고온 가스센서용 Pd-다결정 3C-SiC 쇼트키 다이오드의 특성

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Characteristics of Pd/polycrystalline 3C-SiC Schottky diodes for high temperature gas sensors

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Abstract : This paper describe the fabrication of a Pd/polycrystalline 3C-SiC schottky diode and its characteristics, in which the polycrystalline 3C-SiC layer and Pd Schottky contact were deposited by using APCVD and sputter, respectively. Crystalline quality, uniformity, and preferred orientations of the Pd thin film were evaluated by SEM and XRD, respectively. Pd/poly 3C-SiC Schottky diodes were fabricated and characterized by I-V and C-V measurements. Its electric current density Js and barrier height voltage were measured as 2×10^{-3} A/cm^2 and 0.58 eV, respectively. These devices were operated until about 400℃. Therefore, from these results, Pd/poly 3C-SiC Schottky devices have very high potential for high temperature chemical sensor applications.

Key Words : Polycrystalline 3C-SiC, Schottky diode, high temperature, chemical sensors