



P883

Medium and High Pressure MEMS Pressure Sensor Die

Description

The NovaSensor P883 die products utilize four piezoresistors combined in Wheatstone bridge circuit. When excited by either constant voltage or constant current, the P883 die produces a differential millivolt output signal directly proportional to the applied pressure. Available as gage (differential) or absolute, the P883 sensor die also features high sensitivity, excellent overload capability and small temperature hysteresis over a wide temperature range. The product is 100% visually inspected and electrically probed. Samples from each wafer are tested for resistance, sensitivity, linearity, offset, temperature coefficients and hysteresis.

Applications

- Process Control
- Automotive Systems
- Pneumatic Controls
- Hydraulic Systems
- Level Sensing

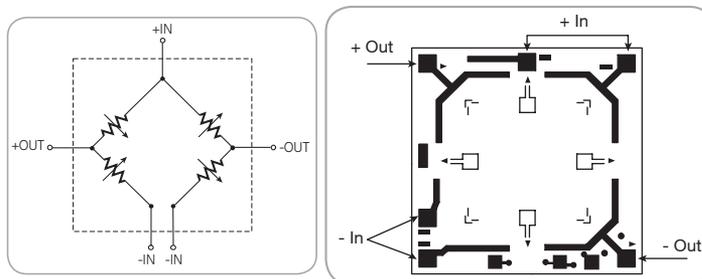
Features

- High Reliability MEMS sensor
- Available in absolute or gage (differential)
- Available with varying glass thickness or no glass at all (consult NovaSensor for more information)
- Designed to be temperature compensated using constant current or voltage
- NovaSensor's proprietary SenStable® process produces excellent long term stability
- Pressure ranges available from 5 to 15,000 psi.

P883 Specifications

Parameter		Value	Units	Notes
General				
Pressure	Differential only	5, 500	psig	
	Differential and absolute	15, 30, 70, 150, 300	psig / psia	
	Absolute only	1000, 1500, 3000, 5000, 10000, 15000	psig	
Maximum Pressure		2 x pressure, 5000-10000 psi		
Maximum Pressure		3 x pressure, 5-3000 psi		
Environmental				
Electrostatic damage (ESD) Class 1				MIL-STD 883 method 3015
Temperature Range				
Operating		-40 to 125	°C	-40°F to 257°F
Storage		-55 to 150	°C	-67°F to 302°F
Mechanical (1)				
Weight		0.04 grams		
Media Compatibility		Clean, dry air, and noncorrosive gases		
Electrical @ 25°C (72°F), 1.0 mA, and note 6 unless otherwise stated				
Excitation		1.0	mA	10 VDC max.
Input Impedance		5000 ± 20%	Ω	
Output Impedance		5000 ± 20%	Ω	
Zero Offset		±10	mV/V	1
Full Scale Output (FSO)	5 to 300 psi	133 ± 33	mV	5
	1000 to 5000 psi	150 ± 30	mV	
Linearity		± 0.25	%FSO	2, 6
Zero Pressure Repeatability		± 0.1	%FSO	1
Thermal Coefficient of Zero		± 5	μV/V/°C	3
Thermal Coefficient of Resistance		0.38	%/°C	3
Thermal Coefficient of Sensitivity		-0.19	%FSO/°C	3
Zero Thermal Repeatability		± 0.2	%FSO	4

- 0 kPaA for absolute sensors, 0 kPaG for differential or gage sensors.
- Best fit straight line.
- Between 32°F and 158°F (0°C and 70°C), typical
- Between -40°F and 257°F (-40°C and 125°C), typical
- 500 psig die has FSO 100 ± 25 mV; 10000 psia die has FSO 300 ± 40 mV; 15000 psia die has FSO 240 ± 35 mV.
- 5 psig (0.34 bar) linearity: 0.30 %FSO best fit straight line.



Die dimensions with 63 mil Glass:
0.08 in x 0.08 in x 0.08 in (2.1 mm x 2.1 mm x 2.0 mm)

P883 schematic and wirebond diagram

Shipping and Handling

All wafers are sawn on tape with plastic rings and are shipped in protective plastic containers. Electrical rejects and visual rejects are inked. Each wafer will have the following information: Lot #, Wafer #, Part #, and the number of good (yielded) die.

Warranty

NovaSensor warrants its products against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES. 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, including without limitation consequential or incidental damages.

Ordering Information

63 mil (1.60 mm) Glass – Standard			
Part Number	Gage / Abs.	Pressure range	
		Psi	Bar
51322	G	5	0.34
51323	G	15	1.03
51324	G	30	2.06
51325	G	70	4.82
51326	G	150	10.3
51327	G	300	20.6
51328	A	15	1.03
51329	A	30	2.06
51330	A	70	4.82
51331	A	150	10.3
51332	A	300	20.6
51405	G	500	34.5
51588	A	1000	68.9
51589	A	1500	103
51590	A	3000	206
51591	A	5000	345
	A	10000	689
51621	A	15000	1034

93 mil (2.36 mm) Glass – Optional			
Part Number	Gage / Abs.	Pressure Range	
		Psi	Bar
51333	G	5	0.34
51334	G	15	1.03
51335	G	30	2.06
51336	G	70	4.82
51337	G	150	10.3
51338	G	300	20.6
51339	A	15	1.03
51340	A	30	2.06
51341	A	70	4.82
51342	A	150	10.3
51343	A	300	20.6

Minimum release Quantity: Two wafers or approximately 2000 die

