

양단이 고정된 빔형 다결정 3C-SiC 마이크로 공진기의 특성

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Characteristics of poly 3C-SiC doubly clamped beam micro resonators

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Abstract : This paper describes the characteristics of polycrystalline 3C-SiC doubly clamped beam micro resonators. The polycrystalline 3C-SiC doubly clamped beam resonators with 60 ~ 100 μm lengths, 10 μm width, and 0.4 μm thickness were fabricated using a surface micromachining technique. Polycrystalline 3C-SiC micro resonators were actuated by piezoelectric element and their fundamental resonant frequency was measured by a laser vibrometer in vacuum at room temperature. For the 60 ~ 100 μm long cantilevers, the fundamental frequency appeared at 373.4 ~ 908.1 kHz. The resonant frequencies of doubly clamped beam with lengths were higher than simulated results because of tensile stress. Therefore, polycrystalline 3C-SiC doubly clamped beam micro resonators are suitable for RF MEMS devices and bio/chemical sensor applications.

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