

عنوان مقاله:

A Novel SOI MESFET by Implanted N Layer (INL-SOI) for High Performance Applications

محل انتشار:

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خلاصه مقاله:

This paper introduces a novel silicon-on-insulator (SOI) metal-semiconductor field-effect transistor (MESFET) with an implanted N layer (INL-SOI MESFET) to improve the DC and radio frequency characteristics. The DC and radio frequency characteristics of the proposed structure are analyzed by the ۲-D ATLAS simulator and compared with a conventional SOI MESFET (C-SOI MESFET). The simulation results show that the proposed structure has an excellent effect on the driving current. The breakdown voltage of the INL-SOI MESFET structure gets a ۳۳.۳۳% enhancement when compared with that of the C-SOI MESFET structure. Other main characteristics such as maximum output power density, maximum oscillation frequency, and maximum available gain have been evaluated and improved in the proposed structure.

کلمات کلیدی:

maximum available gain, maximum oscillation frequency, silicon on insulator (SOI), MESFET

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