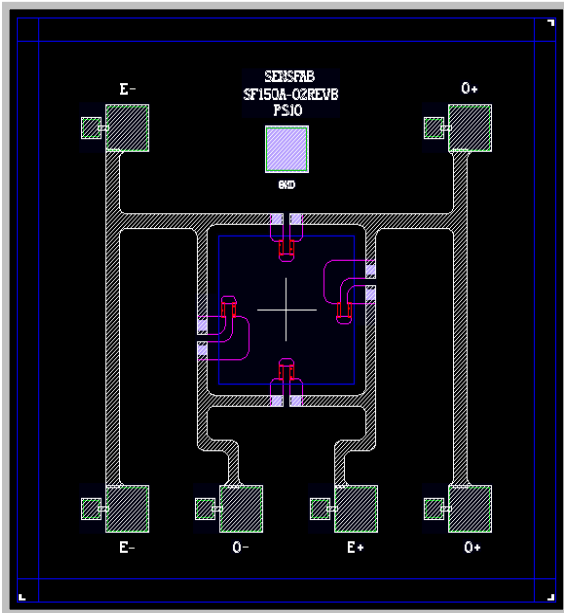
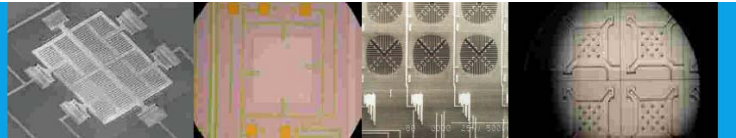


MTPD-100A-12G

Uncompensated Pressure Sensor Die



The MTPD100 series piezo-resistive 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 piezo-resistors to change their resistance. This change in four resistors, which constitute a Wheat Stone Bridge, results in a pressure-proportional voltage.

Die are probed, inked, diced and 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

- Piezo-resistive bridge
- Solid state
- High reliability
- Optimally sized for application
- Low cost design
- Meets industry specifications
- 6" wafer availability
- 100% factory tested
- Excellent repeatability
- Rated pressure of sensor 0 to 100 psi

THE MAIN FIELD OF APPLICATIONS

- ✓ Automotive
- ✓ Digital tire pressure gages
- ✓ Pneumatic gauges
- ✓ Marine
- ✓ Industrial applications
- ✓ Test and measurement

MEMSENZ™ I
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 Capacitive
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 Signal Condition
 Two chips/Single chip

MEMSENZ™ II
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 Piezoresistive
 Processing Technology
 Bulk/Deep Wet Etch
 Actuation Mechanism
 Pressure (External)
 Signal Condition
 Two chips/Single chip

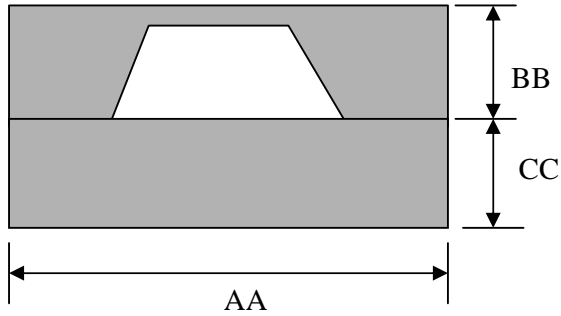
MEMSENZ™ III
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 Processing Technology
 Surface
 Actuation Mechanism
 Thermal
 Signal Condition
 Two chips

MEMSENZ™ IV
 Transduction Principle
 Capacitive
 Processing Technology
 Bulk
 Actuation Mechanism
 Sound
 Signal Condition
 Two chips

