

# Designing and Fabrication of power amplifiers using ADS and active device study in TCAD

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## Abstract:

Wireless communications, phased array radars, traditional military and industrial applications require the development of circuits and sub-systems with high linearity, high efficiency and broadband capabilities. Similarly reconfigurable distributed amplifiers can be used to increase the over all efficiency of a transmitter by operating it at lower output power with higher efficiency. We obtained a maximum output power of 46.2 dBm and a maximum PAE of 66 % for fabricated amplifiers using SiC MESFET. An efficiency of 80 % is achieved for switching class-C amplifier at 500 MHz. We also have studied, class A and reconfigurable distributed amplifiers. Index Terms — MESFET, Power Amplifier, Silicon Carbide, Single-stage, Reconfigurable.