

A Sub-6GHz Wideband LNA with High Gain and Low NF in 110-nm SOI CMOS

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Abstract

This letter presents a sub-6 GHz wideband low noise amplifier (LNA) based on double L-type load network and negative feedback technique. Using the cascode structure combined with the above techniques, a single-stage wideband LNA with high gain and low noise figure (NF) can be realized. Fabricated in 110-nm SOI CMOS technology, the proposed LNA achieves a maximum power gain of 15.2 dB, noise figure (NF) of 1.0–1.56 dB. The 3-dB bandwidth ranges from 3.05–4.55 GHz. The minimum power input at 1dB compression point (IP1dB) is -17.1 dBm. The LNA core area is 0.18 mm² and dissipates a total power of 11.5 mW from 1.4 V power supply.

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3.3–4.3GHz LNA20230731.docx available at <https://authorea.com/users/645006/articles/657651-a-sub-6ghz-wideband-lna-with-high-gain-and-low-nf-in-110-nm-soi-cmos>