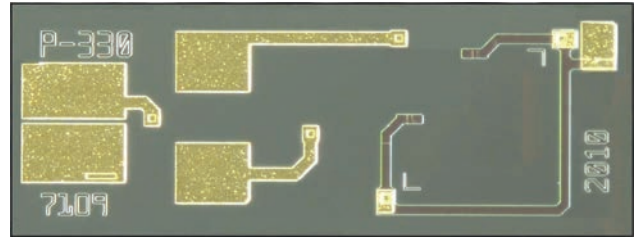


# P330 Series

## 1F (330 μm) Absolute Pressure Sensor Die



Amphenol Advanced Sensors' P330 piezoresistive pressure die offers the same superior stability and sensitivity as in larger chips, but in an extremely small footprint for invasive applications where small size is critical. It has excellent measurement accuracy, which is ideal for demanding applications with restricted dimensional profiles such as medical catheters and IC packages. NovaSensor's proprietary SenStable<sup>®</sup> process provides excellent long term stability and repeatability.

When excited with a DC voltage source, the P330 produces a mV output that is proportional to applied pressure. The P330 employs a half-bridge design which requires two external resistors to complete a full-bridge configuration. Additional components may be added to calibrate the output of the sensor.

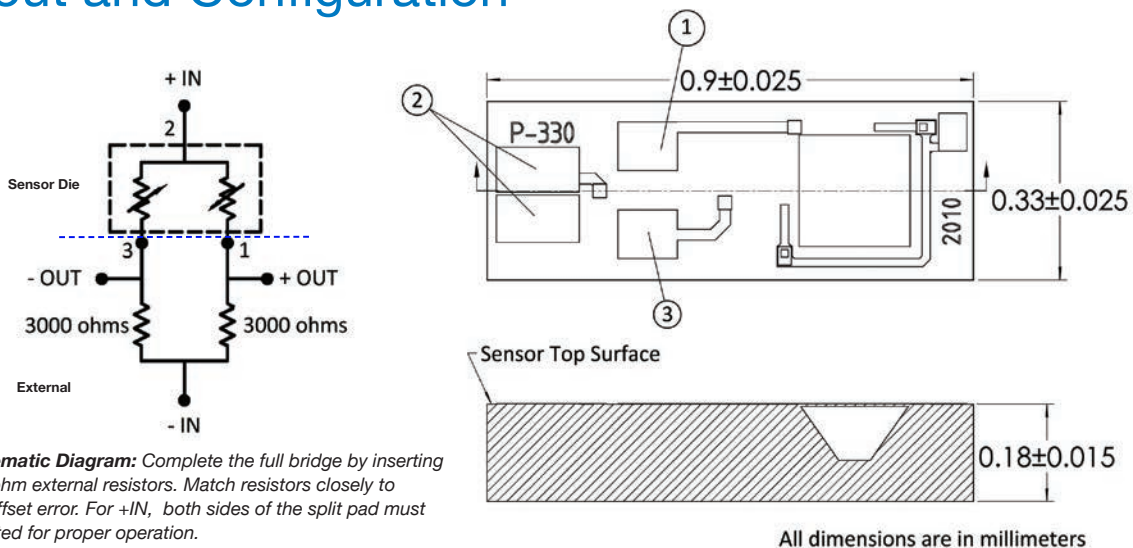
### Features

- Extremely small size: 330 x 180 μm cross section
- Stable accurate pressure measurement
- Low power consumption
- Absolute pressure sensing
- Standard pressure range of 450 to 1050 mmHgA
- 4500 mmHgA burst pressure
- Gold bond pads metallization

### Applications

- Cardiovascular
- Respiratory
- Intracranial
- Urological/ Rectal
- Ablation
- Body Cavity
- Research

