MICC TECH. LIMITED

Platinum Thin Film Resistance Temperature Detectors

MADE IN GERMANY



- Produced by the global standard DIN EN 60751
- Standard temperature range -50°C … +600°C;
  also extended type -200°C … +850°C
- Very tight tolerance as standard by 1/10
- Standard TCR 3850 ppm/K but also specials like 3810, 3750 etc.
- Customer requested solutions available



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Company profile

MICC TECH LIMITED was founded in 2007.

Thanks to technically intelligent solutions, we are one of the most innovative companies in the manufacturing of platinum temperature sensors.

It is our goal to supply our customers with high quality products while meeting the international standards.

We are highly motivated to offer our customers fast and reliable service with our specialized knowledge and more than 15years of experience.





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Our service

- Manufacturing and sales of platinum temperature sensors (PT100, PT500, PT1000).
- Development of customized solutions.
- Individual solutions to customer requirements.
- Support and consulting for our customers in their search for a suitable product.

Our work is characterized by short communication channels,
quick decision-making and intensive cooperation with our business partners.

We are looking forward to welcome you in our company as a customer.



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Quality policy

The quality policy of our company is to deliver only high quality products to our customers. It is trend-setting for the entire company.



Our quality policy is focussed to achieve the following general goals and these are checked at least once a year by the management, possibly modified or redefined if necessary:

- 100% final visual inspection of all sensor elements
- 100% electrical testing of all sensor elements
- High adherence to deadlines and delivery dates (indicative of our flexibility)
- Consistent maintenance and constant improvement of our QM system
- The complete fulfillment of customer requirements and customer expectations (zero-defect production -> evaluation of customer complaints)
- To operate error prevention through prevention of error detection (evaluation via rework and rejects)
- Only constant continuous improvement secures the company's existence and thus jobs
- Specification of achievable goals with annual presentation (target / actual on notice).
- Increase in competitiveness.

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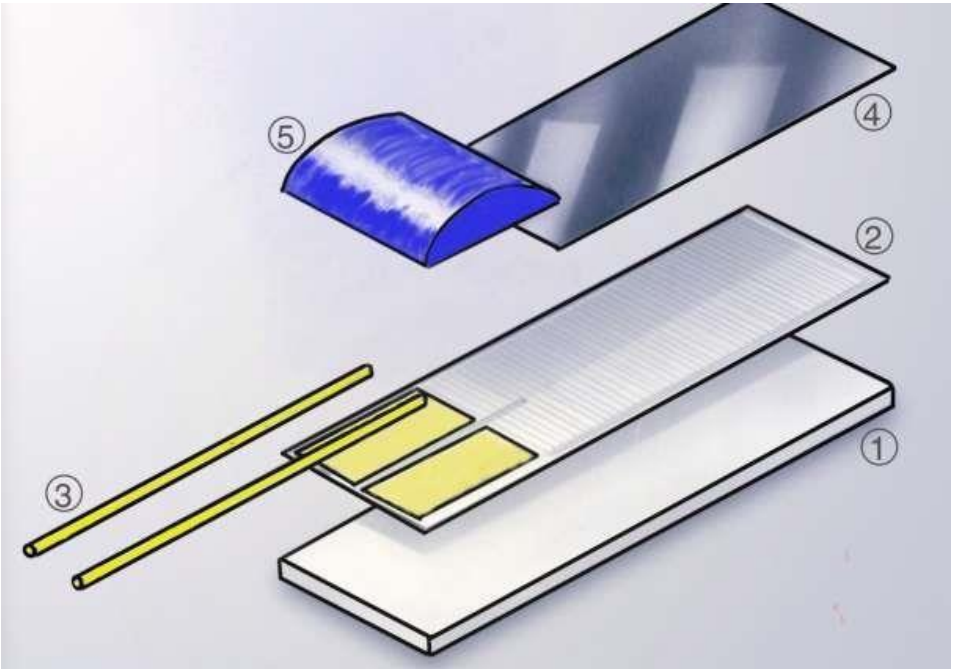
Technology



Layered 3D model of a Pt-RTD sensor

Basic construction of a Pt-RTD

1. ceramic substrate
2. platinum thin film
3. connecting wire
4. glass cover to protect the sensor
5. glass protection for the connecting wire

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Lead wire

	soft soldering	hard soldering (brazing)	resistance welding	laser welding	crimping
Ni-wire	limited	very good	limited-good	very good	good
Ag-wire	very good	good	limited-good	limited-good	very good
AuNi-wire	very good	very good	very good	very good	very good
PtNi-wire	limited-good	very good	very good	very good	good
Pt-wire	very good	very good	very good	very good	very good

The onliest and therefore most important „communication“ connection of Pt-RTD to the outside world is via the wires.

