

Amphenol

COMMUNICATIONS SOLUTIONS

RotaSense™

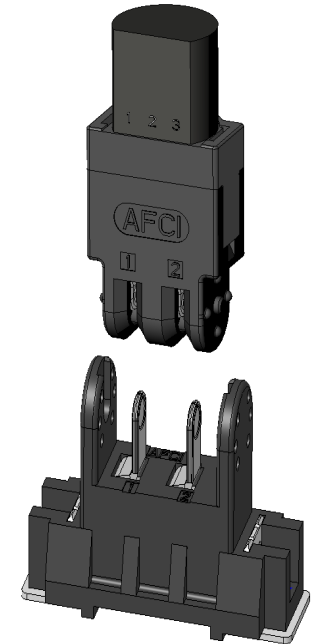
Temperature Sensor Connector



RotaSense™ - Temperature Sensor Connector

Accurate ambient temperature sensing to optimize system performance

- **Cost-effective, two-piece Temperature Sensor Connector** that accurately measures ambient temperatures; helps to optimize fan speed and ensures precise control of operating temperatures
- With this Temperature Sensor Connector system performance can be optimized by:
 - Reducing fan **power consumption**
 - Improving **user experience** (acoustics noise)
 - Increasing the **fan life expectancy** without impacting reliability
- Running fans at higher speeds accelerates the **accumulation of hygroscopic dust**, which increases the probability of corrosion failures
- **Many ambient temperature sensing mechanisms are inaccurate** and require time consuming thermal testing and system adjustments to overcome inaccuracies
 - Software adjustments can compensate wrong thermal measurements, but false-positive high temperature readings are expensive!

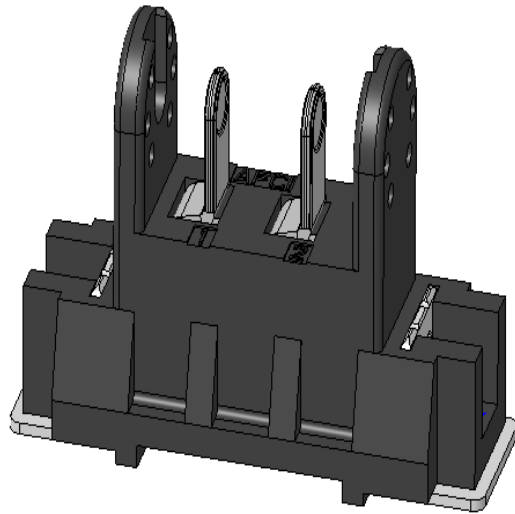


Eliminates the need for extensive thermal testing and software adjustments

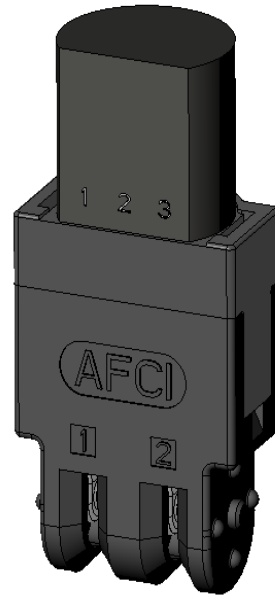
Fan control is an important aspect of system architecture!

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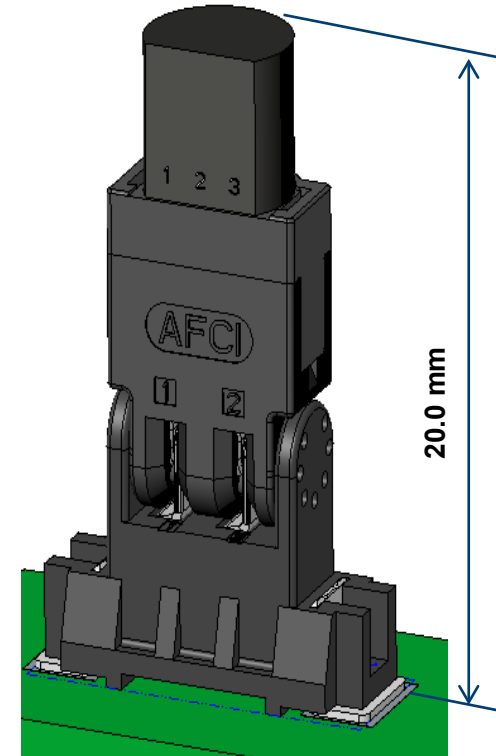
Two-piece connector system



