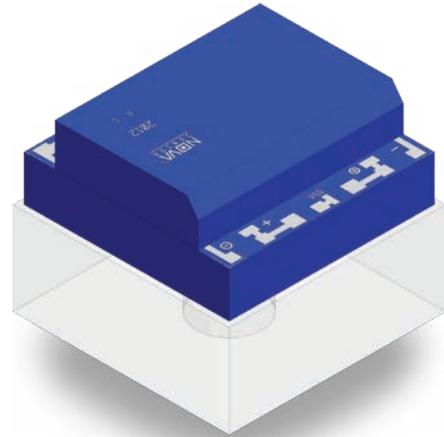




# P1905

## Backside Absolute Pressure Sensor Die



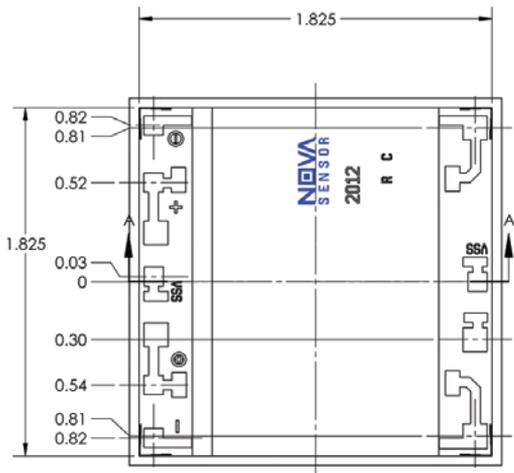
NovaSensor P1905 Backside Absolute Pressure Sensor Die is a piezoresistive sensor die that is designed for absolute pressure measurements in aggressive (harsh) media. The die has a reference vacuum chamber formed by hermetic low-stress bonding of the silicon cap to the top side of device wafer. By applying pressure from the backside of the die, P1905 eliminates direct contact of sensor circuitry on the top side with the applied media, which allows the P1905 Die to measure pressure in aggressive liquids and gases. With NovaSensor's SenStable® Process, P1905 features excellent long-term stability and repeatability (< 0.1% / year typical).

### Applications

- Automotive systems
- Process control systems
- Aerospace
- Pressure measurements in aggressive media

### Features

- Harsh media compatible
- Highly reliable, solid state silicon absolute pressure sensor die pressurized from cavity side
- Recommended pressure ranges: 0...100 PSIA to 0...300 PSIA
- Die dimensions (L x W x H): 1.93 mm x 1.93 mm x 1.64 mm
- Bond pads all on same side for easy application packaging
- Other pressure ranges available



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# P1905 Specifications

Parameter	Value	Units	Notes
<b>General</b>			
Pressure Range	0...100 to 0...300	PSIA	
Max. Overpressure	600	PSIA	
Backside Burst Pressure	>4000	PSI	6

## Electrical @ 25°C Unless Noted

Excitation (DC)	1	mA	10VDC Max.
	5	Volt	
Bridge Resistance	5000 ± 20%	Ω	

## Environmental

Operating Temperature Range:	-40° to 150°	°C	2
Storage Temperature Range:	-55° to 160°	°C	

## Mechanical

Dimensions	1.93 x 1.93 x 1.64	mm	L x W x H
Bond Pad Dimensions	0.10 x 0.10	mm	L x W
Media Compatibility	Media compatible with silicon and borosilicate glass.		

## Performance Parameters (1)

	Value	Units	Notes
Zero Offset	± 10	mV/V	
Sensitivity	0.107 ± 0.030	mV/V/psi	3
Pressure Linearity	± 0.2	% Span	4
Pressure Hysteresis	± 10	μV/V	5, 6
Temp. Coefficient of Zero	0.5 ± 3	μV/V/C	5, 6
Temp. Coefficient of Resistance	0.27	%/C	5, 6
Temp. Coefficient of Sensitivity	-0.19	%/C	5, 6
Thermal Hysteresis of Zero	± 25	μV/V	5, 6

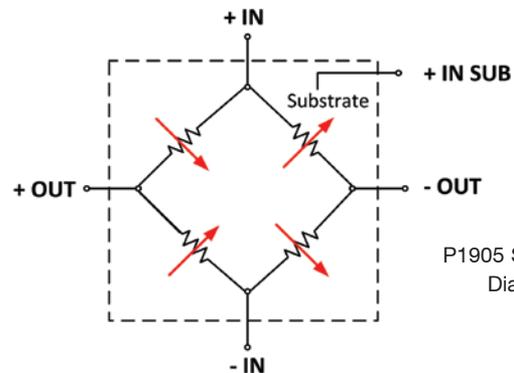
- All values measured at 25°C and 5 V excitation, unless otherwise noted. Samples from each wafer are used to verify bridge resistance, offset, span, linearity and die performance in the temperature range between 0°C and 70°C.
- Backside burst pressure and operating temperature for sensor utilizing P1905 die can be lower than corresponding parameters for the die.
- Typical span is equal to 160 mV at 300 psi.
- Best fit straight line.
- Between 0°C and 70°C.
- Typical value.

## Shipping and Handling

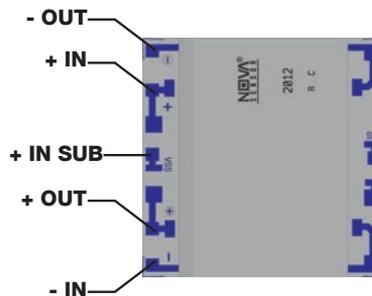
All wafers are shipped in protective containers. The wafers are sawn on sticky tape. All wafers are electrically probed and visually inspected. Electrical and visual rejects are marked with ink dots. Each wafer has the following information: part number, lot number, wafer number, and the number of good parts.

## Warrants

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 of fitness for a particular purpose shall apply.



P1905 Schematic Diagram



P1905 Wire Bond Diagram

Notes: Five (5) wire bonds are required.

Both +IN and +IN SUB need to be connected to the highest potential in the circuitry.

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