

A 2 GHz Merged CMOS LNA and Mixer for WCDMA

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Abstract

A merged LNA and mixer with an on-chip VCO is fabricated in 0.35 μm CMOS for a 2.1 GHz WCDMA receiver. The front-end consumes 8mA from 2.7V and gives NF of 3.2dB, conversion gain of 24.2 dB, and input IP3 of -1.5dBm . The VCO consumes 3mA while achieving phase noise of -128.4 and -138.5 dBc/Hz at offsets of 5 and 15 MHz, respectively.