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

(11) EP 2 296 140 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
30.05.2012 Bulletin 2012/22

(43) Date of publication A2:
16.03.2011 Bulletin 2011/11

(21) Application number: **10184895.0**

(22) Date of filing: **03.12.2004**

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

(84) Designated Contracting States:
DE FR GB

(30) Priority: **05.12.2003 JP 2003408046**
30.08.2004 JP 2004250982

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
04257518.3 / 1 538 599

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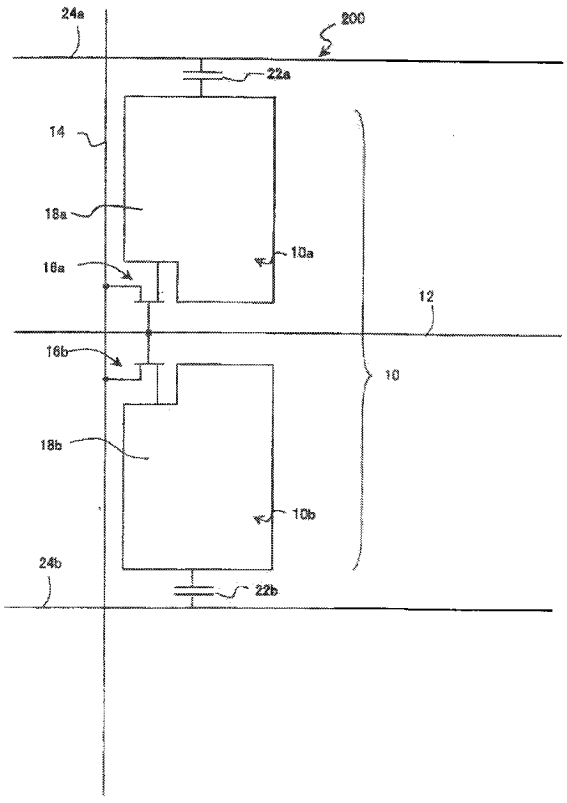
(54) Liquid crystal display

(57) A liquid crystal display of the invention includes a plurality of pixels each of which has a liquid crystal layer and a plurality of electrodes for applying a voltage to the liquid crystal layer and which are arranged in a matrix of rows and columns, wherein: each of the plurality of pixels has a first sub-pixel and a second sub-pixel which can apply mutually different voltages to the liquid crystal layer, where the first sub-pixel has a higher brightness than the second sub-pixel in certain gradations; the first sub-pixel and the second sub-pixel each has: a liquid crystal capacitor formed by a counter electrode and a sub-pixel electrode opposing the counter electrode via the liquid crystal layer, and a storage capacitor formed by a storage capacitor electrode connected electrically to the sub-pixel electrode, an insulating layer, and a storage capacitor counter electrode opposing the storage capacitor electrode via the insulating layer; the counter electrode is a single electrode shared by the first sub-pixel and the second sub-pixel, and the storage capacitor counter electrodes of the first sub-pixel and the second sub-pixel are electrically independent of each other; and the storage capacitor counter electrode of the first sub-pixel in any of the plurality of pixels and the storage capacitor counter electrode of the second sub-pixel of a pixel adjacent to any of the pixels in the column direction are electrically independent of each other .

FIG. 12



EP 2 296 140 A3

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EUROPEAN SEARCH REPORT

Application Number
EP 10 18 4895

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 5 923 310 A (KIM DONG-GYU [KR]) 13 July 1999 (1999-07-13) * abstract * * column 6, line 21 - column 7, line 13; figure 10 * * column 15, line 39 - column 16, line 51; figure 17 * -----	1-11,14, 20,23, 24,27, 34-39	INV. G09G3/36
A	JP 10 274783 A (SHARP KK) 13 October 1998 (1998-10-13) * paragraphs [0026] - [0028]; figure 1 * -----	1-39	
A	US 2002/047822 A1 (SENDA KOUJI [JP] ET AL) 25 April 2002 (2002-04-25) * abstract * * paragraphs [0153], [0154] * -----	1-39	
A	US 2003/179172 A1 (MIYACHI KOICHI [JP]) 25 September 2003 (2003-09-25) * paragraphs [0151] - [0160]; figures 12,13,15 * -----	1-39	TECHNICAL FIELDS SEARCHED (IPC) G09G
A	US 2003/146893 A1 (SAWABE DAIICHI [JP]) 7 August 2003 (2003-08-07) * paragraphs [0313] - [0332]; figures 32-34 * * paragraphs [0334] - [0343]; figures 38,39 * -----	1-39	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 April 2012	van Wesenbeeck, 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

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 18 4895

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16-04-2012

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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	EP2296140A3	公开(公告)日	2012-05-30
申请号	EP2010184895	申请日	2004-12-03
[标]申请(专利权)人(译)	夏普株式会社		
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IPC分类号	G09G3/36 G02F1/1368 G02F1/133 G02F1/1343 G02F1/1362 G09G3/20		
CPC分类号	G09G3/3655 G02F1/136213 G02F1/13624 G02F2001/134345 G09G3/2074 G09G3/3614 G09G3/3648 G09G2300/0443 G09G2300/0447 G09G2300/0876 G09G2320/0223 G09G2320/0247 G09G2320/0276 G09G2320/028		
优先权	2004250982 2004-08-30 JP 2003408046 2003-12-05 JP		
其他公开文献	EP2296140A2 EP2296140B1		
外部链接	Espacenet		

摘要(译)

本发明的液晶显示器包括多个像素，每个像素具有液晶层和多个电极，用于向液晶层施加电压并且以行和列的矩阵排列，其中：每个像素所述多个像素具有第一子像素和第二子像素，所述第一子像素和第二子像素可以向所述液晶层施加相互不同的电压，其中所述第一子像素在某些灰度中具有比所述第二子像素更高的亮度;第一子像素和第二子像素各自具有：由对电极形成的液晶电容器和经由液晶层与对电极相对的子像素电极，以及由连接的存储电容器电极形成的存储电容器通过绝缘层与子像素电极，绝缘层和与存储电容器电极相对的存储电容器对电极电连接;对电极是由第一子像素和第二子像素共用的单个电极，第一子像素和第二子像素的存储电容对电极彼此电独立;所述多个像素中的任意一个像素中的第一子像素的存储电容对置电极和与列方向上的任意像素相邻的像素的第二子像素的存储电容对置电极彼此电独立。