



## **SILICON MICROSENSORS FOR FINE PRESSURES for Differential measurement - 701x series on TO Headers**

### • **DESCRIPTION**

The silicon microsensor 701 series ( SmPs 701s) is a differential fine pressure sensor to detect the pressure by the change of the resistivity of a silicon resistor when an external mechanical stress is applied (in this case: pressure). The micromachine piezoresistive silicon pressure sensors chip line with a pressure proportional voltage output signal

Our design concept have been optimized according to the application and technologies allow high accuracy measurements of differential pressure.

The silicon diaphragm is processed to the order of microns utilizing the state of the art micro-machining technology.

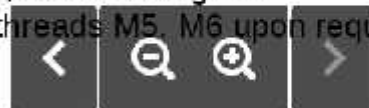
The design was made in COVENTOR, the technological steps have a number of 4 masks used to configure the layers (silicon nitride, silicon dioxide, metals, etc.)

The membrane has 1x1 mm<sup>2</sup> and the overall chip is 3x3 mm<sup>2</sup>. The pressure sensor is integrated in CMOS technology adding special micromachining processes. The application of pressure is done on both sides of the diaphragm for their use as gauge sensor or for differential pressure.

The dies are probed and shipped on taps or in waffle packs

### **FEATURES**

- Low cost and compact size
- Small linearity error
- High sensitivity, reliability and stability
- For current and voltage supply.
- RoHs compliant
- Piezoresistive bridge
- **Measured media at the front cap resp.filling pipe of header**
- Air nonaggressive process gases (moisture 0-85% r.h.) without dew, silicon oil.
- Not suitable for substances which react to glass,silicon, nickel, stainless steel, gold aluminium and silicon gel.
- **Measured media at the back (vent hole )**
- Air process gases( moisture 0-100 r.h% )
- Water, oil, petroleum,
- Not suitable for substances which react to glass, silicon and gold.
- Pressure connection via tube fitting or various threads M5, M6 upon request
- Easy PCB mounting
- Low current consumption
- Low noise
- PTC temperature sensor upon request.



### MAIN CHARACTERISTICS

- APPLICATIONS**
- ✓ Domestic appliances
  - ✓ Medical technology
  - ✓ Altitude measurement
  - ✓ Environmental protection
  - ✓ Industrial controls
  - ✓ Automotive
  - ✓ Custom & semi-custom specification

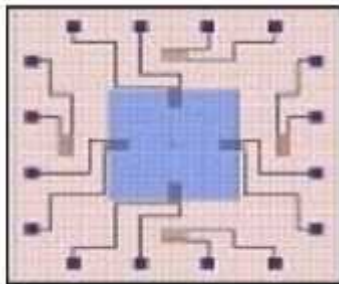
Characteristics	Minimum	Typical	Maximum	Unit
Pressure range	0		10	Milibar
Overpressure endurance	80			Milibar
Full scale output (5V supply, Wheatstone bridge)	13	14	15	mV
Zero pressure offset	0	0.1	0.15	mV
Overall accuracy	1.5		1.5	% F.S. span
Linearity		0.3		% F.S. span
Si Membrane Size		1.0		mm <sup>2</sup>

### Electrical Characteristics

At  $U_{supply} = 5V$ ,  $T_0 = 25^\circ C$ , unless otherwise specified

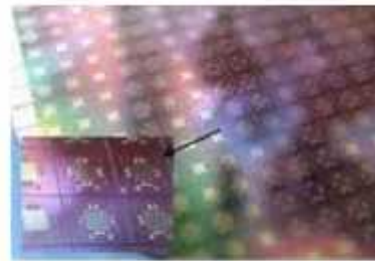
Parameter	Min.	Typ	Max	Unit
Bridge resistance (10)	4,0	5,0	8,0	k $\Omega$
Offset voltage	25	0	+25	mV
Temperature coefficient of offset KLP 035... KMP 002,5	-0,08	-	0,08	%K
Temperature coefficient of output span 3	-0,20	-0,17	-0,14	%K
Temperature coefficient of bridge resistance 3	+0,06	+0,12	+0,14	%K
Pressure-hysteresis		<0,1		$\pm$ % F.S.S.
Temperature-hysteresis of V.3 KLP 035...KMP 400	-0,3	-	+0,3	F.S.S.
Linearity error	-	<3,0	<0,5 (<1,0) t.b.d.	% F.S.S.

Fixed point setting; Pressure applied onto chip face; 3 Measured from 25°C to 85°C

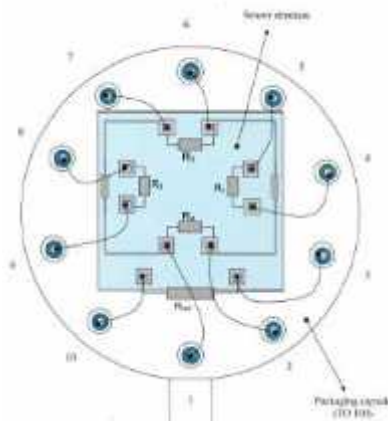


Terminal pads assignment

Connection plan



Silicon wafer with sensors chips ( see detail )



Component delivery form