Board Connector



Sensor Module

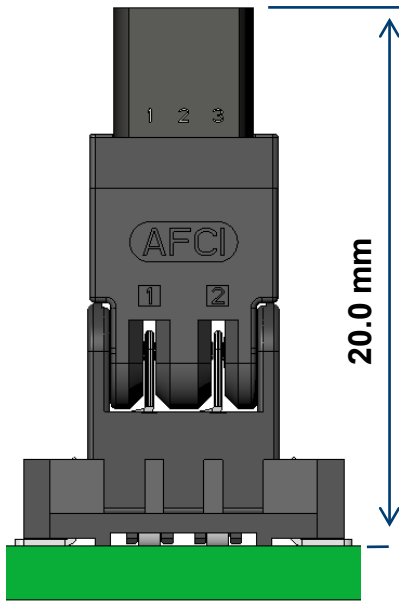


Low Profile of
just 20.0mm!

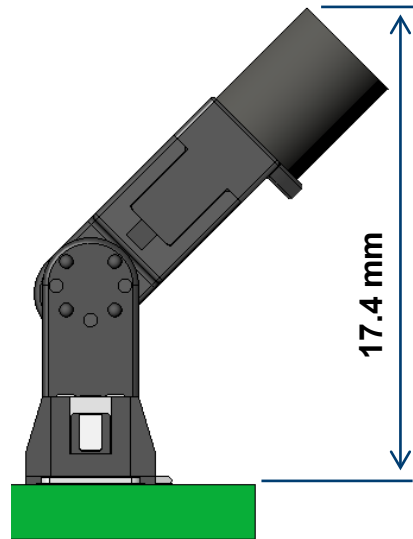
Mated Condition

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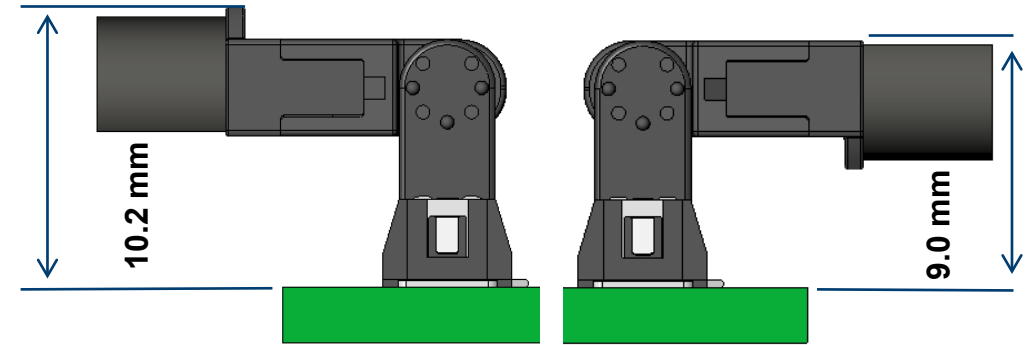
Tilting options



