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(84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR Designated Extension States: AL LT LV MK RO SI	(72) Inventors: - Udo, Shinya, c/o Fujitsu Limited Kawasaki-shi, Kanagawa 211-8588 (JP) - Kokubun, Masatoshi, c/o Fujitsu Limited Kawasaki-shi, Kanagawa 211-8588 (JP)
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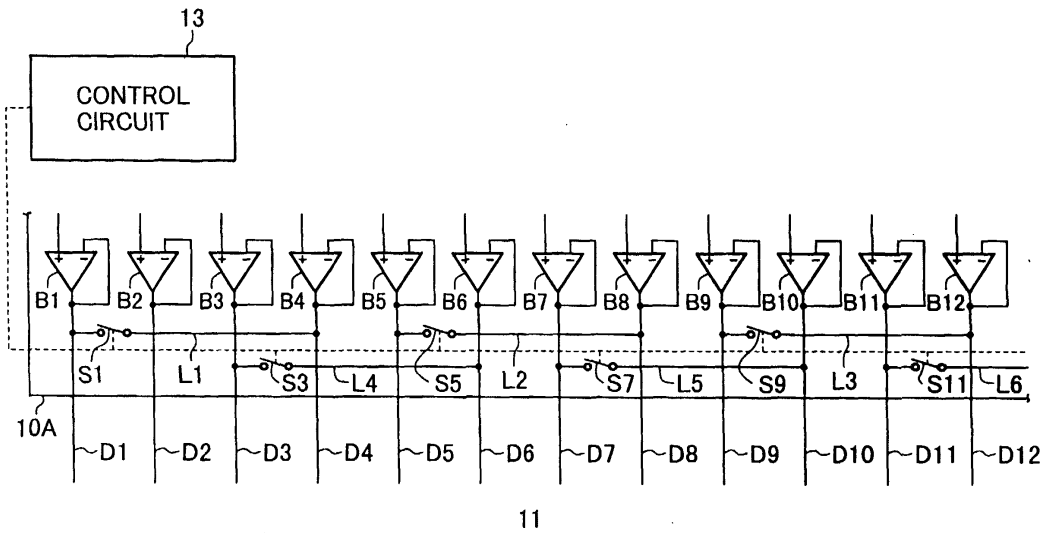
(54)

Dot-inversion data driver for liquid-crystal display device

(57)

In an LCD driven by a data driver 10A of a dot-inversion driving type, the outputs of voltage buffer amplifiers B1 to B12 are connected to respective data-bus lines D1 to D12 of the LC panel. The data-bus lines carry different colour signals; short-circuiting switches S1, S3, S5, S7, S9 and S11 are connected between successive pairs of data-bus lines concerned with the same display colour, and interconnecting lines L1, L2, L4 for the switches are arranged in a staggered configuration on first and second rows. These short-circuiting switches can be formed in a space-saving manner on one side of every other data-bus line, and turned on by a control circuit 13 when the outputs of the voltage buffer amplifier are in a high impedance state, i.e. in a blanking period.

FIG.4





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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 4785

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	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 07, 29 September 2000 (2000-09-29) -& JP 2000 098976 A (SONY CORP), 7 April 2000 (2000-04-07) * abstract *	1,2,10	G09G3/36
X	US 5 528 256 A (HARDER GERALD T ET AL) 18 June 1996 (1996-06-18) * abstract * * column 1, line 7 - line 24 * * column 3, line 17 - line 38 * * column 4, line 2631 * * column 6, line 18 - column 7, line 4 * * column 9, line 44 - column 10, line 47; figures 1-3 * * column 11, line 55 - column 12, line 26; figure 4 * * column 16, line 7 - column 17, line 2; figure 9 *	1,8	
A	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 10, 31 October 1997 (1997-10-31) -& JP 09 159992 A (FURONTETSUKU:KK), 20 June 1997 (1997-06-20) * abstract *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7) G09G
L	-& US 6 327 008 B1 (FUJIYOSHI) 4 December 2001 (2001-12-04) * abstract * * column 1, line 5 - line 10 * * column 3, line 1 - line 9; figures 10,11 * * column 4, line 9 - line 20; figure 12 * * column 6, line 32 - column 7, line 16; figures 2-4,13 * * column 7, line 33 - column 8, line 4; figure 5 *	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 November 2003	Examiner Corsi, F
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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Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 30 4785

