(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 536 408 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
06.09.2006 Bulletin 2006/36

(43) Date of publication A2:
01.06.2005 Bulletin 2005/22

(21) Application number: **04257329.5**

(22) Date of filing: **24.11.2004**

(51) Int Cl.:
G09G 3/36 *(2006.01)*

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

(30) Priority: **25.11.2003 JP 2003393285**

(71) Applicant: **SANYO ELECTRIC CO., LTD.**
Moriguchi-shi, Osaka 570-8677 (JP)

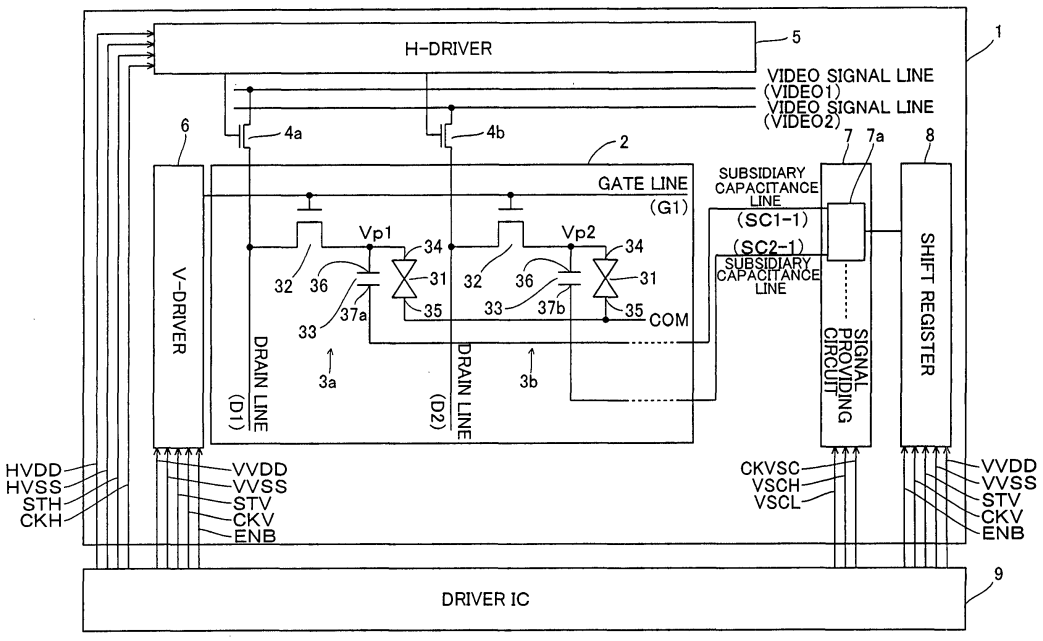
(72) Inventor: **Koji, Hirosawa**
Anpachi-gun, Gifu 503-0116 (JP)

(74) Representative: **Calderbank, Thomas Roger et al**
Mewburn Ellis LLP
York House
23 Kingsway
London WC2B 6HP (GB)

(54) Liquid crystal display

(57) The present invention provides a liquid crystal display capable of making flicker difficult to be observed and of reducing power consumption. The display comprises first (3a) and second (3b) pixel portions including subsidiary capacitances (33) having a first electrode (36) which is connected to a pixel electrode (34) and a second electrode (37a, 37b); first (SC1-1,SC1-2,SC1-3,SC1-4) and second (SC2-1,SC2-2,SC2-3,SC2-4) subsidiary capacitance lines which are connected to the second electrodes of the subsidiary capacitances of the first and second pixel portions, respectively; and a signal providing circuit (7,17,47) including a plurality of signal providing circuit portions (7a,7b,7c,7d,17a,17b,17c, 47a,47b,47c,47d) which provide first and second signals to the first and second subsidiary capacitance lines, respectively.

FIG.1



EP 1 536 408 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 25 7329

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2002/084969 A1 (OZAWA TOKURO) 4 July 2002 (2002-07-04)	1,2,5,7, 10, 12-15, 17-20	INV. G09G3/36
Y	* abstract; figures 3,4,10,12 * * paragraph [0001] - paragraph [0020] * * paragraph [0127] - paragraph [0137] * * paragraph [0138] - paragraph [0153] *	3,4,16	
X	US 2002/084970 A1 (OZAWA TOKURO) 4 July 2002 (2002-07-04) * abstract * * figure 2 * * paragraphs [0002], [0075], [0076], [0080] *	1	
Y	EP 0 910 062 A (OIS OPTICAL IMAGING SYSTEMS, INC) 21 April 1999 (1999-04-21) * paragraph [0064] *	3,4,16	
A	US 6 590 552 B1 (YOKOYAMA RYOICHI ET AL) 8 July 2003 (2003-07-08) * abstract * * figure 3 *	1	TECHNICAL FIELDS SEARCHED (IPC) G09G
A	WO 03/083815 A (KONINKLIJKE PHILIPS ELECTRONICS N.V; PASQUALINI, GIUSEPPE) 9 October 2003 (2003-10-09) * page 11, lines 13-19 * * page 13, lines 10-24 *	2	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	5 July 2006	Giancane, I

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 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 25 7329

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.

05-07-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002084969 A1	04-07-2002	CN 1360297 A	24-07-2002
		JP 2002196358 A	12-07-2002
		SG 118099 A1	27-01-2006
		TW 548626 B	21-08-2003
US 2002084970 A1	04-07-2002	CN 1362701 A	07-08-2002
		JP 2002202762 A	19-07-2002
		SG 116435 A1	28-11-2005
		TW 559752 B	01-11-2003
EP 0910062 A	21-04-1999	CA 2246837 A1	23-03-1999
US 6590552 B1	08-07-2003	JP 2000081606 A	21-03-2000
WO 03083815 A	09-10-2003	AU 2003207910 A1	13-10-2003

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)	液晶显示器		
公开(公告)号	EP1536408A3	公开(公告)日	2006-09-06
申请号	EP2004257329	申请日	2004-11-24
[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	KOJI HIROSAWA		
发明人	KOJI, HIROSAWA		
IPC分类号	G09G3/36 G02F1/133 G09G3/20		
CPC分类号	G09G3/3655 G09G3/3614 G09G2300/0876 G09G2320/0219 G09G2320/0247 G09G2330/021		
优先权	2003393285 2003-11-25 JP		
其他公开文献	EP1536408A2		
外部链接	Espacenet		

摘要(译)

本发明提供一种液晶显示器，其能够使得难以观察到闪烁并且降低功耗。该显示器包括第一（3a）和第二（3b）像素部分，其包括具有第一电极（36）的辅助电容（33），第一电极（36）连接到像素电极（34）和第二电极（37a，37b）;第一个（SC1-1，SC1-2，SC1-3，SC1-4）和第二个（SC2-1，SC2-2，SC2-3，SC2-4）辅助电容线连接到子公司的第二个电极第一和第二像素部分的电容分别为;信号提供电路（7,17,47）包括提供第一和第二信号的多个信号提供电路部分（7a，7b，7c，7d，17a，17b，17c，47a，47b，47c，47d）。分别是第一和第二辅助电容线。

FIG.1