



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
19.01.2005 Bulletin 2005/03

(51) Int Cl.7: **G02F 1/1362, G02F 1/1343**

(43) Date of publication A2:
23.07.2003 Bulletin 2003/30

(21) Application number: **03000723.1**

(22) Date of filing: **13.01.2003**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT SE SI SK TR**
Designated Extension States:
AL LT LV MK RO

(72) Inventors:
• **Miyajima, Yasushi**
Gifu-ken 502-0829 (JP)
• **Hirosawa, Koji**
Gifu-ken (JP)
• **Yokoyama, Ryoichi**
Gifu-ken 503-0984 (JP)

(30) Priority: **11.01.2002 JP 2002004777**

(71) Applicant: **Sanyo Electric Co., Ltd.**
Moriguchi-shi, Osaka-fu 570-8677 (JP)

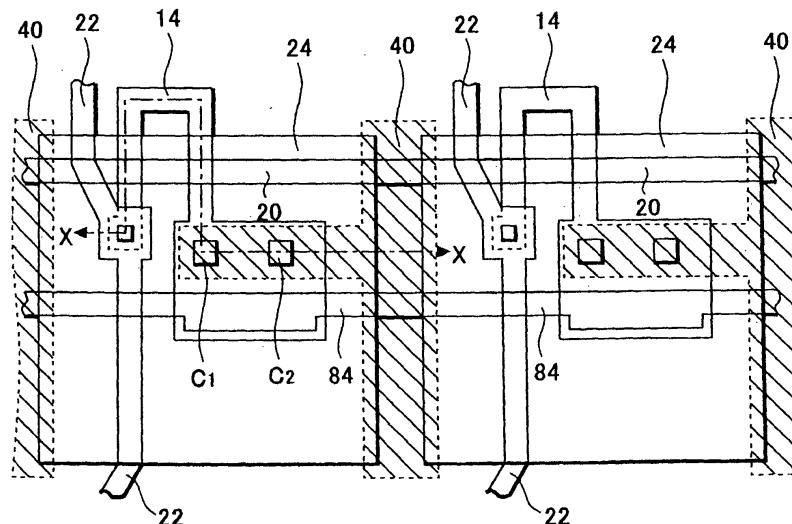
(74) Representative: **Glawe, Delfs, Moll & Partner**
Patentanwälte
Rothenbaumchaussee 58
20148 Hamburg (DE)

(54) **Active matrix display device**

(57) The active matrix display device has a thin film transistor and a pixel electrode (24), which is provided with a pixel voltage through the thin film transistor, for each of pixels. A supplemental pixel electrode (40), which is connected to the pixel electrode (24) of one of the pixels adjacent to each other, and which extends to the region between the two pixels adjacent to each other, is also disposed. The supplemental pixel electrode

(40) enables the region between the pixels to be used as a part of the display region. The liquid crystal of this region is also driven by the voltage same as the pixel electrode (24). The configuration of the peripheral circuit of the pixel portion is simplified, reducing the framing area of the panel. In an alternative embodiment a floating electrode (41) covers a region between two adjacent pixels and is capacitively coupled to the pixel electrodes of those pixels via an insulating layer (72).

FIG.1





European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 00 0723

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 6 133 976 A (KIMURA KOICHI) 17 October 2000 (2000-10-17) * column 22, line 15 - line 52; figure 37 *	1-4,9	G02F1/1362 G02F1/1343
Y	-----	8	
X	US 5 982 460 A (TAKEMURA YASUHIKO ET AL) 9 November 1999 (1999-11-09) * column 3, line 39 - line 45 * * column 4, line 35 - line 37; figures 1D,1E *	5,6,9	
Y	-----	8	
A		7	
X	US 6 115 088 A (ZHANG HONGYONG ET AL) 5 September 2000 (2000-09-05) * column 3, line 8 - line 51 * * column 5, line 19 - line 47; figures 1,10 *	5,6,9	
Y	-----	8	
A		7	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Y	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 06, 30 April 1998 (1998-04-30) -& JP 10 039336 A (TOSHIBA CORP), 13 February 1998 (1998-02-13) * abstract *	8	G02F
P,X	----- EP 1 174 757 A (HITACHI LTD ; HITACHI DEVICE ENG (JP)) 23 January 2002 (2002-01-23) * paragraph [0016] - paragraph [0021] * * paragraph [0056]; figure 1 * -----	1-6,9	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 26 November 2004	Examiner Lord, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03/02 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 03 00 0723

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on the European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-11-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6133976	A	17-10-2000	JP 10288775 A	27-10-1998

US 5982460	A	09-11-1999	JP 3126661 B2	22-01-2001
			JP 10010579 A	16-01-1998
			US 2003047783 A1	13-03-2003
			US 6246453 B1	12-06-2001
			US 2001029071 A1	11-10-2001

US 6115088	A	05-09-2000	JP 10078593 A	24-03-1998
			US 2002171780 A1	21-11-2002
			US 6421101 B1	16-07-2002

JP 10039336	A	13-02-1998	NONE	

EP 1174757	A	23-01-2002	JP 2002040482 A	06-02-2002
			CN 1334477 A	06-02-2002
			EP 1174757 A2	23-01-2002
			US 2002008800 A1	24-01-2002

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	有源矩阵显示装置		
公开(公告)号	EP1329764A3	公开(公告)日	2005-01-19
申请号	EP2003000723	申请日	2003-01-13
[标]申请(专利权)人(译)	三洋电机株式会社		
申请(专利权)人(译)	SANYO ELECTRIC CO., LTD.		
当前申请(专利权)人(译)	SANYO ELECTRIC CO., LTD.		
[标]发明人	MIYAJIMA YASUSHI HIROSAWA KOJI YOKOYAMA RYOICHI		
发明人	MIYAJIMA, YASUSHI HIROSAWA, KOJI YOKOYAMA, RYOICHI		
IPC分类号	G02F1/1343 G02F1/1362 G02F1/1368 G09F9/30 G09F9/35		
CPC分类号	G02F1/136213 G02F1/134336 G02F2201/123 G02F2201/40		
优先权	2002004777 2002-01-11 JP		
其他公开文献	EP1329764A2		
外部链接	Espacenet		

摘要(译)

有源矩阵显示装置具有薄膜晶体管 and 像素电极 (24)，对于每个像素，像素电极 (24) 通过薄膜晶体管提供像素电压。还设置有辅助像素电极 (40)，其连接到彼此相邻的像素之一的像素电极 (24)，并且延伸到彼此相邻的两个像素之间的区域。辅助像素电极 (40) 使得像素之间的区域能够用作显示区域的一部分。该区域的液晶也由与像素电极 (24) 相同的电压驱动。简化了像素部分的外围电路的配置，减小了面板的框架区域。在替代实施例中，浮动电极 (41) 覆盖两个相邻像素之间的区域，并且经由绝缘层 (72) 电容性地耦合到那些像素的像素电极。

FIG.1