Straight 0° Angle



45° Angle

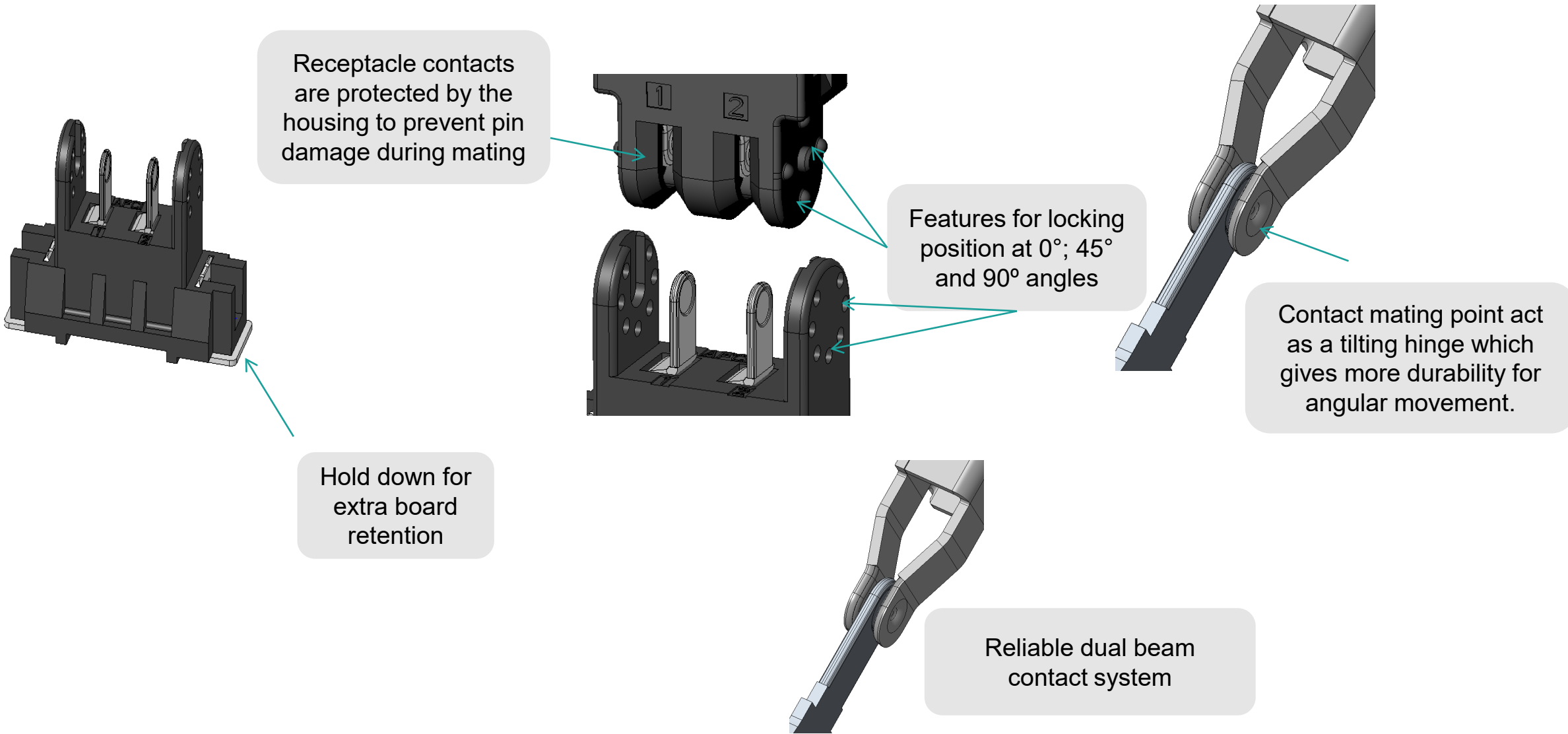


90° Angle

The sensor module can be positioned under three angles to accommodate different building practices

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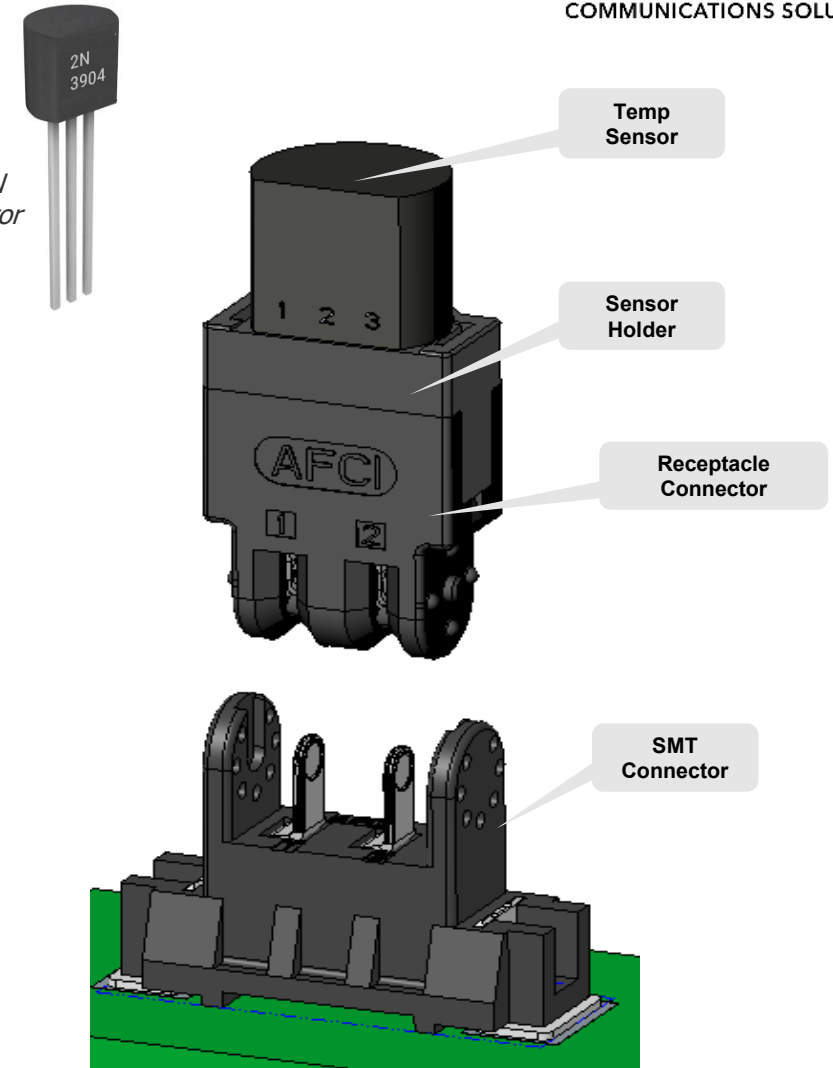
Design considerations



