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Abstract
In this thesis, a low-power high-speed class-B Output buffer for TFT-LCD source driver is proposed. The proposed output buffer employs a complementary differential input to obtain a large input operating range. For the frequency compensation, the conventional method always adopts a miller capacitance, which has area disadvantage. In the proposed circuit, the frequency compensation is realized by only using a compensation resistor to introduce a new zero for stability. The proposed output buffer employs two simple comparators to sense the transients of the input to turn on the output transistors, thus draws little current while static, but has a large driving capability while transient. Moreover, the second output stage is used to improve the speed.
The proposed output buffer was simulated basing on 0.35 μm CMOS process. With 3.3 V supply and 600 pF output load, the simulated quiescent current is 3.29 μA. The settling time of rising and falling were 1.88 μs and 1.75 μs, respectively.
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