Driver Circuit Design for Liquid Crystal Display

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ABSTRACT

Liquid crystal display(LCD) have been considered as a viable alternative to CRT due to its potential of achieving light weight, small volume, low voltage, low power. Due to the large number of output buffer in a column driver chip of a flat-panel display., the quiescent current and reliability become very importance. This paper present a low static power, large output swing, and wide operating frequency range class AB output buffer amplifier for driving the large column line capacitance in flat-panel display. A comparator is used in the negative feedback path to eliminate quiescent current in the output stage. With 3.3Vsupply voltage and 700pf load, output swing is from 0.5V to 3V and the operation frequency range is 30KHz to 100KHz. This buffer circuit has been demonstrated successfully using the TSMC ’ s 0.6 CMOS technology.

Keywords : Liquid crystal display LCD ; output buffer

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REFERENCES

1.Kenneth C. Smith Asel S. Sedra and（1992）“ microelectronic circuit ”, 3th Ed., 75-80. 2.Hitachi Copr , Hitachi LCD Controller/Driver LSI , 1993 3.B. W. Geiger, B. J. Sheu,“ A high-speed CMOS amplifier with dynamic frequency compensation ” in Proc. IEEE CICC 1990. New York, May 1990, pp. 8.4.1-8.4.4 4.Haided .Khorramabadi, ” A CMOS line driver with 80dB linearity for ISDN applications ” IEEE JUURNAL of SOLID-STATE, VOL 27. NO 4. APPIL 1992 5.P. E. Allen, R. C. Geiger, and N. R. Strander, VLSI Design Technique for Analog and Digital Circuit. NEW York: McGraw-Hill, 1990. 6.Jiin-Chuan Wu and Pang-Cheng Yu“ A Class-B Output Buffer for Flat-Panel-Display Column Driver ”, IEEE JSSC , Vol 34 , NO.1 , pp.116-119 , 1999.