

ABSTRACT**CMOS COMPATIBLE INTEGRATED PRESSURE SENSOR**

A pressure sensor fabricated onto a substrate using conventional CMOS fabrication processes. The pressure sensor is built on a substrate having a first conductivity type and has defined in it a well of an opposite conductivity type. This well defines a membrane. Resistors are diffused into the well. Source/drain regions are provided for leadouts for the resistors. An n-cap is provided for the resistors. Metalization contacts may be provided to connect the membrane to a positive bias during a membrane etching process. A cavity is provided on the underside of the substrate through which pressure is applied to the membrane. Signal conditioning circuitry, such as an operational amplifier, may also be fabricated on the same substrate preferably using the same IC processes. A pressure sensor according to the present invention may be fabricated using the following process:

1. in a substrate having a first conductivity type, implanting a region having a second, opposite conductivity type to form a well;
2. in the well, implanting impurities to form one or more resistors;
3. doping a portion of the well and resistors to form source and drain regions;
4. implanting impurities having the second conductivity type over a surface of the well and resistors;
5. forming metal contacts connected to the well; and

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6. forming a cavity on the underside of the sensor by applying an electrical bias of the first conductivity type on the well via the contacts and etching the substrate, defining in the well a membrane having precise thickness.

FIG. 4F

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