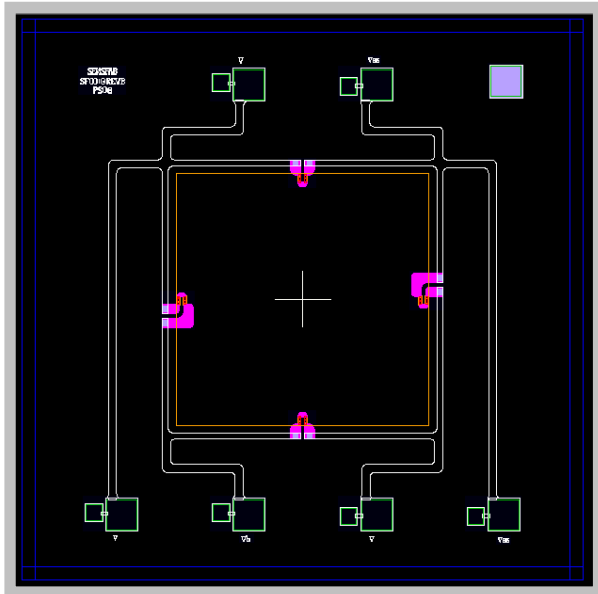
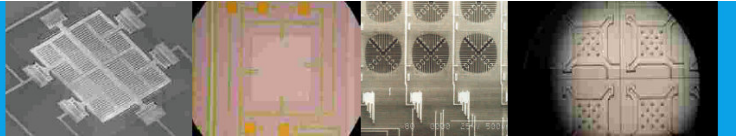


MTPD-001G-06S

Uncompensated Pressure Sensor Die



The MTPD001 series piezoresistive pressure sensor dies are manufactured on six inch silicon wafers in a class 100 clean room using a state-of-the-art 1.2 micron CMOS facility and are then bulked micro-machined in a class 1000 clean room. The wafers are batch manufactured using an electrochemical etch-stop process to achieve excellent repeatability.

Applied pressure deforms a diaphragm causing piezoresistors to change their resistance. This change in four resistors, which constitute a Wheatstone Bridge, results in a pressure-proportional voltage.

Dies are probed, inked, diced, visually inspected and shipped on tapes, in rings or in wafer packs. Dies can be mounted on ceramic or PCB substrates or packaged in application specific packages for measuring pressure in non-corrosive media.

FEATURES

- Measure positive & negative pressure
- Piezoresistive bridge
- Surface passivation
- Solid state
- High reliability, sensitivity
- Optimally sized for application
- Low cost design
- Meets industry specifications
- 6" wafer availability
- 100% factory tested
- Excellent repeatability
- Rated pressure of sensor
 - ✓ 0 to 1 psi

THE MAIN FIELDS OF APPLICATION

- ✓ Air flow monitoring
- ✓ Process control monitoring
- ✓ Medical instrumentation
- ✓ HVAC

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MEMSENZ™ III
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MEMSENZ™ IV
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MTPD-001G-06S

Uncompensated Pressure Sensor Die

TECHNICAL DATA

Maximum ratings

Specification	Min.	Typ.	Max.	Unit
Operating Temperature	-40	-	+125	°C
Storage Temperature	-50	-	+150	°C
Supply Voltage	-0.3	5	6.5	V
Operating Current	-	0.7	-	mA

Data

Temperature=22±2°C, Relative humidity=45±5%, Supply voltage=5V

Specification	Min.	Typ.	Max.	Unit
Operating Temp. Range	-40	-	+125	°C
Operating Pressure Range	0	-	6.8947	kpa
Max. Pressure	0	-	27.7	In.H ₂ O
	0	-	1	psi
	0	-	51.7	mmHg
	0	-	0.07	Bar
	350	-	-	kpa
Zero Pressure Offset Voltage	51	-	-	psi
	2624	-	-	mmHg
	1411.7	-	-	In.H ₂ O
	3.5	-	-	bar
	-4	0	+4	mV/V
Sensitivity	67	100	134	µV/V/mmHg
Span	3.5	5.2	6.9	mV/V/psi
	0.5	0.7	1.0	mV/V/kpa
	253	377	504	mV/bar
	17	26	35	mV
Non Linearity	-	-	±0.75	%Span
Bridge Resistance (see note 5)	4500	5000	5500	Ω
TCO	-25	0	+25	µV/V/°C
TCR	1900	2300	2700	ppm/°C
TCS	-1800	-2200	-2600	%/°C