Features and Functionality

- Designed for closed loop temperature control
- More precise measurement versus PCB sensor components
- Receptacle can be locked under a 0°; 45° or 90° angle
- Temperature sensor: NPN Silicon Transistor
- SMT connector withstands reflow temperature of 260°C for 10s.
- Low level contact resistance: less than 20mΩ.
- Dielectric Withstanding voltage: 1000V AC for 60s.

The 2N3904 is an NPN bipolar junction transistor

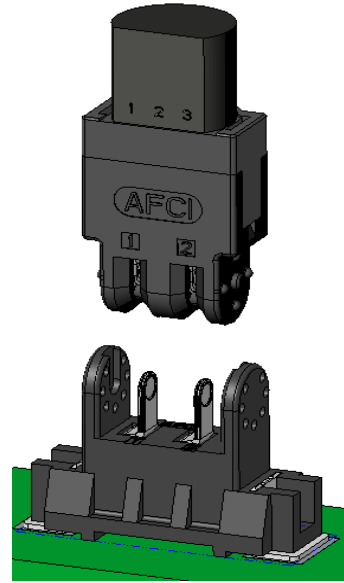


Specifications

- Dual beam sprint contact system
- Positions: 2
- 3 mating angles: 0°; 45°; 90°
- RoHS compliant

Materials

- Plating: Matte Tin over Nickel
- Housing: High Temperature Thermoplastic (UL94V0)
- Color: Black



Mechanical and Electrical Performance

- Durability: 20 cycles
- Mating force: 10N max
- Un-mating force: 2.5N min
- Current rating: 2A
- Operating Voltage: 125V
- Operating Temperature: -40C up to +125C

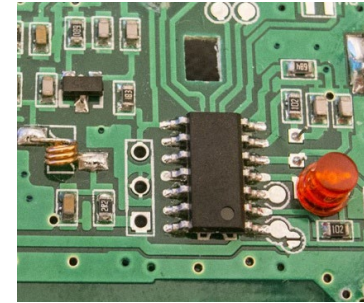
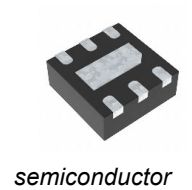
Other

- Packaging: Tape & Reel
- Manufacturing location: Cochin, India

RotaSense™ - Temperature Sensor Connector

Advantages over other temperature sensor solutions

- **On Board SMT Type Sensors are less accurate**
 - Sensor senses the PCB Temperature: leads to wrong measurements



- **Horse Shoe cut SMT Type Sensor**
 - Consumes lot of PCB Space



- **Through Hole Type Sensors**
 - Risk of breaking of leads during handling & transportation
 - Difficult to control Height / Orientation
 - Vibration issues



- **Cable Assembly Type Sensor**
 - Assembly and positioning of sensor can be a challenge
 - Possible heat absorption by wires leads to errors

