High Gain Bulk-Driven Operational Amplifiers for SOC Applications

Published date: Feb. 1, 2012

Technology description

Description

This invention relates to a SOC (system on chip) design for an operational amplifier, which provides the highest open loop gain of any bulk-driven amplifiers. The design would be of value to any low power, voltage analog and mixed-signal CMOS integrated circuit design, which operate at low voltage and low power, such as hearing aids, implantable cardiac pacemakers, cell phones and other portable hand held devices. Operational amplifiers are required in a wide range of signal processing devices, including analog-to-digital converters, analog filters, sensors and comparators. In devices which require low voltage operation, "bulk driven" MOSFET has been proposed as an effective way of operating at low voltage without a threshold voltage constraint. The earlier bulk driven MOSFET operational transconductance amplifier (OTA) designs proposed for low voltage, however, have all suffered from relatively low gain (around 45 dB). The design of this invention has been demonstrated in a 0.8-volt operational transconductance amplifier (OTA), which achieved an open look gain of 68 dB, while consuming only 94 W. This is the highest gain achieved to date in bulk-driven amplifiers.

Institution

University of Rochester

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com