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2003 - 0028710  
2003 04 10

(21) 10 - 2002 - 0059351  
(22) 2002 09 30

(30) JP - P - 2001 - 00305930 2001 10 02 (JP)

(71) 가 가  
가 4 6  
가 가  
3681

(72) 가 460  
3 - 1 - 2  
가 3 - 47 - 14  
2601 - 9  
가 2330 - 1

(74)

:

(54)

가

1

5

, , , , /

1	1	.
2	1	.
3	1	.
4	1	.
5	1	.
6	1	.
7	1	.
8	1	.
9	1	.
10	9	.
11	1	.
12	1	.
13	12	.
14	1	.
15	1	.
16	1	.
17	1	.
18	1	.
19	1	.
20	1	.

21	1
22	1
23	1
24	1
25	1
26	1
27	1
28	1
29	1
30	1
31	1

1 :

2 :

3 :

4 :

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6, 7, 8 :

9 :

10 :

11 :

12 :

21 :

30 :

73, 74 :

75 :

78 :

80 :

100 :

STN(Super Twisted Nematic) , TFT(Thin Film Transistor)

가

가

가

2

가

, 1

3

1

1 , (1) , (3) , (4) , (5) 1 , (100)

(1) (11), (10) TFT (2) , (15),  
( ) , ,

(15) TFT (2) , (15)  
가 .

(11) (10) , ( ) GL  
( ) DL .

GL (10) 가 (11) , DL , 가  
(10) (11) ( )

DL

(3) , (4), (5) , (1) TFT (2) ( )  
( ) , (3) ( ) ,  
(4) , (5) .

(3) , (LSI) , (R · G · B) , (5) ,

(5) (LSI) , GL , DL .  
(5) (3) (FLM, DL )  
(CL1) , 1 (1) GL GL  
( ) (1) GL  
(10)가 1 .

(5) 가 DL .  
(10)가 , DL ( ) (11) ,  
(10)가 가 (11)

2 , 1 2 (5A) 1 (5A)  
2 (5B) GL 1 (5A) DL 2 , 1 (5A)  
(5B) GL 2 (5B) (1) , 2  
, GL (1) 가 .

, GL GL ( ) (1)



1, 5 2 (5B) (1) 1 (5A) 가 2 (5B)  
 1 (5A) GL (4) 1 (5A) DL (5A)  
 (5A) (7A) (4) 1 (5A) (7A) 1  
 5B) (5A) (7B) (12) (5A) 2  
 (5B) 가 5 1 (5A)  
 , 2 (5B)

2 (5B) 1 (5A) , 2 (5B)  
 , 가 (12) 가 ,  
 2 (5B) , 2 (5BL, 5BR)  
 2 (5B) 가

, 6, 7 , 가 (1)  
 , 가 6 (a)  
 (1) 2 (5B)( )가  
 GL1 GL120 120 (1)  
 GL 6 (a) , 2 (5B) g1 GL1  
 g1 GL1 GL120 가 g1 g120

B) 6 (b) (1) 2 (5B) 2 (5)  
 7 g1 g120 , 2 (5B)  
 , 1 INS , 7 g1

, (1) 2 (5B) g120  
 GL1 , g1 GL120 가  
 g120 g1 , 2 (5B) (1)  
 g1 , g120

, 5 가, 2 (5B) 2 , 1 (5A)  
 5 (5BL) (1)

BL) , 2 (5BR) , 2 (5BR) 2 (5  
가 . , 2 (5BL) , 2 (5BR)

BR) , 2 (5BL) 2 (5BR) , , 2 (5BL) 2 (5  
, 1 (5A)가 , 2 (5BL) 2 (5BR)  
(5BR)가 , , 2 (5BL) 2 (5B  
L) , , 2 (5BL) 2 (5BR)  
, 2 (5BL)가 , , 2 (5BR)가  
가 .

, 2 (5BL) 2 (5BR) , , 2  
, 2 (5BL) 2 (5BR) 가  
, , 2 (5BL) 2 (5BR) 가  
(先) , 가  
(後) .

