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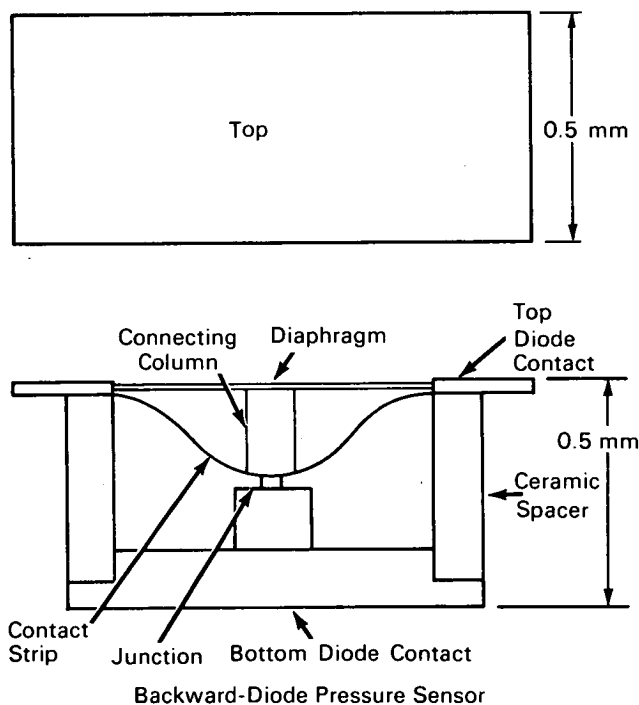
Brief 69-10690

# NASA TECH BRIEF



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



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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 (ERC-10229)

Category 01