Bottom Collector와 단일 금속층 구조로 설계된 SiGe HBT의 전기적 특성

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Structure and Electrical Properties of SiGe HBTs Designed with Bottom Collector and Single Metal Contact

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Abstract : This paper presents the electrical properties of SiGe HBTs designed with bottom collector and single metal layer structure for RF power amplifier. Base layer was formed with graded-SiGe/Si structures and the collector place to the bottom of the device. Bottom collector and single metal layer structures could significantly simplify the fabrication process. We studied about the influence of SiGe base thickness, number of emitter fingers and temperature dependence (< 200℃) on electrical properties. The feasible application in 1~2GHz frequency from measured data BV_{CEO} ~10V , f_T~14 GHz, β ≃ 110, NF~1 dB using packaged SiGe HBTs. We will discuss the temperature dependent current flow through the e-b, b-c junctions to understand stability and performance of the device.

Key Words : SiGe; HBT; DC characteristic; temperature dependency;

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