MTPD-100A-12G

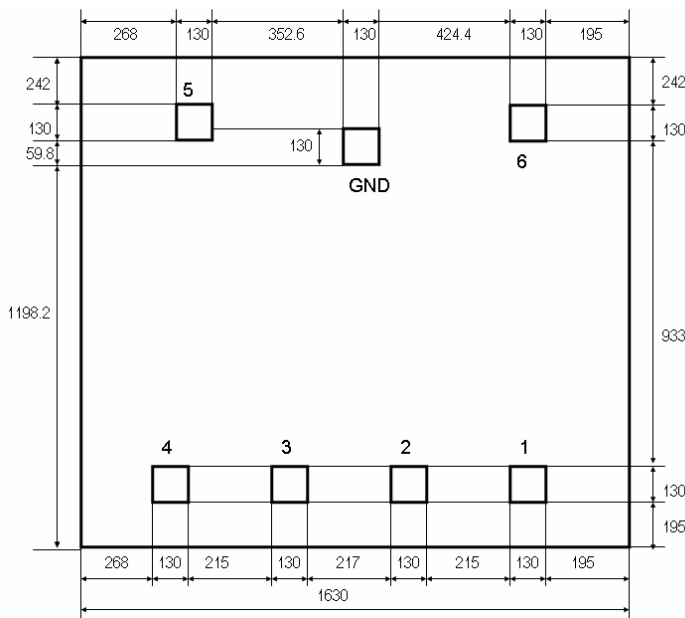
Uncompensated Pressure Sensor Die

DIMENSIONS

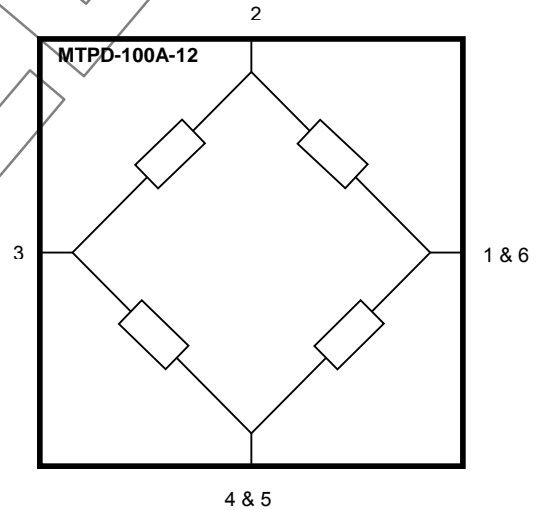


Dim.	Typical	Units
AA	1530	μm
BB	397	μm
CC	700	μm

ELECTRICAL AND DIE LAYOUT



* Note all dimensions are in microns.



Pad	Symbol	Description
1	O+	Output voltage
2	E+	Supply voltage
3	O-	Output voltage
4	E-	Supply voltage
5	E-	Supply voltage
6	O+	Output voltage
GND	GND	Ground

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Uncompensated Pressure Sensor Die

TECHNICAL DATA – Using constant current source of 0.7mA

Maximum ratings

Specification	Min.	Typ.	Max.	Unit
Operating Temperature	-40	-	+125	°C
Storage Temperature	-40	-	+125	°C
Supply Voltage	+1	5	+10	V
Operating Current	-	0.7	-	mA

Data

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

Specification	Min.	Typ.	Max.	Unit
Constant current	-	0.7	-	mA
Operating Pressure Range	0	-	100	psiA
	0	-	5170	mmHg
	0	-	689	kpa
	0	-	6.9	bar
Max. Pressure	-	500	-	psiA
	-	25,850	-	mmHg
	-	3447	-	kpa
	-	34.5	-	bar
Zero Pressure Offset Voltage (before bonding)	-15	0	+15	mV
Sensitivity	3.9	5.8	7.8	µV/V/mmHg
	0.2	0.3	0.4	mV/V/psi
	0.03	0.04	0.06	mV/V/kpa
	15	22	29	mV/bar
Full Scale Span	100	150	200	mV
Non Linearity	-1	0	+1	%FS
Bridge Resistance	4500	5000	5500	Ω
TCO	-36	-8	20	µV/V/°C
TCR	1100	1210	1320	ppm/°C
TCS	-76	-5	67	%FS/100°C

- Supply voltage DC and AC up to 5kHz, $V_{pp} = 10V \pm 0.1 VDC$
- 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
- Testing pressure range from 0-12.5psi
- 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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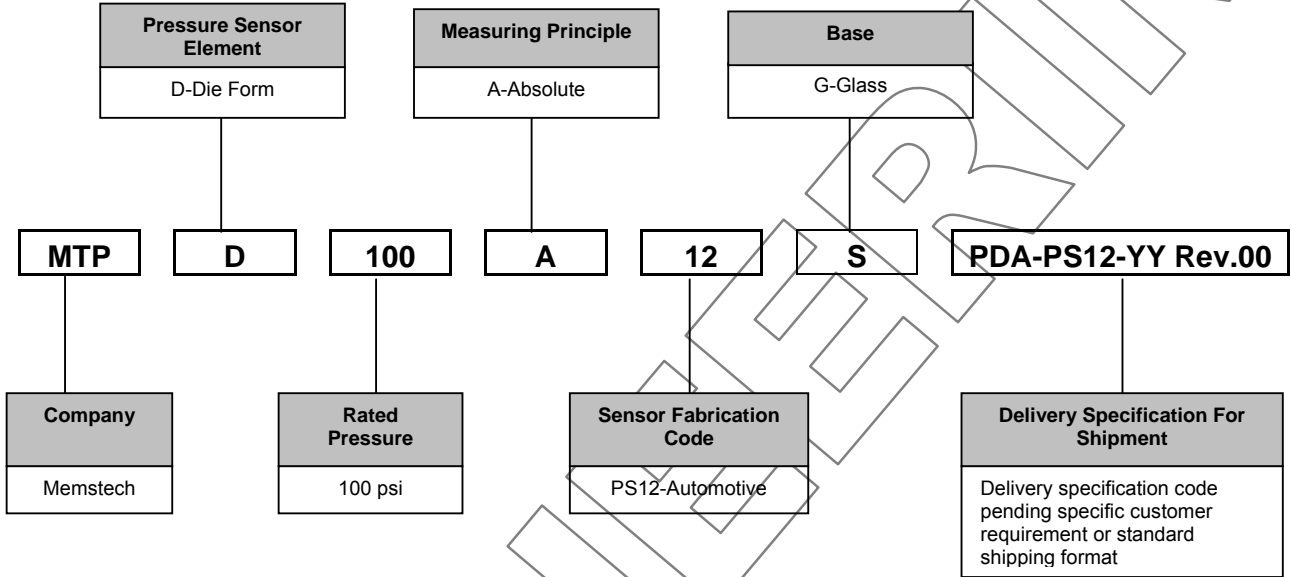
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MTPD-100A-12G

Uncompensated Pressure Sensor Die

HOW TO SPECIFY PART NUMBER



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Website: www.memstech.com

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