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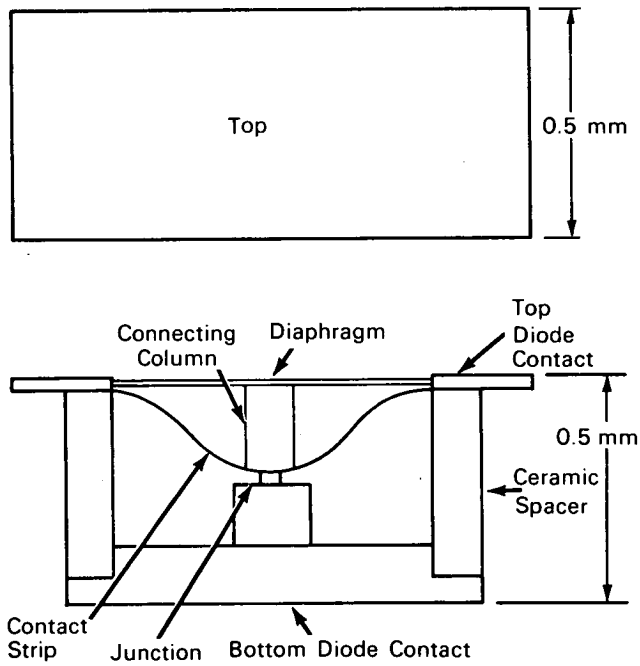
NASA TECH BRIEF

Miniature Backward-Diode Pressure Sensor Features Stability and Low Power Consumption



Backward-Diode Pressure Sensor

The pressure sensitivity of degenerate semiconductor junctions has recently been utilized very effectively in miniature pressure sensors (transducers).

Investigations of the tunnel diode as a pressure transducer (see Tech Brief 68-10563) proved that a shunting resistor was necessary to eliminate the negative resistance. Negative resistance can cause unwanted oscillation and makes it difficult to bias the tunnel diode at the peak-current point. Addition of a shunt resistor solves the problem at the expense of greater package volume and added fabrication steps.

Use of a backward diode avoids the difficulties mentioned above, because it does not exhibit negative resistance. The backward-diode pressure transducer retains the advantages of a tunneling mechanism, requires no shunting resistor, operates at a low voltage level, and consumes little power.

Because of its exceedingly small size, this device may be valuable in biomedical and other applications requiring miniature pressure sensors.

Note:

Request for further information may be directed to:

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Reference: TSP69-10690

Patent status:

Inquiries about rights for commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546

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