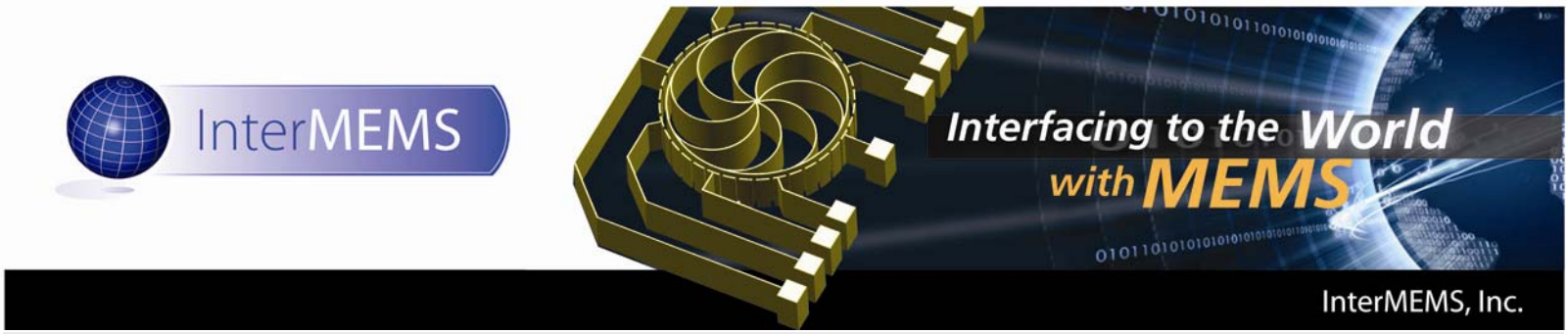


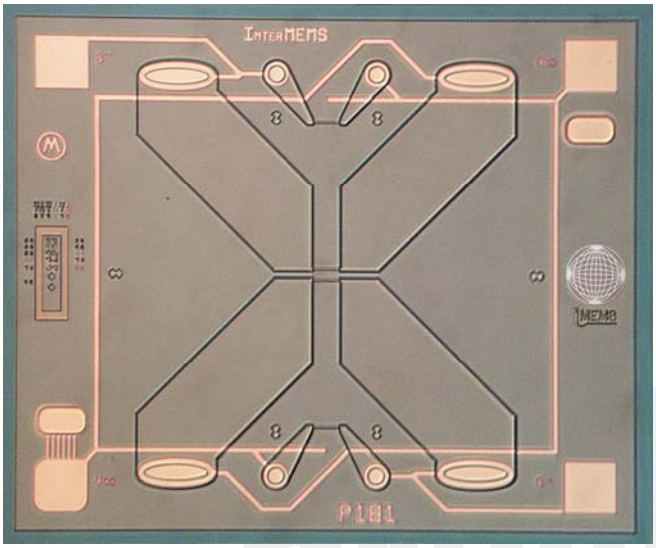
P181 Ultra Low Pressure Sensor Specification

Rev 1.4

10/15/08

Pressure Ranges Available

Range			Span
(Inches H_20)	(PSI)	(kPa)	(mV)
10	0.3	2.5	125
30	1	7.5	125
90	3	22.5	125
140	5	35	125



Product Description

The InterMEMS P181 Low Pressure Sensor incorporates a unique state of the art design bulk micro-machined silicon chip with thin Stress Concentration Bosses. It is targeted toward Level Sensing, Flow, and Medical applications where accurate and stable measurement of very low pressures, or flows are necessary. It eliminates virtually all of the traditional problems that plague other low pressure devices such as high Pressure Non-linearity, long and short term stability and repeatability, Position and Vibration sensitivity, Pressure Symmetry, and poor signal to noise ratio.

Absolute Maximum Ratings:

Parameter	Min.	Max.	Units
Storage Temperature	-55	150	˚ C
Operating Temperature	-40	125	˚ C
Excitation Voltage		10	Volts
Burst Pressure	300		In. H_2O
Proof Pressure		150	In. H_2O
Common Mode Pressure		50	PSI
Response Time		$1x10^{-3}$	Sec.

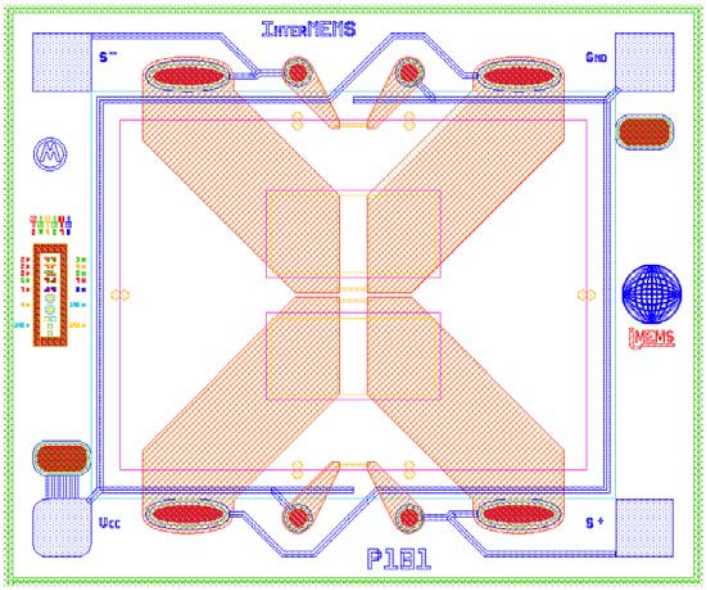
Warm up time		1	Sec.

