Design and Fabrication of a Micro Pressure Sensor

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ABSTRACT

ABSTRACT The purpose of this paper is to apply Surface Micromachining of MEMS techniques to manufacture a micro flexible piezoresistive pressure sensor. Micro sensors not only have a smaller physical size than their traditional counterparts, but also provide a greater measurement accuracy and a higher sensitivity. MEMS components integrate with measured circuit or devices and miniature dimension is easier to get well to be conveniently portable. In this study, a platinum layer is deposited to form resistors and a Au layer is deposited on the resistors to serve as an electrode and to provide electrical leads, which are sandwiched between two polyimide layers as flexible substrates. Then we manufacture a bottom plate of PDMS which be broached five different diameters of holes. When we apply a weight on the pressure sensor placed on the PDMS, bottom plate we can measure the resistance variation to determine the pressure. The experimental data indicate that sensing sensitivity increases with the diameters of holes of PDMS plates and the applied pressure. Therefore it is easily to measure pressure by simplified structure and characters of materials. Keywords ：polyimide，press sensor，PDMS，MEMS

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