For this reason MICC put a very big effort to this point. In the production process with the customers employee they cannot follow minimum standards for the pull strength.

The wire has to withstand the daily production stress.

The resistance welding connection of MICC shows excellent values. They will be proofed by all production lots.

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The connection wires have different advantage resp. disadvantages.

To anticipate it:

- the most inexpensive solution is by Nickel-wire
- and by far the most expensive by platinum coated Nickel wire (PtNi-wire)
- topped only by pur platinum wire.

The PtNi-wire was historically almost 40 years ago chosen as the first wire for the mass production in thin film technology. More expensive was (and still is) to use pure platinum wire. Extended temperature over +650°C you are still obliged to use Pt-wire.

For this reason we offer Gold coated Nickel wire (AuNi-wire) which is the ideal solution of someone cannot us pure Nickel wire. The basic function of coating by gold (or other precious metal) should avoid oxidation of the wire – and that's all.

For example pure nickel wire will be used since over 20 years in million of quantities for automotive and white good application as a mass item without any quality problems.

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Platinum-Chip Temperature Sensors with connection wires according to DIN EN 60751

*** NEW ***
Recommended

*** NEW ***

*** NEW ***



Description	Customized	CRAG	CRZE	CRZ	CRE	CREG	CRER / CREBR	CRSMD	CRFSMD
Features	Customized	Cost-optimized Universally and high temperature applications	Cost-optimized Universally applicable	Cost-optimized Universally applicable	Cost-optimized	Cost-optimized Universally applicable	Reversed wires Metallized back (CREBR)	Taped Long-term stability Sensor side up	Flip-Chip Taped Long-term stability Sensor side down
Material of wires	Customized	Gold-plated nickel	Gold-plated nickel	Gold-plated nickel	Nickel	Gold-plated nickel	Gold-plated nickel	Gold-plated nickel All-round contact	Gold-plated nickel One-sided contact
Wires	Customized e.g. 3-wire, isolated wire,...	Ø 0.15 x 10mm Ø 0.2 x 10mm Ø 0.25 x 10mm	Ø 0.2 x 11mm	Ø 0.2 x 11mm	Ø 0.2 x 10mm Ø 0.25 x 55mm Ø 0.2 x 75mm	Ø 0.2 x 10mm	Ø 0.15 x 10 mm	---	---
Temperature range	(-200...+1000°C)	-200...+600°C	-70...+400°C	-70...+500°C	-70...+500°C (550°C)	-70...+500°C (550°C)	-70...+500°C (550°C)	-70...+250°C	-70...+250°C
Processing	Dependent on specification	Soft soldering Crimping Welding Brazing	Soft soldering Crimping Welding Brazing	Soft soldering Crimping Welding Brazing	Crimping Welding Brazing	Soft soldering Crimping Welding Brazing	Soft soldering Crimping Welding Brazing	Reflow soldering	Reflow soldering
Dimensions (W x L x H)	Customized e.g. radial, axial or round (potted)	1.2 x 1.6 x 1.1mm 1.2 x 4.0 x 1.1mm 1.6 x 5.0 x 1.1mm 2.0 x 2.3 x 1.1mm 2.0 x 4.0 x 1.1mm 2.0 x 5.0 x 1.1mm 2.0 x 10.0 x 1.1mm	1.6 x 3.2 x 1.2mm 1.6 x 3.6 x 1.2mm 2.0 x 5.0 x 1.2mm	1.6 x 3.2 x 1.1mm 2.0 x 5.0 x 1.1mm	1.5 x 5.0 x 1.0mm 2.0 x 2.5 x 1.3mm 2.0 x 5.0 x 1.3mm	1.5 x 5.0 x 1.0mm 2.0 x 2.5 x 1.3mm 2.0 x 5.0 x 1.3mm 2.0 x 10.0 x 1.3mm	1.7 x 2.2 x 1.0mm	0805 (1.3x2.0x0.5mm) 1206 (1.5x3.1x0.8mm)	0805 (1.3x2.0x0.5mm)
Nominal resistance (R_0 / Ω)	Customized Pt100 ... Pt10.000 And two resitors at one chip	Pt100 Pt200 Pt500 Pt1000	Pt100 Pt1000	Pt100 Pt500 Pt1000	Pt100 Pt500 Pt1000	Pt100 Pt1000	Pt100 Pt1000	Pt100 Pt500 Pt1000	Pt100 Pt500 Pt1000
Tolerance classes DIN EN 60751	F0.6 ... F0.03 (2B ... 1/10B)	F0.6 ... F0.03 (2B ... 1/10B)	F 0.1 F 0.15 F 0.3 F 0.6	F 0.1 F 0.15 F 0.3 F 0.6	F 0.1 F 0.15 F 0.3 F 0.6	F 0.1 F 0.15 F 0.3 F 0.6	F 0.3 others on request	F 0.1 F 0.15 F 0.3 F 0.6	F 0.3