, 2 (12) , 2 가 , 1 2

7 , 2 (5B) 2 (5B)  
g1 g120 (1) GL  
2 (5B) (22) , 1 CL1 가 CL1

ST ( )가 , MS 2 (5B)  
. MS / , MS 2 (5B)  
(5B)가 (1) . INS , 가 . SCM  
(20) (21) , MS,  
SCM , INS

8 8 16  
. 16 가 , 2 (5B)  
D13 3 가 , 8 , D15



, 2 (5BR) MS=0 , GS=0 ,  
 gs120 GL121 ,  
 gs1가 GL240 가 120 ,  
 가 1 , 2 (5BR) ,  
 7 (20) CL1 , 2 (5BL)  
 GL121 GL240 2 (5BL) 2  
 (5BR) 가 ,  
 가 110 , 121 GL121 가 11 GL230

, 9 (a) 2 (5B) (1) , 9 (b) 2  
 (5B) (1)

, 9  
 0 120 , 1 110 , 0 ,  
 2 (5BL)( , ) gm1 120  
 2 (5BR)( , ) CL1  
 gs120

, 110 1 , 110 gm1  
 gm110 , GL111 GL120 ,  
 gm11 가 가  
 110 , gm9 gm119 gm120 2 (5B)  
 L G

, 1 , 110 가 11 , gs120  
 gs11 1 가 9 gs11  
 2 (5B) 2 (5B)  
 9 gs120 GL gs118 , gs9

10 , 9 2 (5B) CL1 2 (5B)  
 CL1 2 (5B)  
 ST ST  
 ST MS 2 (5B) 9  
 2 (5BL)가 ,

gm1 gm120 2 (5BL) 9 , 2 (5BL)  
 GS 가 0 , gm1 가 ,  
 CL1 gm2 가 , 가  
 , gm120 가 .

, gs1 gs120 2 (5BR) 2 (5BL) (5BR) 2 (5BR)  
 (5BR) 2 (5BL) 가 , 가 , 2 (5BR)  
 ST 120 가 , (20) CL1 ,  
 GS 0 , gs120 (5BR)  
 gs119 gs1 가 .

, 11 , 11 , 2 (5BL) , MS=0 ,  
 gs=1 , GS=1 , 2 (5BR) ,  
 MS=1 , GS=1 , 11 (a) 2  
 (5B) (1) , 11 (b) 2 (5B)  
 (1)

