

Thesis Title	Analysis and Design of Analog Integrated Circuits Using GaAs MESFET
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ABSTRACT

A new concept of designing of analog integrated circuits using gallium arsenide (GaAs) MESFETs are proposed and analyzed in this thesis. GaAs devices are superior to bipolar and MOS devices in applicable in high frequency particularly in the band of GHz. The new proposed methods are very suitable for designing and implementing current mode analog integrated circuit that have high-frequency response characteristics. GaAs-based operational transconductance amplifier (OTA) circuit and second generation current conveyor (CCII) circuit are proposed in this thesis. The first circuit employs differential amplifier and current mirror as basic circuit building block while the second realization is based on the use of voltage/current follower and current mirror, which is suitable for implementing in integrated circuit form. The PSPICE simulation results confirm that the performance and frequency response of the proposed circuits are in good agreement with the theoretical results.