# Layout and Configuration



## P330 Specifications

Parameter (Note 1,2)	Unit	Value	Comment
Pressure Range	mmHg	450 to 1050	Absolute pressure
Proof Pressure <sup>3</sup>	mmHg	2700	
Burst Pressure <sup>4</sup>	mmHg	4500	
Excitation	Volts	1 to 6	DC Voltage
Bridge Resistance <sup>5</sup>	kohm	3.2±1.0	
Symmetry <sup>6</sup>	%	±5	
Output Voltage <sup>7</sup>	mV/V	9.0	Typical @ 750 mmHg
Sensitivity <sup>7</sup>	µV/V/mmHg	10	Typical
Pressure Non Linearity <sup>7</sup>	mmHg	±1	Typical BFSL, 300 mmHg Range
TC Offset <sup>7</sup>	µV/V/°C	±30	Maximum
TC Sensitivity <sup>7</sup>	%/°C	-0.2	Typical
TC Resistance <sup>7</sup>	%/°C	0.10	Typical
Operating Temperature <sup>8</sup>	°C	15 to 45	59 to 113°F
Storage Temperature	°C	-40 to +85	-40 to 185°F
Media Compatibility <sup>9, 10</sup>		Clean, dry and non-corrosive gases	

### Notes

- Values measured at room temperature unless noted with 3000 ohm resistors completing the bridge.
- Pressure sensor performance can be affected by die mounting. Packaging stress should be minimized to achieve the specified performance.
- Proof Pressure: The maximum pressure at which the sensor may be subjected as an uncommon event and for a short duration of time without permanent damage or performance degradation. If the Proof Pressure is exceeded, the die performance is no longer guaranteed.
- Burst Pressure: The pressure at which permanent damage to the sensor may occur. Specification is for quasi-static pressure in an oil medium applied to the diaphragm side of the die.
- Parameter is measured at the wafer-level 100% at room temperature, atmospheric pressure and 3V.
- Symmetry is calculated as  $2 \cdot (r1 - r2) / (r1 + r2)$ , where r1 and r2 are two piezoresistors measured separately.
- Parameters marked "Typical" are verified by testing samples from each wafer. TCR of sensor resistors only. TCR of bridge circuit will be affected by the resistor values completing the bridge.
- Die may be used beyond this range with additional validation.
- Die with protective layers has been successfully used in various medical and biological applications.
- If the sensor is to be exposed to radiation, it is recommended to shield the die from radiation and implement auto-zeroing.

## Safety

The product shall be used only within power supply and electrical input and output limits as specified by the datasheet. Improper use of the product may result in product damage and property loss and/or personal injury. In use of the product, the customer has sole responsibility for designing and implementing a solution which will ensure safe operation (including review of appropriate reliability or required redundancy, mitigation of failure modes, and/or meeting appropriate standards). The customer is responsible for review of any special conditions for use including, but not limited to, environmental conditions, electrical supply, residual risk, etc. Amphenol makes no warranty, representation or guarantee regarding the suitability of this product for any particular application, including safety critical applications. Nor does Amphenol assume any liability arising out of the application or use in any product or circuit. Amphenol specifically disclaims all liability without limitation consequential or incidental damages.

## Shipping and Handling

Wafers are shipped on sticky tape with rings in protective plastic containers or in gel paks. All wafers are 100% electrically probed and visually inspected. Rejects are marked by ink dots.

## Warranty

NovaSensor warrants its products against defects in material and workmanship for 12 months from the date of shipment. Products not subjected to misuse will be repaired or replaced. NovaSensor reserves the right to make changes without further notice to any products herein. NovaSensor makes no warranty, representation or guarantee regarding the suitability of its products for any particular application.

NovaSensor does not assume any liability arising out of the application or use of any product or circuit and specifically disclaims, and all liability, without limitation consequential or incidental damages. The foregoing warranties are exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. No implied statutory warranty of merchantability or fitness for a particular purpose shall apply.

## Ordering Information

Part Number	Description
51511	1F 300 mmHg Absolute

Minimum release quantity 100 die (1 Gel-Pak)

**DISCLAIMER:** The information in this document is summary in nature and the characteristics and specifications are subject to change with or without notice. The appearance of the final delivered product may vary from the photographs, schematics or diagrams shown herein. Amphenol Advanced Sensors (AAS) assumes no obligation regarding future manufacture unless otherwise agreed to in writing. All product related documentation, technical assistance and all AAS products are subject to AAS Standard Terms and Conditions.

