NOVA SENSOR

P111

Medium Silicon Pressure Sensor Die

Description

NovaSensor's P111 piezoresistive pressure sensors are offered in a miniature 0.10 in x 0.12 in (2.7 mm x 3.2 mm) die. When excited with 1.0 mA, the P111 produces a millivolt output that is proportional to input pressure. The P111 is available as an absolute pressure sensor where the media pressure is referenced to an internal vacuum sealed in the die. The P111 is also available as a differential and gage sensor. With NovaSensor's SenStable® process, the P111 will provide very good long-term stability and excellent repeatability. Sensor die have a 63 mil glass constraint layer. For thicker isolation constraint contact the factory.

Applications

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

Features

- Highly reliable, solid state silicon pressure sensors
- Available in absolute and differential versions
- Standard pressure ranges: 0 to 100, 0 to 200, and 0 to 700 kPa
- Nonlinearity < 0.25 %FSO
- 2X overpressure limit

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P111 Specifications

Parameter	Value	Units	Notes
General			
Pressure Range	100	KPa	-15 psi (-1 bar)
	200	KPa	-30 psi (-2 bar)
	700	KPa	-100 psi (-7 bar)
Maximum Overpressure	2X		rated pressure
Electrical @ 72°F (25°C) unless noted			
Excitation	1.0	mA	10 VDC Maximum
Input Impedance	5000 ±20%	Ω	
Output Impedance	5000 ±20%	Ω	
Environmental			
Temperature Range			
Operating	-40 to 257	°F	(-40°C to 125°C)
Storage	-67 to 302	°F	(-55°C to 150°C)
Mechanical			
Weight	0.00009	lb	(0.04 grams)
Media Compatibility	Clean dry air, non-corrosive gases		
Performance Parameters (1)			
	Value (6)	Units	Notes
Zero Offset	±50	mV	1
Full Scale (FS) Output	133 ± 33	mV	
Linearity	0.25	%FSO	2
Pressure Hysteresis	0.05	%FSO	
Temperature Coefficient of Zero	30	µV/ V / °C	3
Temperature Coefficient of Resistance	0.27	% /°C	3
Temperature Coefficient of Sensitivity	-0.19	%FSO/°C	3
Thermal Hysteresis of Zero	0.2	%FSO	3
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. 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.

Shipping and Handling

All wafers are shipped in protective containers. The wafers are sawn on sticky tape with plastic rings. All wafers are electrically probed and visually inspected. Samples from each wafer verify offset , FS output , and linearity. Electrical rejects are inked with red dots. Visual rejects are inked with blue dots. Each wafer will have the following information: Lot number, wafer number, device number, and the number of good dice.

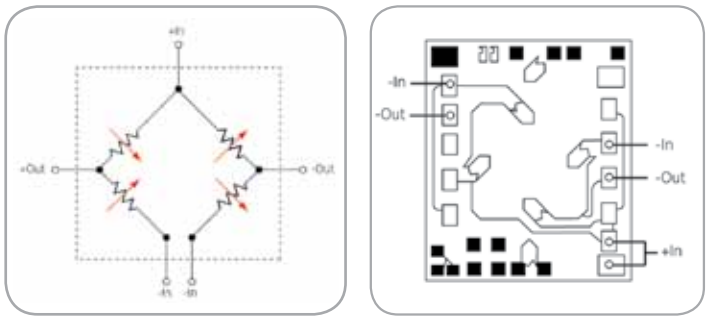
Warranty

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
51006	100 KPaD/G
51007	200 KPaD/G
51008	700 KPaD/G
51010	100 KPaA
51011	200 KPaA
51012	700 KPaA

Minimum Release Quantity: 2 wafers or approximately 900 die



Die dimensions: 0.10 in x 0.12 in x 0.07 in (2.7 mm x 3.2 mm x 2 mm)

P111 schematic diagrams

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