- Supply voltage DC and AC up to 5kHz, V_{pp} = 10V ± 0.1 VDC
- Current is linear in full range
- Total error at half span is based on the difference between half span measurement and a straight line projection over the span of the device where

$$NL(\%) = \frac{O(\frac{s}{2}) - \frac{O(0)+O(s)}{2}}{O(\frac{s}{2})} \times 100$$

- Top side pressure application
- Resistance is measured by sourcing a constant current of 0.7mA
- Parameters (except zero pressure offset which is measured directly) are computed from individual piezo-resistance measurements made at different pressures under application of a current of 0.7mA, which represents the typical operating conditions
- TCO, TCR & TCS are tested from 0°C to 50°C

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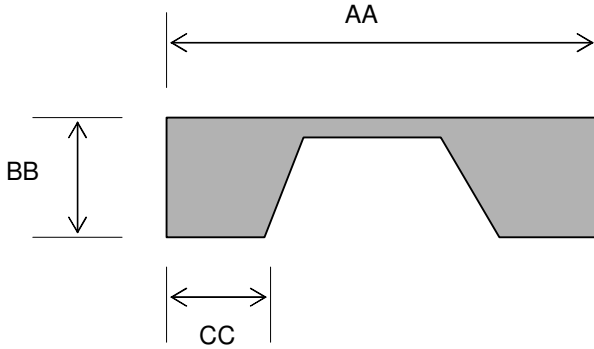
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MTPD-001G-06S

Uncompensated Pressure Sensor Die

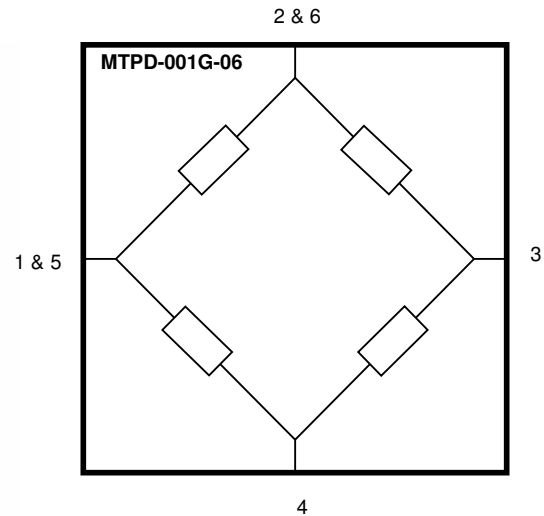
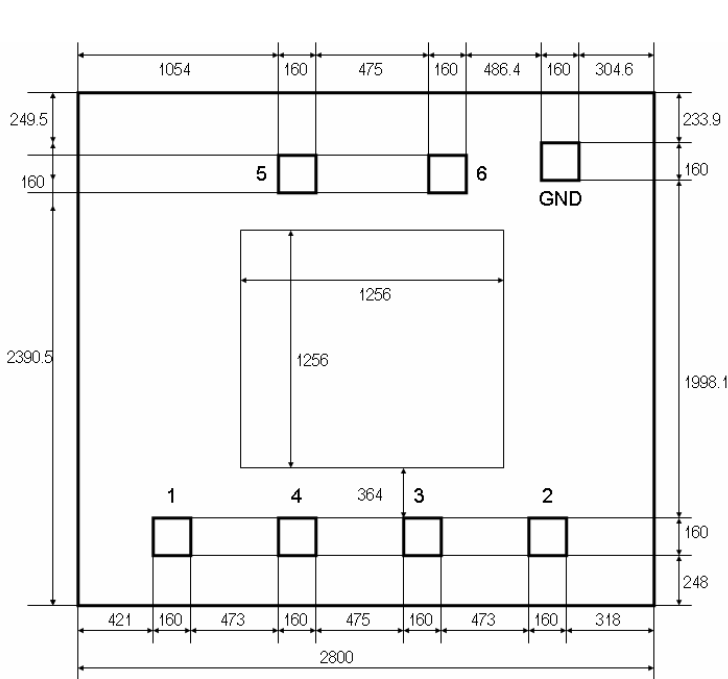
DIMENSIONS



