Abstract

Due to an increasing demand for simultaneous global roaming and all-in-one wireless phones, the interest in the development of the multi-standard transceivers has been increased. In the receiver front end, the performance of Low Noise Amplifier (LNA) decides overall receiver sensitivity and hence its design plays a crucial role. In this paper, an active inductor based tunable two-stage LNA employing current reuse technique is proposed for multi-standard applications. The LNA is aimed at supporting CDMA-2000, GSM, WCDMA, WiMAX, Bluetooth and UMTS-TDD in the bandwidth range of 1.7 – 2.5 GHz. The proposed LNA achieved a power gain of greater than 13 dB, noise figure less than 2 dB and impedance matching less than –8 dB for all the standards. The stability factor is maintained above 1, ensuring stable operation of the LNA without oscillations. The LNA consumes very low power of 7.96 mW at an operating voltage of 1V. The performance analysis of the proposed active inductor based tunable LNA is carried out using Agilent’s ADS simulator employing 90 nm CMOS technology.
- S. Ngow and A. Thanachayanont. “A Low Voltage Wide Dynamic Range CMOS Floating Active Inductor”. Proceedings of International Conference on Convergent Technologies for
A 1.7 – 2.5 GHz Active Inductor based Low Power Low Noise Amplifier for Multi Standard Applications


**Index Terms**

Computer Science  Wireless Communications

**Keywords**

Multi Standard  Active Inductors  Tunable LNAs  Cascode Amplifier  Noise Figure