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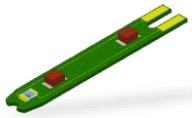
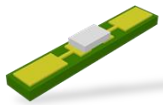
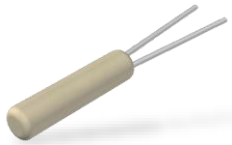
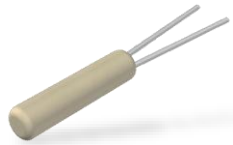
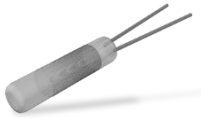
Wire Wound Platinum-RTDs & special designs according to DIN EN 60751

*** NEW ***

Description	CRSE	CRSA	CRKL	CR	CRU	CRGX
Features	Pre-finished measuring inserts	Pre-finished measuring inserts	Robust and protected against moisture	Platinum-ceramic measuring resistors Temperature shock resistant Temperature change stable	Platinum-ceramic measuring resistors Temperature shock resistant Temperature change stable	Platinum-glass measuring resistors Viration resistant High long-term stability
Material of wires	---	---	Tinned	Palladium-Gold-Alloy	Platinum	Platinum-plated nickel
Wires	---	---	0.55 x 0.25 x 7mm	Ø 0.20...0.27 x 10mm	Ø 0.15...0.40 x 7...10mm	Ø 0,2 x 10mm Ø 0,25 x 10/12mm
Contact surface	Gold-plated	Gold-plated	---	---	---	---
Temperature range	-20...+150°C (180°C)	-20...+180°C	-30...+105°C	-200...+600°C	-200...+800°C	-200...+400°C
Processing	Soft soldering	Soft soldering	Soft soldering Crimping	Crimping Welding Brazing	Crimping Welding Brazing	Crimping Welding Brazing
Dimensions (W x L x H)	2.4 x 23 x 2.2mm 4.3 x 15 x 2.2mm 4.1 x 28 x 2.2mm	1.8 x 10 x 1.1mm	3.9 x 5.0 x 1.5mm	Ø 1.5 x 8mm Ø 1.0 x 15mm Ø 1.5 x 15mm Ø 2.6 x 15mm Ø 1.0 x 25mm Ø 1.5 x 25mm Ø 2.6 x 30mm Ø 1.7 x 10mm Ø 1.7 x 15mm Ø 1.7 x 25mm Ø 2.6 x 30mm	Ø 1.5 x 15mm Ø 1.5 x 25mm Ø 1.7 x 15mm Ø 1.7 x 25mm	Ø 0.7 x 8mm Ø 1.2 x 5mm Ø 1.3 x 10mm Ø 1.3 x 15mm Ø 1.6 x 10mm Ø 1.8 x 10mm Ø 1.8 x 12mm Ø 2.8 x 15mm
Nominal resistance (R_0 / Ω)	Pt100 Pt500 Pt1000	Pt100 Pt500 Pt1000	Pt100 Pt1000	Pt100 2xPt100	Pt100 2xPt100	Pt100 2xPt100
Tolerance classes DIN EN 60751	F 0.3	F 0.3	F 0.1 F 0.3	W 0.1 W 0.15 W 0.3 W 0.6	W 0.1 W 0.15 W 0.3 W 0.6	W 0.1 W 0.15 W 0.3

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