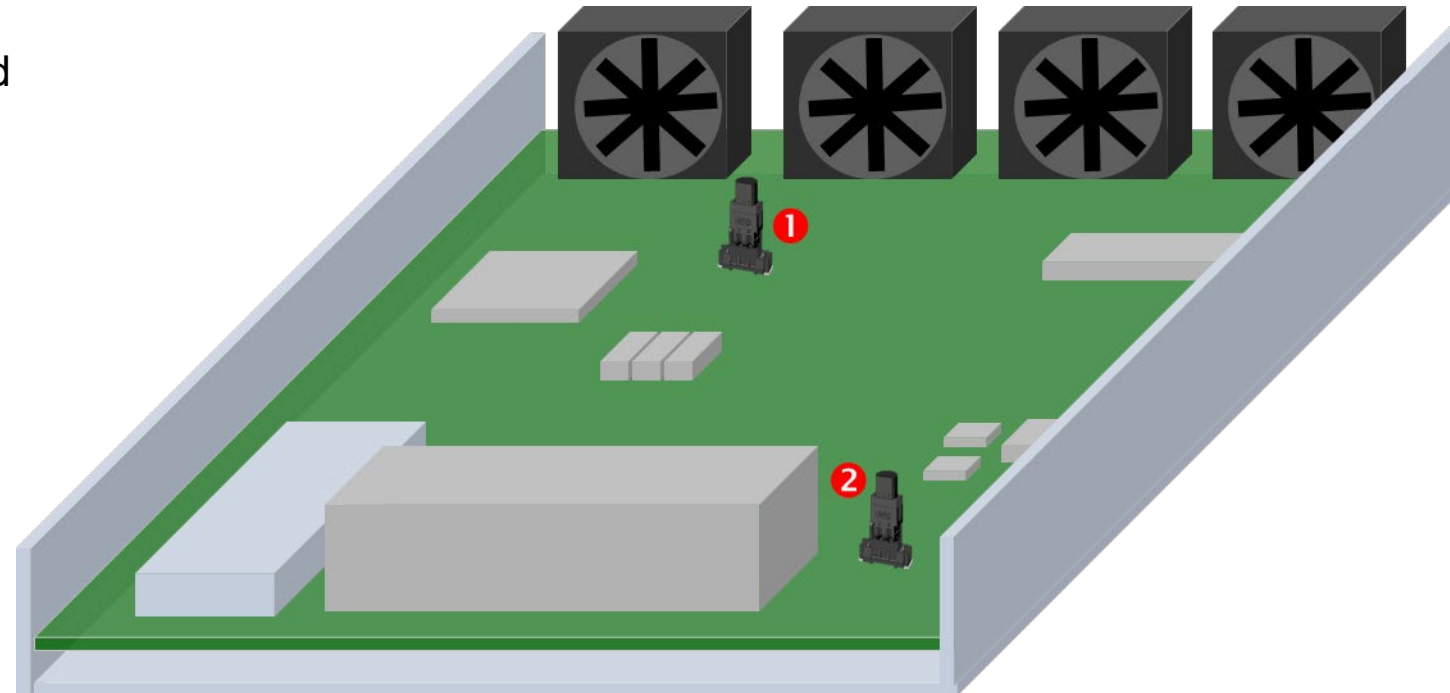


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Application Example

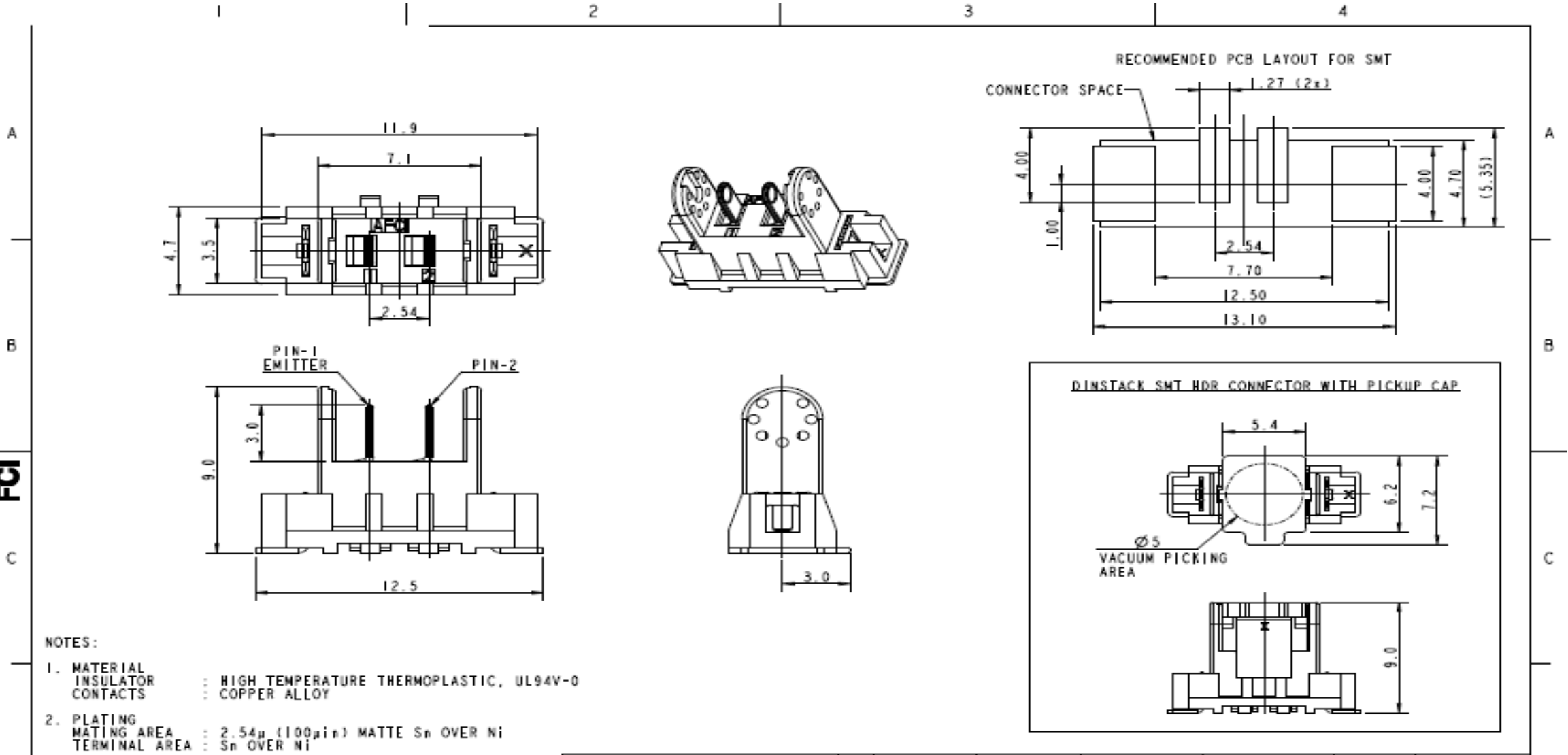
Requirements

- Measurement of accurate ambient temperatures
- Control system fan speed to optimize system performance
- Adjustable temperature sensors: to be configured based on system requirements: multiple sensor positions, depending on airflow direction
- 2 sensors: for Inlet and Outlet
- Differential temperature between the Inlet and Outlet sensors is recorded/captured in an Integrated Circuit present in the PCB.
- Based on the differential temperature level the fan speed is controlled/optimized.



