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(54) Title: PIEZORESISTIVE STRAIN CONCENTRATOR

(57) Abstract: A piezoresistive strain concentrator that converts mechanical movement into electrical output and a process for fabricating the concentrator are provided. The device includes a strain sensing structure composed of a piezoresistive strain sensitive element that spans a gap in a substrate. The strain sensing structure is supported on a strain concentrating structure also spanning the gap that has vertical walls extending to a cross-section at the base of the gap, both structures being etched from the substrate. The structure of the strain-concentrating support for the strain sensitive element is fabricated by deep reactive ion etch (DRIE). The strain sensing structure has an increased sensitivity, a low gage factor and an increased resistance to buckling and fracture compared to previous strain gage structures. Several of the strain sensing structures can be connected in a sequence in a bridge circuit.



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