

다결정 3C-SiC 마이크로 공진기의 온도 특성

류경일, 정귀상

울산대학교

Fabrication of Pd/poly 3C-SiC Schottky diode hydrogen sensors

Kyong-Il Ryu and Gwi-Sang Chung

University of Ulsan

Abstract : This paper describes the temperature characteristics of polycrystalline 3C-SiC micro resonators. The 1.2 μm and 0.4 μm thick polycrystalline 3C-SiC cantilever and doubly clamped beam resonators with 60 ~ 100 μm lengths were fabricated using a surface micromachining technique. Polycrystalline 3C-SiC micro resonators were actuated by piezoelectric element and their fundamental resonance was measured by a laser vibrometer in vacuum at temperature range of 25 ~ 200 $^{\circ}\text{C}$. The TCF(Temperature Coefficient of Frequency) of 60, 80 and 100 μm long cantilever resonators were -9.79, -7.72 and -8.0 ppm/ $^{\circ}\text{C}$. On the other hand, TCF of 60, 80 and 100 μm long doubly clamped beam resonators were -15.74, -12.55 and -8.35 ppm/ $^{\circ}\text{C}$. Therefore, polycrystalline 3C-SiC resonators are suitable with RF MEMS devices and bio/chemical sensor applications in harsh environments.

Key Words : Polycrystalline 3C-SiC, resonator, cantilever, doubly clamped beam