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Abstract
In this thesis we design key devices of 5.2GHz ISM band. We use the SiGe transistor to fabricate high frequency devices and support suitable characters in our operation frequency. The devices that we research are the most important devices in RF

frond end, power amplifier.

Power amplifier(PA) plays an important role in conventional RF front-end transmitter. We utility PA to amplify transmitted signals to avoid interference and distortion of propagation process. Thus, the performance of PA affects the quality of wireless device. In this thesis, a two-stage power amplifier using TSMC 0.35μm SiGe process is designed for 5.2GHz application. We have simulated the circuit with ADS, and performed layout of PA with Cadence. The RF models of TSMC 0.35μm SiGe process is used for the transistors and the on-chip inductors and capacitors. The supply voltage of proposed. power amplifier is 3V. While RF is set to 5.2GHz, the simulation result is an output power of 23 dBm, the maximum power-added-efficiency of 32%.
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