A HIGH CMRR, LOW-POWER OPERATIONAL TRANSCONDUCTANCE AMPLIFIER WITH 0.18µM CMOS TECHNOLOGY

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ABSTRACT

This paper represent an Operational Transconductance Amplifier (OTA) which is a basic building block in many analog circuit such as in data converter's (ADC &DAC), biquad filter design and instrumentation amplifiers. This OTA is implemented using 0.18µm CMOS technology with cadence environment and it has ±1.25v power supply with biasing current of 33nA. OTA has been simulated with virtuoso simulator and simulation results are measured. Post layout simulations for a 1 pF load capacitance shows that OTA achieves a gain bandwidth of 270 KHz at a phase margin 68.43° with 90.27 dB DC gain. This OTA is having CMRR of 154 dB, PSRR of 119 dB, Power dissipation of 29.58nW and Slew Rate 2.49 V/µsec.

KEYWORDS: Cadence, Operational Transconductance Amplifier (OTA), CMRR, PSRR, DC Gain, Unity Gain Bandwidth (UGBW), CMFB