A Multi-Phase Charge-Recycling Technique for Low-Power TFT LCD Column Driver

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ABSTRACT

To reduce the power consumption of the TFT-LCD column driver， a novel multi-phase charge-recycling technique that doesn’t require any external capacitor for charge conservation is proposed. Based on this method, the voltage swing is reduced to (1/2n + 1/4)VSWING, where “ n ” is the number of data lines in one group. If n is larger, voltage swing will become smaller in order to achieve lower power consumption goal. Comparing with original circuit (without any charge-recycling) and charge sharing one, the proposed method can reduce the power consumption about 65.7% ~ 13.3% respectively for n=8.

Keywords : Charge-Recycling ; Low-Power ; LCD Driver ; Column Driver

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