Abstract

This paper describes the design of a 3.4 GHz three stage Ring Voltage Controlled Oscillator (VCO). In order to achieve wide tuning range at gega hertz frequencies a three stage ring oscillator based VCO is designed using differential delay cell. The linearity is achieved over a wide-tuning range from 1.5 GHz to 3.8 GHz while maintain the phase noise -116 dBc/Hz at 3.4GHz. The designed VCO is simulated using Cadence 0.18-µm CMOS process and VCO consumes 8.58 mA current and 15.4mW power from a 1.8V power supply. The designed VCO is generating a frequency of 3.4 GHz over a temperature range from 0o C to 65o C. The VCO has been found to work for all Process (Typical, Slow and Fast corners), Voltage and Temperature (PVT) conditions.

References


Index Terms

Computer Science Circuits and Systems

Keywords

Delay cell, Ring oscillator, Voltage Controlled Oscillator, Communication systems.