

VLSI BASED DESIGN OF BULK DRIVEN OPERATION AMPLIFIER

PRAMOD KUMAR JAIN, D. S. AJNAR & RANJEET KUMAR SAHU

Department of Electronics & Instrumentation Engineering, Shri G. S. Institute of Technology and Science,
Indore, Malwa, Madhya Pradesh, India

ABSTRACT

Low-voltage, low-power consumption is a desirable feature for any portable electronic device for longer battery life, prevent chip overheating, shrinking the battery size and its weight as well. In present paper, Operational Amplifier is designed using the Bulk-Driven technique, the input signal is applied to the body terminal. This operational amplifier has been operated at 0.8 V, and consume power 146.789 μ W which is less than earlier design. So it can be considered as ultra Low Voltage, Low Power design.

In the aim to enhance the performance of the proposed Bulk-driven circuit, the self-cascode structure is employed. The self-cascode structure increases the performance of the circuit furthermore. it is suitable for Low Voltage circuit designs. Open loop gain is obtained as 87.39 dB with phase margin of 77.25 dB. All simulations of the design are carried out in the Cadence tool with 0.18 μ m Technology.

KEYWORDS: Low-Voltage, VLSI, Operational Amplifier