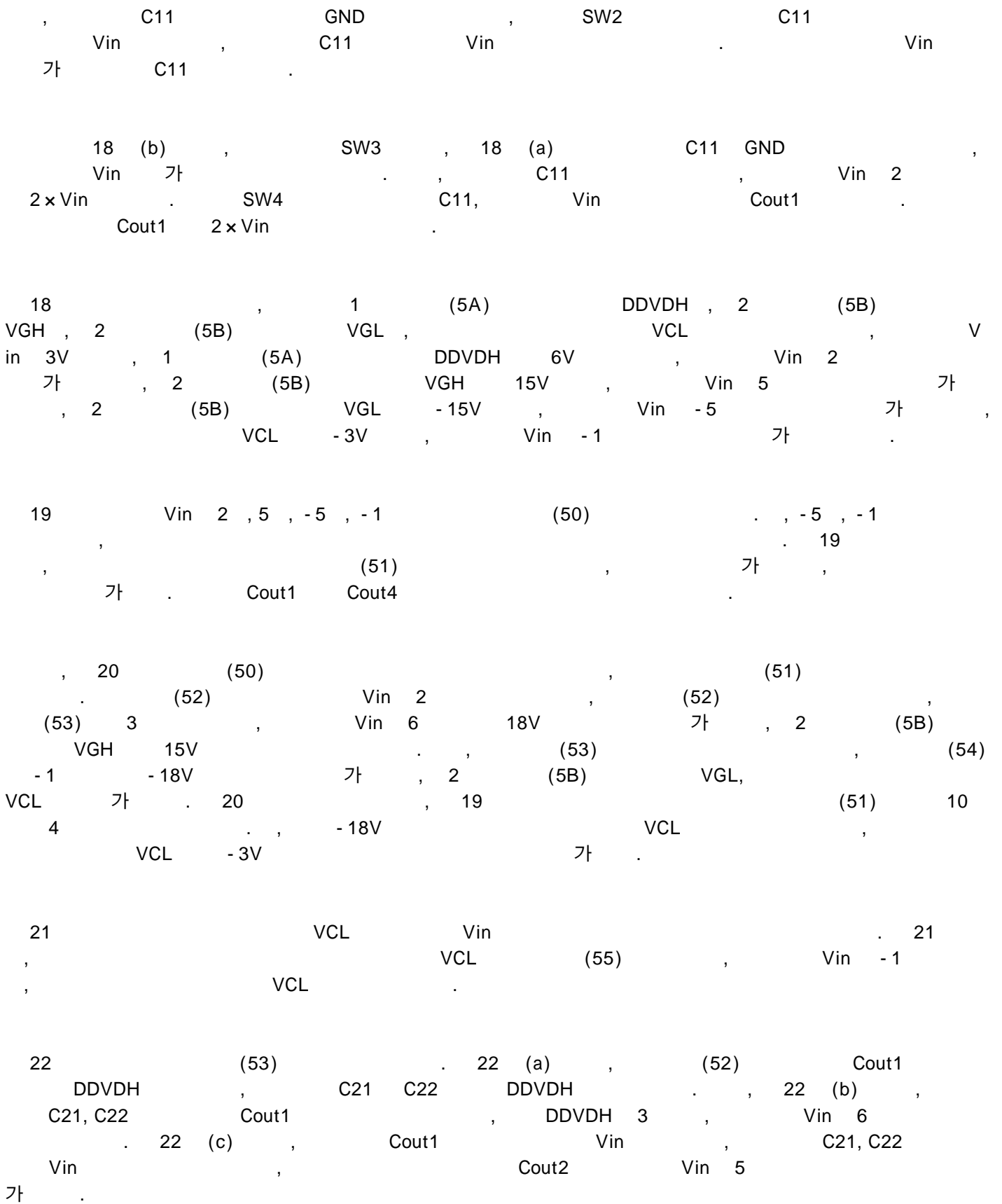
, 12  
 12 , SCM 2 (5B) -  
 , ST

12 2 (5BL) , GS 0  
 , 2 (5BR) ,  
 GS 0 ,  
 1 , CL1 2 , CL1  
 , 12 (a) 2 (5B) (1)  
 , 12 (b) 2 (5B) (1)

13 12 ST가 2  
 (5BL)가 CL1 gm1  
 2 (5BR) , gs120 가 , gm1 (1)  
 GL1 , gs120 GL2  
 , (1) , 2 (5BR)  
 gs1 가 .

, 14 - , 2 (5BL) , 2  
 (5BR) , 14 2 (5BL) ,  
 (5BR) GS 1 , GS 1 , 2

CL1 1, CL1 2  
 2 (5B) (1) 14 (b) 2 14 (a) (5B)  
 (1)  
 (5B) 15 1 (5A) 2 (5B) 15 2  
 15 (4) (4) (5A) (5B) 2  
 (7A, 7B) 가  
 16 1 (5A) 2 (5B) 16 5  
 1 (5A) , 2 2 (5BL) 2 (5BR)가  
 1 (4)  
 1.5V 4V  
 VCOM 17 1 (17) VCOM (TFT)  
 ( ) (5A) 1 15V 가 DDVDH 4 1 5.5V 가  
 6.0V  
 VDH 1 VDH 1  
 5.0V 가 VCOMH , VCOML VCO  
 MH 5.0V 가 , VCOML -2V , VGOFFH  
 , VGOFFL , VGOFFL , VGOFFH , VGOFFH  
 Cadd , VGOFFL -12V , VGOFFH -7V 가  
 VCL VCOML VCOML  
 -2.5V 가 , VGH 2 (5B)( )  
 , VGL 2 (5B) 2 (5B) 35V VGH 16.5V,  
 VGL -16.5V  
 , VGH , 2 (5B) , 1 (5A) DDVDH , 2 (5B)  
 VGL , VCL  
 Vin, C11, Cout1, 18 , 2 SW1, SW2 18 (a)  
 , 18 (b) , 18 (a) SW1



31 (31) 23 VGH (54) C31 VGH (23 (a) (53) Cout2 C VGH (23 (b) VGL

24 Vin (55) 24 (b) C41 Vin (41) GND Cout4 VCL

25 SW5 SW6 (56) 25 VGH, V (57) Cout2, Cout3, Cout4 가 3 가

19 가 5 20, 21 가 5 Cout1, Cou 25 V

t2 in 가 (5B) VGH 2 (5B) 1 (5A) DDVDH 2 VCL

26 DDVDH 2 25 (57) Vin 1 SW5 (56) (57) VGH

가 Cout2 (56) (57) DDVDH C21 VGH 26 (b) C21

C41 Vin (a) C41 (52) 26 (c) VGH

56) 27 DDVDH -1 VGL (57) Vin -1 Cout3 (a) C21 DDVDH

C41 27 (b) C21 C41 Vin (c) 27 (c) VGL -9V

(10) 가 VGL 가 C21 C41 Cout2 1 가

VCL 24 가 C21 C41 Cout3 2 가

25% , 가 , 50%

28 (5)  
 (71) (71) (73)  
 (72) (72) (71) (  
 76) (76) 가 (71)

