



P122

High Silicon Pressure Sensor Die

The P122 piezoresistive pressure sensors are offered in a miniature 0.10 in x 0.10 in (2.5 mm x 2.5 mm) die. When excited with 1.0 mA, the P122 produces a millivolt output that is proportional to input pressure. The P122 is available as an absolute pressure sensor where the media pressure is referenced to an internal vacuum sealed in the die. With NovaSensor's SenStable® process, the P122 will provide very good long-term stability and excellent repeatability.

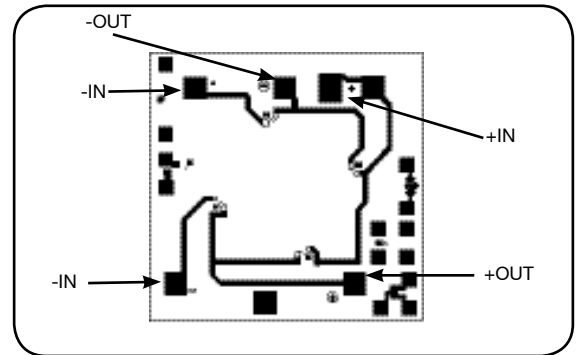
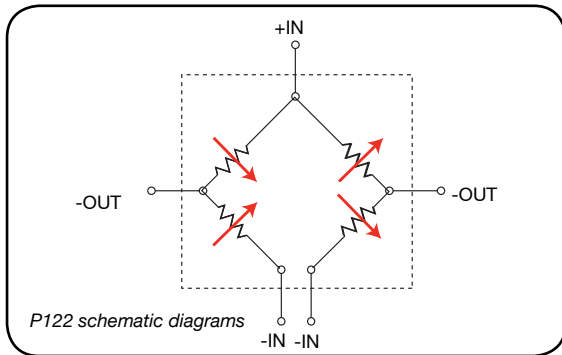
Features

- High reliability, solid state silicon pressure sensors
- Available in absolute pressure version
- Standard pressure ranges: 1700, 3500, 17000, 21000, 35000 and 70000 kPaA
- Nonlinearity < 0.25% FSO BFSL
- 2X overpressure limit

Applications

- Process control systems
- Pneumatic controls
- Biomedical instruments
- Hydraulic systems

P122 Specifications



Die dimensions: 0.10 in x 0.10 in x 0.08 in (2.5 mm x 2.5 mm x 2.0 mm)

Parameter	Value	Units	Notes
General			
Pressure Range	1700	KPaG	247 psi (17 bar)
	3500	KPaA	508 psi (35 bar)
	7000	KPaA	1015 psi (70 bar)
	17200	KPaA	2495 psi (172 bar)
	35000	KPaA	5076 psi (350 bar)
	21000	KPaA	3046 psi (210 bar)
Maximum Overpressure	2X		rated pressure
Electrical @ 25°C (77°F) unless otherwise stated			
Excitation	1.0	mA	10 VDC Max
Input Impedance	5000 ±20%	Ω	
Output Impedance	5000 ±20%	Ω	
Environmental			
Temperature Range			
Operating	-40 to 257	°F	(-40°C to 125°C)
Storage (undiced)	-67 to 302	°F	(-55°C to 150°C)
Mechanical			
Weight	0.00008	lb	(0.04 g)
Media Compatibility	Clean dry air, non-corrosive gases		
Performance Parameters (1)			
Zero Offset	±50	mV	1
Full Scale Output (FSO)	240 ±35	mV	6, 7
Linearity	±0.25	%FSO	2, 7
Pressure Hysteresis	±0.05	%FSO	7
Temperature Coefficient of Zero	±30	μV/V/°C	3, 7
Temperature Coefficient of Resistance	0.27	% /°C	3, 7
Temperature Coefficient of Sensitivity	-0.19	%/°C	3, 7
Thermal Hysteresis of Zero	0.2	%FSO	4, 7
Long Term Stability of FSO	0.2	%FSO	4

1. 0 KPaA for absolute sensors, 0 KPaG for differential or gage sensors.
2. Best fit straight line.
3. Typical values between 32°F and 158°F (0°C and 70°C).
4. Typical value over one year.
5. All values measured at 77°F (25°C) and 1 mA excitation, unless otherwise noted.
6. 133 ± 33 mV for 51009 and 51013, 285 ± 35 mV for 51243, 270 ± 35 mV for 51242
7. Not fully tested in production.

Shipping and Handling

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

Ordering Information

Part Number	Description
51009	1700 KPaG
51013	1700 KPaA
51003	7000 KPaA
51004	17000 KPaA
51243	21000 KPaA
51005	35000 KPaA
51242	35000 KPaA
51031	70000 KPaA

Minimum Release Quantity: 2 wafers or approximately 1100 die

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.

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