Performance Specifications:

Parameter	Minimum	Typical	Maximum	Units
Full Scale Pressure	0		10	In. H_20
	0		30	In. H_20
	0		90	In. H_20
	0		140	In. H_20
Bridge Resistance (25ºC)	8	10[1]	12	kΩ
Full Scale ΔR	200	240	280	Ω
Full Scale Span[2]	100	125	180	mV
Offset Voltage	-20	±5	20	mV
Position Sensitivity[3]		0.05	0.1	%FSS
Nonlinearity[4]		0.1	0.25	%FSS
TCOffset[5]	-20	±5	20	μV/ºC
TCSpan	-2200	-2000	-1800	ppm / ºC
TCSNL[6]		0.25	1.0	%FSS
TCR	2800	3000	3200	ppm / ºC
TCRNL[7]		0.5	1.0	%FSS
Pressure Hysteresis[8]	-0.05	±0.025	0.05	%FSS
Offset Thermal Hysteresis[9]	-0.1	±0.05	0.1	%FSS
Noise[10]	-0.1	±0.05	0.1	%FSS
Vibration Sensitivity[11]		0.1	0.5	%FSS

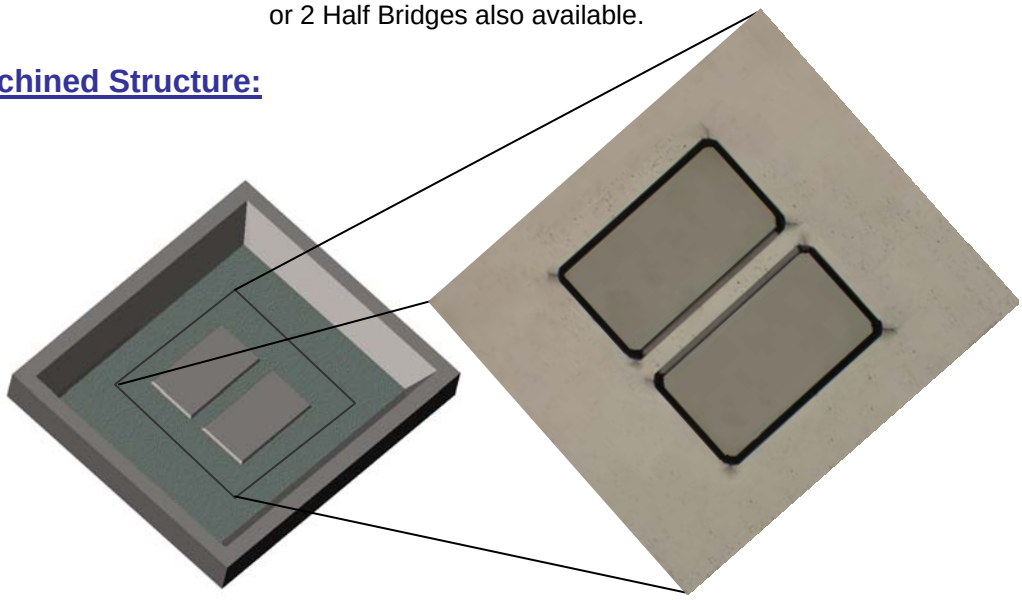
[1] A Nominal Bridge Resistance of 5kΩ, 10kΩ, or 15kΩ can be provided on request.
[2] All Full Scale Pressure Ranges have the same nominal Span. e.g. a 10X turndown of the 10in. H_2O range, to 1in. H_2O (.03 psi) would still yield a span of 16.5 mV
[3] Position Sensitivity is defined as the change in % Full Scale Span (%FSS) due to a change from +1g to -1g or vice-versa. i.e. the change in output due to flipping the die from right side up to upside down.
[4] Terminal Based Nonlinearity (TBNL), which is actually half of the same numerical specification for BFSL.
[5] Change in Offset voltage over temperature, due to changes in residual stress over temperature.
[6] Terminal based nonlinearity in TCS curve over operating temperature range.
[7] Terminal based nonlinearity in TCR curve over operating temperature range.
[8] Measured as the difference (in %FSS) from the initial Offset and the Offset after pressurizing to 0 pressure, Full Pressure and returning to 0 Pressure. The Pressure Hysteresis is the difference between the initial Offset and the Offset after all pressure excursions and returning to 0.
[9] Measured as the difference in initial and Final Offset after thermal cycling from 25ºC to 125ºC to 25ºC to -40 ºC and finally returning to 25ºC.
[10] Based on noise signal in V_{p-p} , measured in controlled Noise environment with no pressure applied.
[11] The change in output, due to a sinusoidal vibration of ±1g, perpendicular to the top surface of the die.

Chip Layout



5mm x 6mm x 5.5mm
0.5 mm Bond Pads
Pad coordinates available on Request
Metallization Options for open Bridge,
or 2 Half Bridges also available.

Unique Micro-machined Structure:



Backside Cavity Etch & Close-up of Thin Stress Concentration Bosses

for Enhanced Linearity with Virtually no Position or Vibration Sensitivity.