28 (a) (71) (74) (7  
 5) (71) 가 28 (b)  
 (71) (77) (71)

(5) 29, 30 가 (81) PNP  
 (82) NPN NPN PNP  
 가 , Vin - VDH , GND - VGL VF (5)  
 VDH Vin VGL GND  
 , Vin - GND 가  
 가 30 VGL

29 (78) , GND - V  
 GL VF , VGL GND

31 (80) (83) (83) (8  
 5) (83) (5) VDH Vin 가 V  
 (84) (84) (83) VDH V  
 in VGL GND (86) (85)

(80) , VGL GND  
 가

(1)  
가 . , ,

(2) 가 가 . , ,

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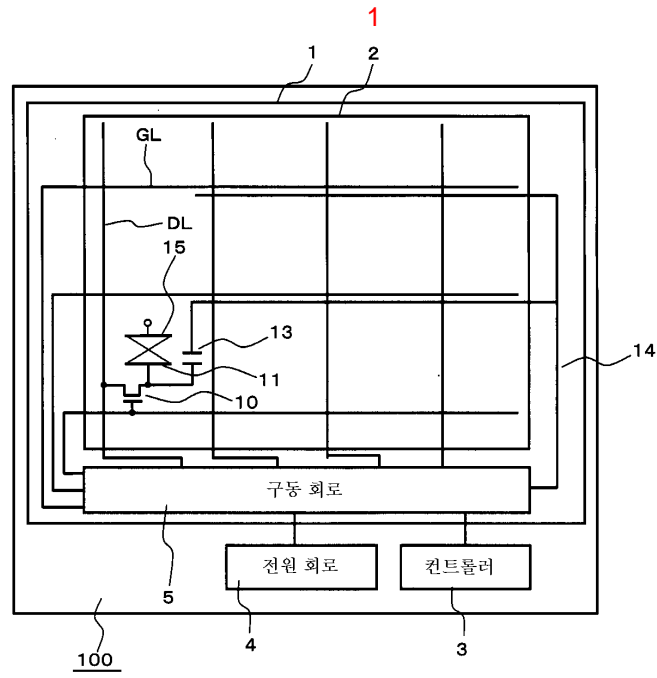
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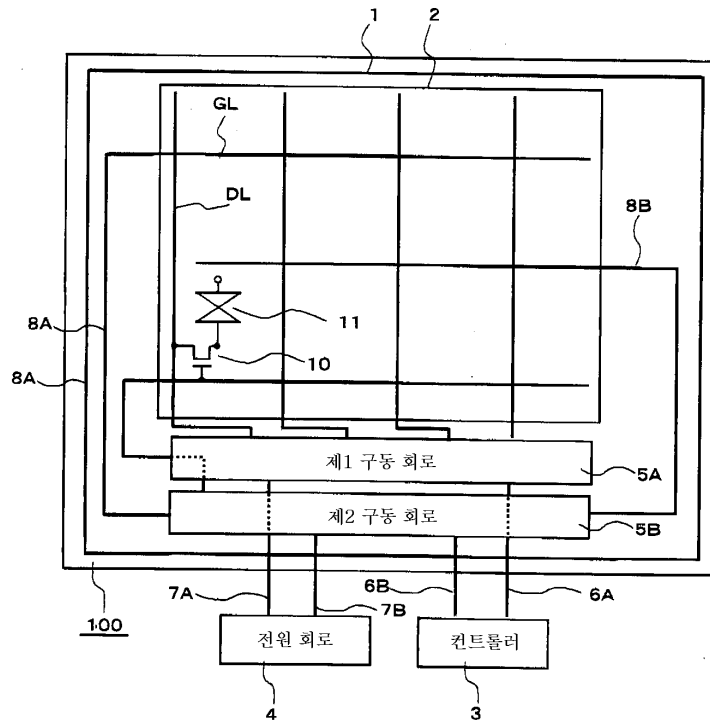
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1 1 1 2 ,

