

United States Patent [19]

Shimada et al.

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Date of Patent: Jun. 27, 2000 [45]

[54] ACTIVE MATRIX DISPLAY DEVICE AND ITS DRIVING METHOD

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Related U.S. Application Data

Continuation of application No. 08/009,115, Jan. 26, 1993,

[30] Foreign Application Priority Data

Jan.	31,	1992	[JP]	Japan		4-016266
	55	1000040			490	

Int. Cl.⁷ G09G 3/36 [51]

345/94, 95, 208, 99, 204, 87; 359/54

[56] References Cited

U.S. PATENT DOCUMENTS

4,724,433	2/1988	Inoue et al	345/87
4,785,297	11/1988	Sekiya	340/784
4,842,371	6/1989	Yasuda et al	340/784
5,041,822	8/1991	Hayashi	340/784

FOREIGN PATENT DOCUMENTS

0 466 378 A2 1/1992 European Pat. Off. .

7/1991 3-163529 Japan . 3-163530 7/1991 Japan .

3-163531 7/1991 Japan .

2 146 478 4/1985 United Kingdom .

OTHER PUBLICATIONS

Patent Abstracts of Japan, vol. 14, No. 580 (E-1017) Dec. 25, 1990 & JP-A-02 252 378 (SONY) Oct. 11, 1990 (pp. 501-507).

Japan Display '89, Emoto et al: 0.92 in. Active-Matrix LCD With Fully Integrated Poly-Si TFT Drivers of New Circuit Configuration, pp. 152-154.

Primary Examiner—Regina Liang Attorney, Agent, or Firm-Nixon & Vanderhye, P.C.

ABSTRACT

To enhance the display quality by improving the writing characteristic of active matrix display device.

A plurality of signal lines of video signals are provided for pixels of each column arranged in two-dimensional array, and the driving element of each pixel is designed to be driven by any one of the signal lines, so that the scanning time of each line may be extended longer than one horizontal scanning period.

13 Claims, 8 Drawing Sheets

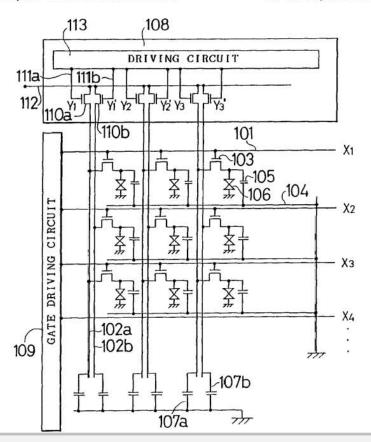
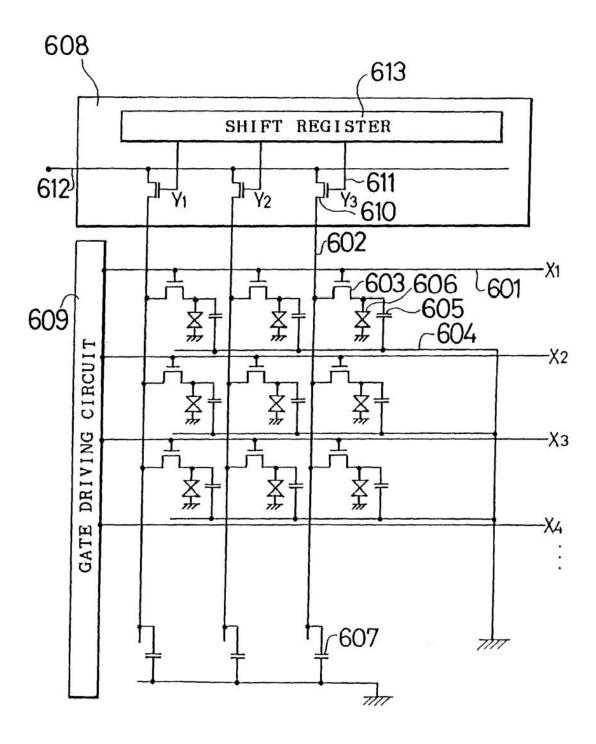




Fig. 1 (Prior Art)





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Fig.2 (Prior Art)

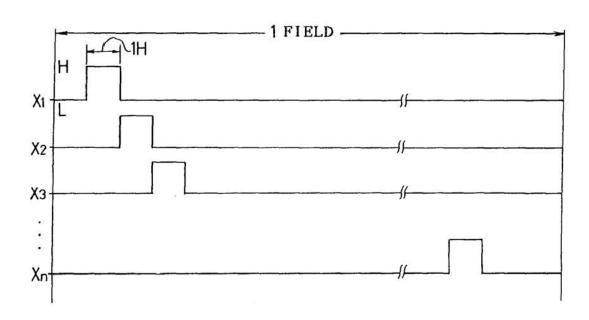


Fig. 3 (Prior Art)

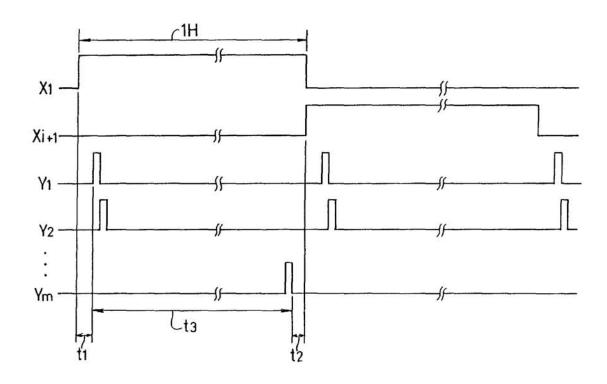
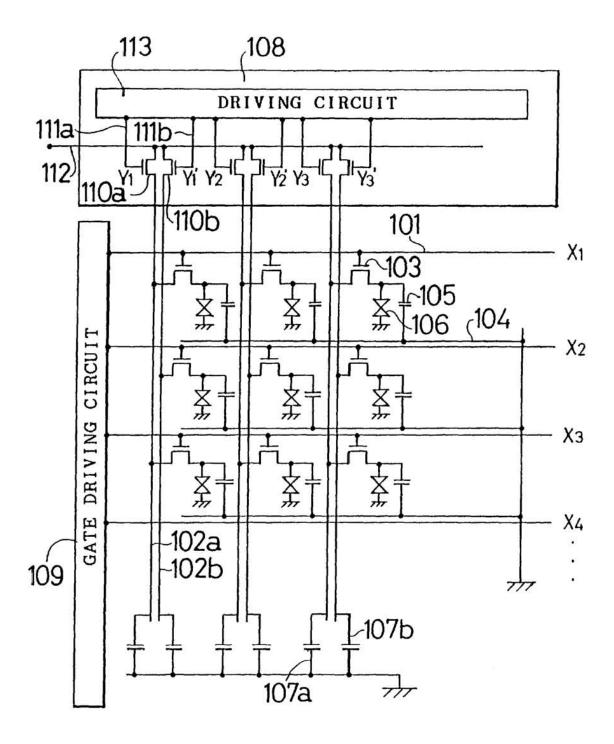


Fig.4



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