Dim.	Typical	Tolerance	Units
AA	2800	± 0.33	µm
BB	541	± 10	µm
CC	400	± 2.33	µm
Dicing process	60	± 15	µm

Note: Dimension AA & CC are prior to dicing process.

ELECTRICAL AND DIE LAYOUT



Pad	Symbol	Description
1	$V_{out -}$	Output voltage
2	$V_{ss +}$	Supply voltage
3	$V_{out +}$	Output voltage
4	$V_{br -}$	Supply voltage
5	$V_{out -}$	Output voltage
6	$V_{ss +}$	Supply voltage
GND	GND	Ground

Note

- All dimensions are in µm.
- Mask fabrication tolerance of ±0.3µm
- Design fabrication tolerance of ±0.03µm

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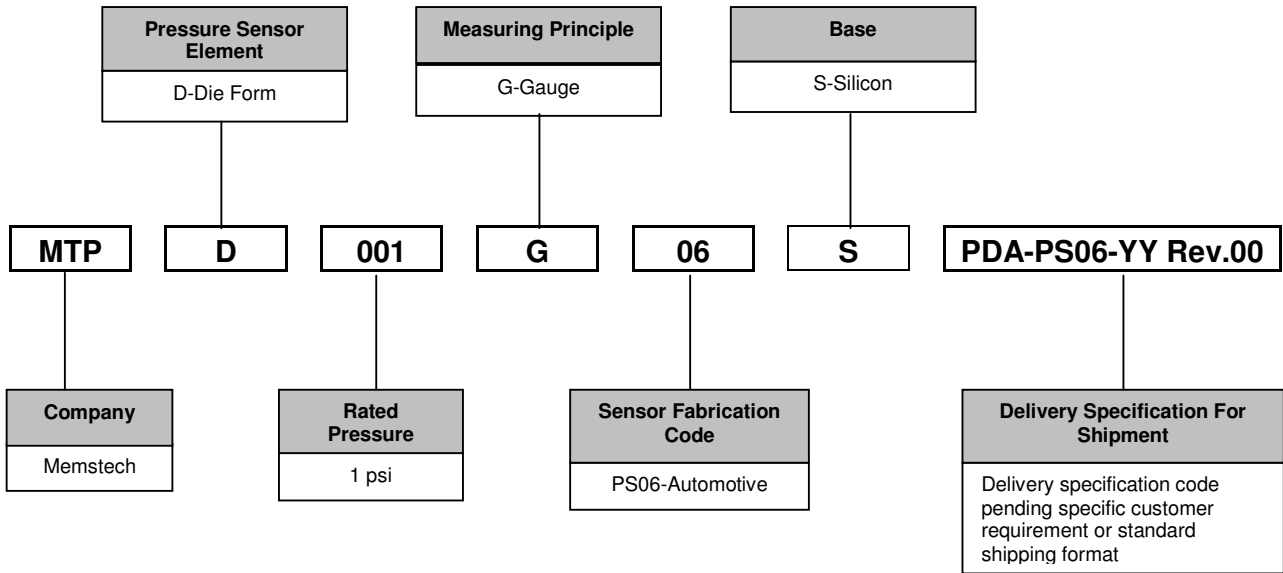
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MTPD-001G-06S

Uncompensated Pressure Sensor Die

HOW TO SPECIFY PART NUMBER



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Email: bkpatmon@memstech.com **Website:** www.memstech.com

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