Abstract

This paper addresses a low power, high speed class AB buffer amplifier topology for liquid crystal display applications which offer a rail to rail common mode input range. The presented circuit uses two comparator circuits inside it to enhance the slewing capabilities with a limited power consumption and it draws a very small quiescent current during static operation for rail to rail common mode input range. The circuit describes here the capacitive load behaviour with reduced distortion at the output node for swing characteristics. By applying MTCMOS (Multi threshold CMOS) reduction technique, leakage current is reduced from 56nA to 52nA, power is reduced from 377.3 pW to 221 pW, reduced slew rate and transconductance of 4.363. A buffer circuit can run 1nF of load capacitance of achieving a rise time 800E-12, duty cycle is 4.5, Average group delay is 221E-3, unity gain frequency is 221.7E-3 and harmonic frequency is 1.532 at 20 Hz. The circuit has been demonstrated at 45 nm technology.
A High Slew Rate Buffer Amplifier Employing MTCMOS Technique for Flat Panel Display

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Index Terms

Computer Science  Circuits And Systems

Keywords

Amplifier  Buffer circuit  Driver circuit  Settling time  Slew rate.