



P165

3F Medical Silicon Absolute Pressure Sensor Die

The NovaSensor P165 Medical Silicon Absolute Pressure Sensor Die is a piezoresistive pressure sensor die offered in a miniature 1150 x 725 μm die that is small enough for three French catheters.

The small size is made possible by NovaSensor's proprietary Silicon Fusion Bonding (SFB) process. When excited with an AC or DC voltage source, the P165 produces a mV output that is proportional to input pressure.

NovaSensor P165 is in a halfbridge design, where external resistors are needed to complete a full bridge configuration.

Features

- Very small in size
- Absolute pressure sensing
- Standard pressure range of 700 to 1050 mmHg (Absolute)
- AC or DC excitation
- 4000 mmHg burst limit

Applications

- IUP
- Intracranial
- Disposable Pressure Catheters
 - Intrauterine
 - Intracranial
 - Body

P165 Specifications

Performance Parameters ⁽¹⁾	Value ⁽⁴⁾	Units	Notes
Pressure Range	700 to 1050	mmHg	Absolute
Operating Temperature	50 to 122	°F	(10°C to 50°C)
Excitation	1 to 8	Volts	AC or DC
Zero Offset	±12.5	mV/V	2
Sensitivity	12 to 27	µV/V/mmHg	2
Linearity and Pressure Hysteresis	±2% of reading or ±1 mmHg whichever is larger	%FSO	3, 4
Temperature Coefficient of Zero	±40	µV/V / °C	Typical
Temperature Coefficient of Resistance	0.14	% / °C	Typical
Temperature Coefficient of Sensitivity	-0.15	%FSO/°C	Typical
Bridge Resistance	800 ± 20%	Ω	
Symmetry	-2 to 12	%	5
Burst Pressure	4000	mmHg	Absolute
Media Compatibility	Clean, dry and non-corrosive gases		6

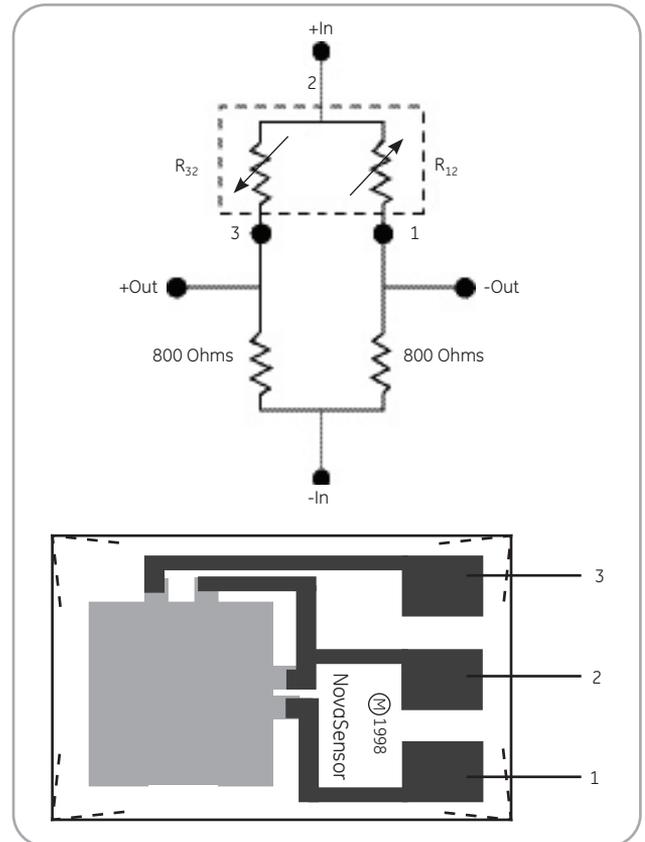
1. Values measured at 0.6 mA and 71.6°F (22°C) unless noted with 800 Ω resistor between +Out and -IN, and -Out and -IN. Die performance will vary depending on die attach material. The die attach material should be chosen to minimize package stress transmitted to the sensor die.
2. Zero offset and sensitivity at 750mmHg and 25C.
3. Extrapolated error at 300 mmHg by straight line through 0 and 100 mmHg pressure readings
4. Topside pressure.
5. Symmetry is the difference between the two bridge resistor values compared to the average of the two bridge resistors: $R_{symm} = 2 (R_{32} - R_{12}) / (R_{12} + R_{32}) * 100\%$
6. A protective coating must cover the sensor die for use with saline and other fluids.

Shipping And Handling

Wafers are shipped in protective plastic containers. The wafers are sawn on sticky tape with plastic rings. All sensor wafers are electrically probed, visually inspected. All rejects are marked by an ink dot. Each wafer will be labeled with the lot number wafer number, device number and the number of available sensor die.

Ordering Information

Part Number	Description
51477	3F, 300 mmHg Absolute



Die dimensions (l x w x h): 1150 µm x 725 µm x 190 µm,
Pad Size: 200 x 150 µm, Pad Material: Au
P165 schematic diagrams

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, nor does NovaSensor 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 particular purpose shall apply.

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