Abstracts

Monolithic Integration of AlGaAs/GaAs HBT and GaAs Junction-Gate Floated Electron Channel Field Effect Transistor Using Selective MOCVD Growth

H. Shin, J.-H. Son and Y.-S. Kwon. "Monolithic Integration of AlGaAs/GaAs HBT and GaAs Junction-Gate Floated Electron Channel Field Effect Transistor Using Selective MOCVD Growth." 1996 Microwave and Guided Wave Letters 6.9 (Sep. 1996 [MGWL]): 317-319.

A novel GaAs BiFET structure based on AlGaAs/GaAs HBT and GaAs junction-gate floated electron channel field effect transistor (J-FECFET) has been developed. Selective metalorganic chemical vapor deposition (MOCVD) growth is extensively used for the BiFET. Structural advantage of the BiFET is that the epitaxial layers of J-FECFET is identical with the lower part of a conventional heterojunction bipolar tranistor (HBT). Transconductance of the fabricated J-FECFET with 1 x 200 μm^2 gate is 102 mS/mm with f/sub T/ and f/sub MAX/ of 10.7 GHz and 27.3 GHz, respectively. DC current gain of HBT is 21 at a collector current density of 50 KA/cm^2 with emitter area of 3 x 2 μm^2. The new integration technology offer a foundation for development of various multifunction monolithic microwave integrated circuits (MMIC's).

❑ Return to main document.