water (v= 0.4 m/s)	$T_{0.5} = 0.11$
		$T_{0.63} = 0.16$
		$T_{0.9} = 0.38$
	Air (v= 1 m/s)	$T_{0.5} = 3.6$
		$T_{0.63} = 4.9$
		$T_{0.9} = 10.2$
Measuring Current (mA):	100 Ω : 1	
	500 Ω : 0.5	
	1000 Ω : 0.3	
	2000 Ω : 0.2	



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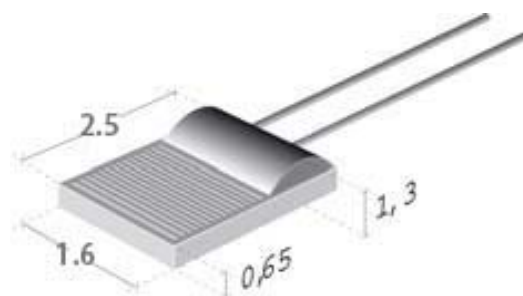
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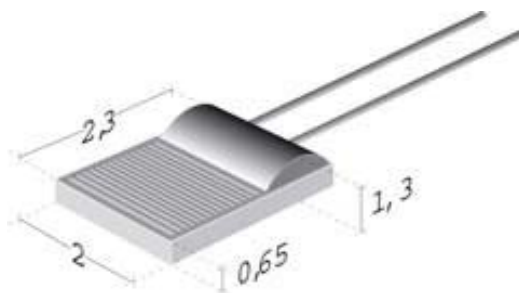
6W 216

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



6W 232

Dimensions, LxW:	2.3 x 2.0 mm	
Nominal Resistance at 0°C (ohm):	100/500/1000/2000	
Self Heating (mK):	Water ($v = 0 \text{ m/s}$)	$\Delta T_w = 2.5 \text{ at } 0^{\circ}\text{C}$
	Air ($v = 0 \text{ m/s}$)	$\Delta T_a = 25 \text{ at } 0^{\circ}\text{C}$
Response Time (s):	Water ($v = 0.4 \text{ m/s}$)	$T_{0.5} = 0.15$
		$T_{0.63} = 0.2$
		$T_{0.9} = 0.55$
	Air ($v = 1 \text{ m/s}$)	$T_{0.5} = 4.5$
		$T_{0.63} = 6$
		$T_{0.9} = 12$
Measuring Current (mA):	100 Ω :	1
	500 Ω :	0.5
	1000 Ω :	0.3
	2000 Ω :	0.2



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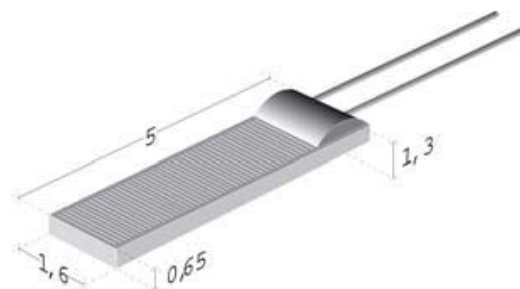
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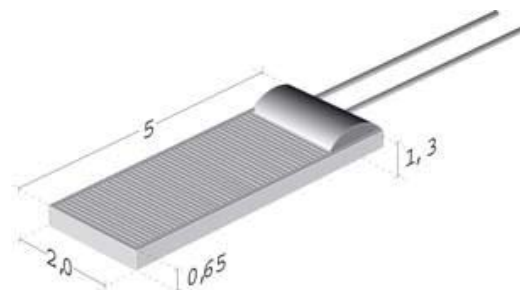
6W 516

Dimensions, LxW:	5.0 x 1.6 mm	
Nominal Resistance at 0°C (ohm):	100/1000/2000	
Self Heating (mK):	Water (v= 0 m/s) Air (v= 0 m/s)	$\Delta T_w = 1.3$ at 0°C $\Delta T_a = 14$ at 0°C
Response Time (s):	Water (v= 0.4 m/s) Air (v= 1 m/s)	$T_{0.5} = 0.25$ $T_{0.63} = 0.3$ $T_{0.9} = 0.7$ $T_{0.5} = 5.5$ $T_{0.63} = 7.5$ $T_{0.9} = 16$
Measuring Current (mA):	100 Ω : 1 1000 Ω : 0.3 2000 Ω : 0.2	