RotaSense™ - Temperature Sensor Connector

Header Connector

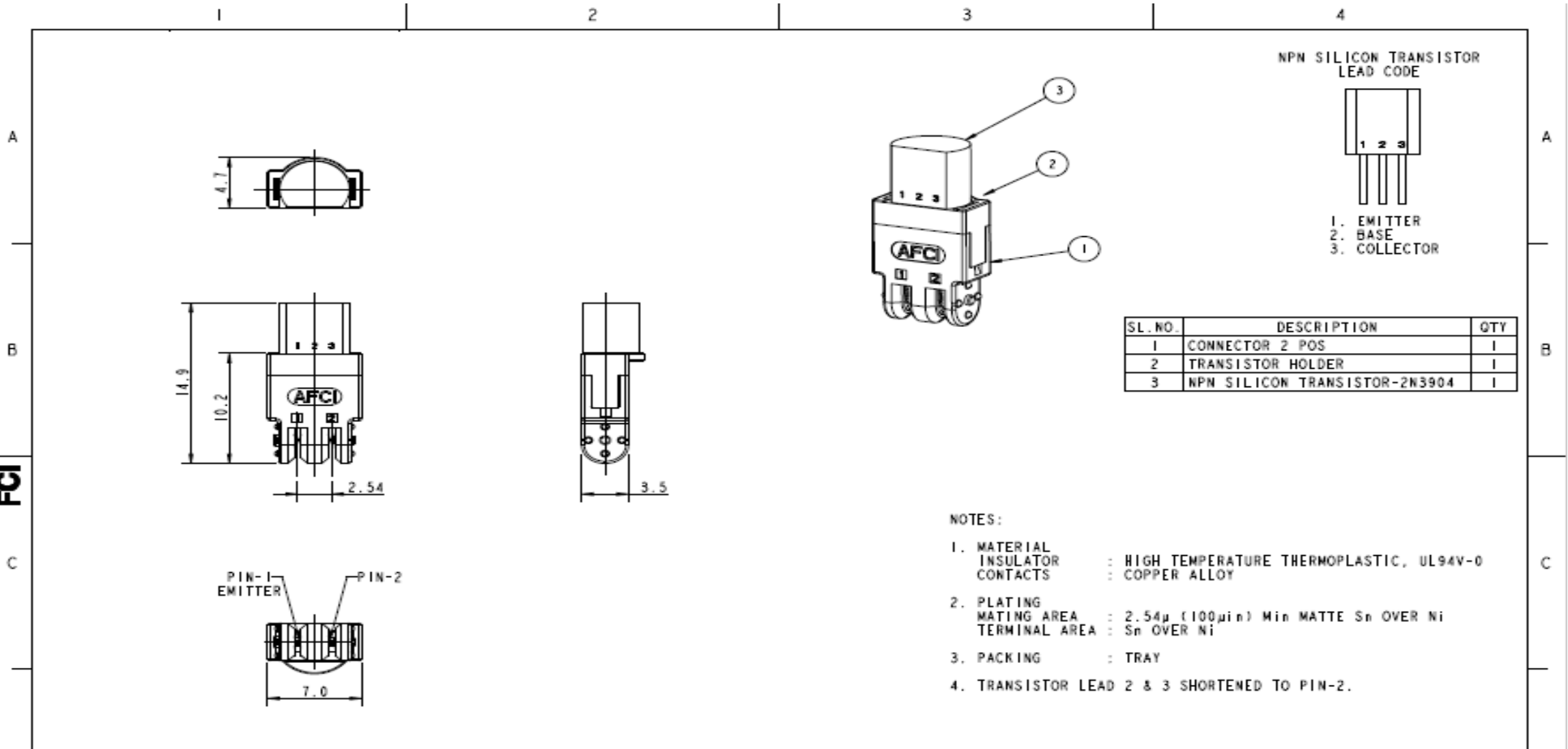


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RotaSense™ - Temperature Sensor Connector

Receptacle connector



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More Information

- Website quick link: [Rotasense Landing Page](#)
- Available on website
 - Product presentation
 - Drawings
 - 3D Models
 - Datasheet
 - Product specifications
 - Application specification
- Samples available through Mouser and Digikey

The screenshot shows the Amphenol website product page for the RotaSense™ 2 Position Temperature Sensor Connector. The page layout includes a top navigation bar with the Amphenol logo, a search bar, and links for CONTACT US, ENGLISH, 日本語, and 简体中文. Below the navigation bar, there are links for CONNECTORS, CABLES, TRANSCIEVERS, APPLICATIONS, and RESOURCES. The main content area features a breadcrumb trail: HOME | ROTASENSE™ 2 POSITION TEMPERATURE SENSOR CONNECTOR. The product title is "RotaSense™ 2 Position Temperature Sensor Connector" with a "Print" icon and a "PRODUCT ENQUIRY" button. On the left, there is a "View Similar Products" dropdown and a "DOCUMENTATION" section with links for Datasheet, Product Specification, and Application Specification. Below this is a vertical menu with "Overview" selected, and links for "Part Numbers" and "Target Markets & Applications". The main content area has an "OVERVIEW" section with tabs for "DESCRIPTION" and "FEATURES & BENEFITS". The "DESCRIPTION" tab is active, showing the product title "ACCURATE AMBIENT TEMPERATURE SENSING TO OPTIMIZE SYSTEM PERFORMANCE" and a paragraph describing the connector as a cost-effective, two-piece device. A list of features and benefits is provided, including: Designed for closed loop temperature control, Locking feature to position sensor module under 3 angles (0°C / 45°C / 90°C), SMT board connector withstands IR reflow process, Dielectric Withstanding Voltage: 1000VAC for 60s, and Designed with stacking and tilting feature. A "Read More" link is located below the list. On the right, there is a product image of the connector on a green PCB, marked with a "NEW" banner and the "FCi Basics" logo. A "Click Image to Enlarge" link is positioned below the image. At the bottom of the page, there are expandable sections for "PART NUMBERS" and "TARGET MARKETS & APPLICATIONS", each with a plus sign icon.

A background of a network diagram with nodes and connecting lines in shades of blue and teal.

Thank You

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