

Inverter Based Gain-Boosting Fully Differential CMOS Amplifier

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Abstract : This work presents a fully differential CMOS amplifier consisting of two self-biased gain boosted inverter stages, that provides an alternative to the power hungry operational amplifier. The self-biasing avoids the use of external biasing circuitry, thus reduces the die area, design efforts, and power consumption. In the present work, regulated cascode technique has been employed for gain boosting. The Miller compensation is also applied to enhance the phase margin. The circuit has been designed and simulated in 1.8 V 0.18 μm CMOS technology. The simulation results show a high DC gain of 100.7 dB, Unity-Gain Bandwidth of 107.8 MHz, and Phase Margin of 66.7^o with a power dissipation of 286 μW and makes it suitable candidate for the high resolution pipelined ADCs.

Keywords : CMOS amplifier, gain boosting, inverter-based amplifier, self-biased inverter

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