6W 520

Dimensions, LxW:	5.0 x 2.0 mm	
Nominal Resistance at 0°C (ohm):	100/500/1000/ 10,000	
Self Heating (mK):	Water (v= 0 m/s) Air (v= 0 m/s)	$\Delta T_w = 1.3$ at 0°C $\Delta T_a = 14$ at 0°C
Response Time (s):	Water (v= 0.4 m/s) Air (v= 1 m/s)	$T_{0.5} = 0.25$ $T_{0.63} = 0.3$ $T_{0.9} = 0.75$ $T_{0.5} = 6$ $T_{0.63} = 8.5$ $T_{0.9} = 18$
Measuring Current (mA):	100 Ω : 1 500 Ω : 0.5 1000 Ω : 0.3 10,000 Ω : 0.1	



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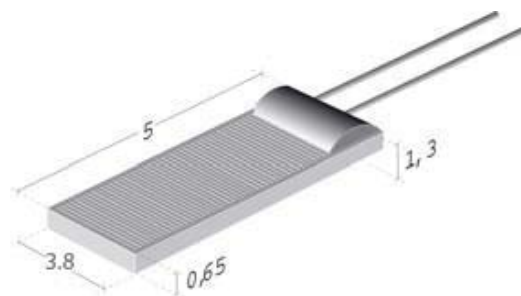
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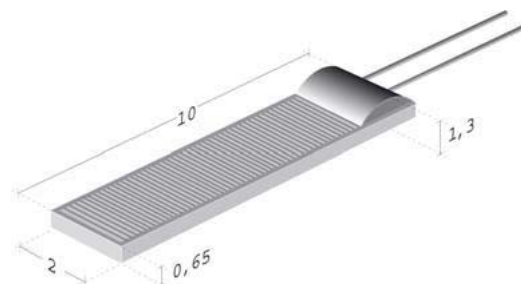
6W 538

Dimensions, LxW:	5.0 x 3.8 mm	
Nominal Resistance at 0°C (ohm):	100/1000	
Self Heating (mK):	Water ($v = 0 \text{ m/s}$) Air ($v = 0 \text{ m/s}$)	$\Delta T_w = 0.7 \text{ at } 0^{\circ}\text{C}$ $\Delta T_a = 10 \text{ at } 0^{\circ}\text{C}$
Response Time (s):	Water ($v = 0.4 \text{ m/s}$) Air ($v = 1 \text{ m/s}$)	$T_{0.5} = 0.35$ $T_{0.63} = 0.4$ $T_{0.9} = 0.9$ $T_{0.5} = 7.5$ $T_{0.63} = 10$ $T_{0.9} = 20$
Measuring Current (mA):	100 Ω : 1 1000 Ω : 0.3	



6W 102

Dimensions, LxW:	10.0 x 2.0 mm	
Nominal Resistance at 0°C (ohm):	100/500/1000	
Self Heating (mK):	Water ($v = 0 \text{ m/s}$) Air ($v = 0 \text{ m/s}$)	$\Delta T_w = 0.7 \text{ at } 0^{\circ}\text{C}$ $\Delta T_a = 10 \text{ at } 0^{\circ}\text{C}$
Response Time (s):	Water ($v = 0.4 \text{ m/s}$) Air ($v = 1 \text{ m/s}$)	$T_{0.5} = 0.33$ $T_{0.63} = 0.4$ $T_{0.9} = 0.85$ $T_{0.5} = 7.5$ $T_{0.63} = 10.5$ $T_{0.9} = 20$
Measuring Current (mA):	100 Ω : 1 500 Ω : 0.5 1000 Ω : 0.3	



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Order Example:

P	1K0.	232.	6	W.	B.	010
1	2	3	4	5	6	7

1. Material Identification = Platinum temperature sensor
2. Resistance Value in ohm = $1000\Omega / 0^{\circ}\text{C}$
3. Chip Dimension = $2.3 \times 2.0 \text{ mm}$
4. Temperature Range = -200°C to $+600^{\circ}\text{C}$
5. Extension = Wire Connections
6. Tolerance Class = DIN EN 60751 F 0.3 (former Class B)
7. Connection length = 10 mm



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