International J.of Multidispl.Research & Advcs. in Engg.(IJMRAE), ISSN 0975-7074, Vol. 6, No. II (April 2014), pp. 73-81

SIMULATION OF DIFFERENT MEMS PRESSURE SENSORS

VINAY SHETTAR, SNEHA B. KOTIN, KIRANKUMAR B. B. AND B. G. SHEEPARAMATTI

Dept. of ECE, Basaveshwar Engineering College, Bagalkot 587103, India.

Abstract

MEMS(Micro-ElectroMechanical Systems) pressure sensors are designed to operate in linear range and presently the most widely used devices. MEMS pressure sensors have gained popularity in automotive, biomedical and industrial applications. In this paper, the design and simulation of capacitive, piezoelectric and piezoresistive MEMS pressure sensors are proposed. The piezoelectric sensor is composed of Lead Zirconate Titanate(PZT-5A), piezoresistive pressure sensor is composed of n-Silicon(single-crystal, lightly doped) and p-Silicon(single-crystal, lightly doped), the capacitive pressure sensor is composed of SiC(6H) these pressure sensors deflects due to applied pressure from 0 to 2MPa over it are accounted. The modelling and simulation is carried out for different MEMS Pressure sensors using COMSOL Multiphysics a MEMS modelling and simulation software.

 Keywords : MEMS capacitive pressure sensor, piezoelectric pressure sensor, piezoresistive pressure sensor, COMSOL Multiphysics.

 © http://www.ascent-journals.com