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)
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 09, 13 October 2000 (2000-10-13) -& JP 2000 172231 A (MITSUBISHI ELECTRIC CORP), 23 June 2000 (2000-06-23) * abstract *	1	
A	--- US 6 064 363 A (KWON OH-KYONG) 16 May 2000 (2000-05-16) * column 1, line 61 - column 2, line 53; figures 3,4 * * column 3, line 50 - column 4, line 46; figures 5,6 * * column 5, line 11 - line 19; figure 8 *	1	
A	--- PATENT ABSTRACTS OF JAPAN vol. 1998, no. 10, 31 August 1998 (1998-08-31) -& JP 10 133174 A (SONY CORP), 22 May 1998 (1998-05-22) * abstract *	1	
A	--- US 6 049 321 A (SASAKI MINORU) 11 April 2000 (2000-04-11) * abstract * * column 2, line 44 - column 3, line 6 * * column 4, line 7 - column 5, line 25; figure 1 * * column 6, line 12 - line 40; figure 2 * * column 7, line 31 - column 8, line 3; figure 3 * -----	6-9	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Place of search THE HAGUE		Date of completion of the search 4 November 2003	Examiner Corsi, F
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 01 30 4785

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
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04-11-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2000098976 A	07-04-2000	NONE	

US 5528256 A	18-06-1996	DE 69530060 D1	30-04-2003
		EP 0723695 A1	31-07-1996
		JP 9504389 T	28-04-1997
		WO 9606421 A2	29-02-1996
		US 6201522 B1	13-03-2001
		US 5852426 A	22-12-1998

JP 09159992 6 A		NONE	

JP 2000172231 A	23-06-2000	NONE	

US 6064363 A	16-05-2000	KR 234720 B1	15-12-1999
		DE 19801318 A1	15-10-1998
		GB 2324191 A ,B	14-10-1998
		JP 2955851 B2	04-10-1999
		JP 10282940 A	23-10-1998
		US 6124840 A	26-09-2000

JP 10133174 1 A		NONE	

US 6049321 A	11-04-2000	JP 10153986 A	09-06-1998
		KR 270358 B1	01-11-2000
		TW 460734 B	21-10-2001

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)	用于液晶显示装置的点反转数据驱动器		
公开(公告)号	EP1202245A3	公开(公告)日	2004-01-07
申请号	EP2001304785	申请日	2001-05-31
[标]申请(专利权)人(译)	富士通株式会社		
申请(专利权)人(译)	FUJITSU LIMITED		
当前申请(专利权)人(译)	富士通半导体有限公司		
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发明人	UDO, SHINYA, C/O FUJITSU LIMITED KOKUBUN, MASATOSHI, C/O FUJITSU LIMITED		
IPC分类号	G02F1/133 G09G3/20 G09G3/36		
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优先权	2000333517 2000-10-31 JP		
其他公开文献	EP1202245B1 EP1202245A2		
外部链接	Espacenet		

摘要(译)

在由点反转驱动型数据驱动器10A驱动的LCD中，电压缓冲放大器B1至B12的输出连接到LC面板的各个数据总线D1至D12。数据总线传输不同的颜色信号；短路开关S1，S3，S5，S7，S9和S11连接在具有相同显示颜色的连续数据总线对之间，并且用于开关的互连线L1，L2，L4以交错配置排列。第一行和第二行。这些短路开关可以在每隔一条数据总线的一侧以节省空间的方式形成，并且当电压缓冲放大器的输出处于高阻抗状态时，即由控制电路13接通。消隐期。

FIG.4