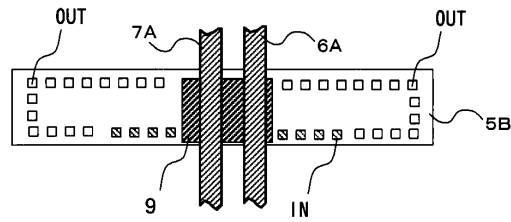
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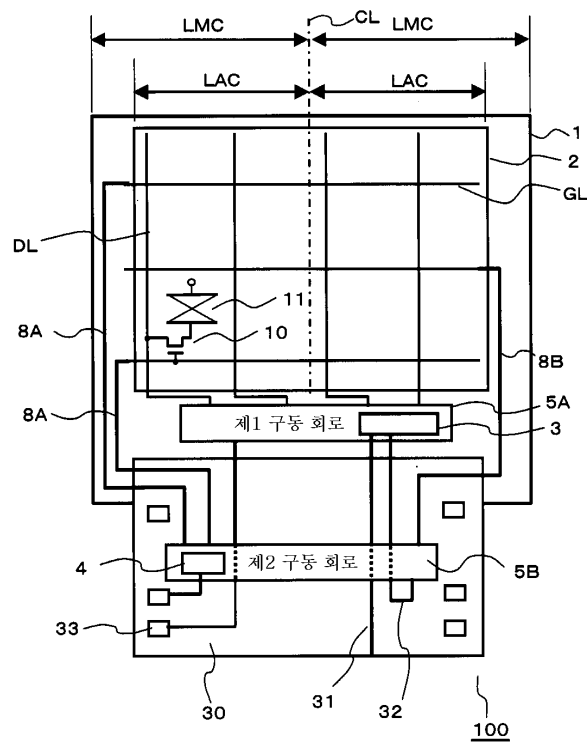
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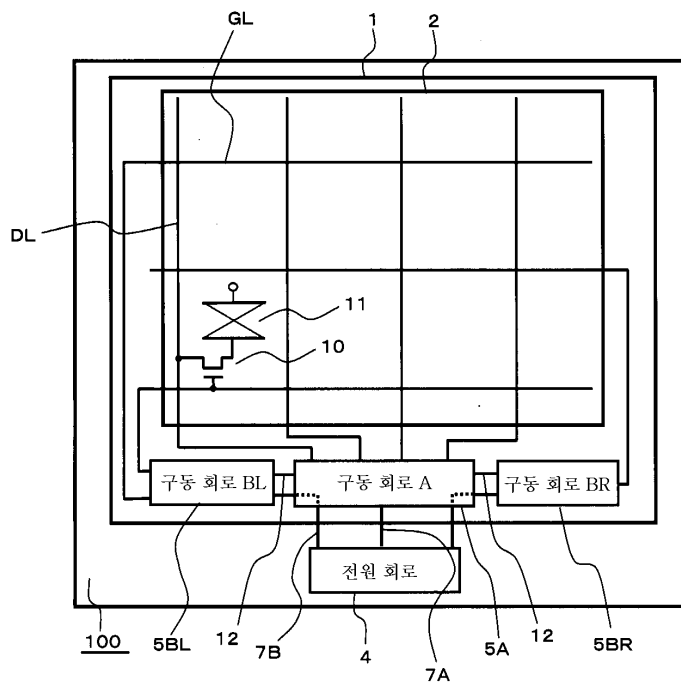
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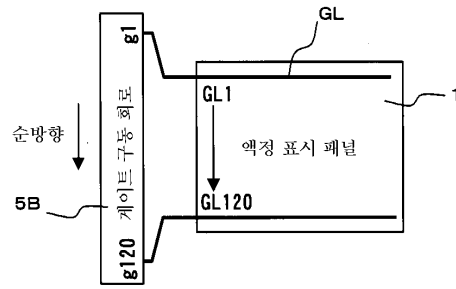


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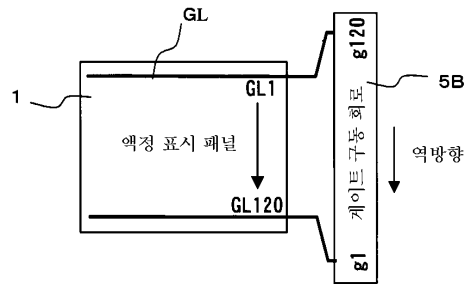


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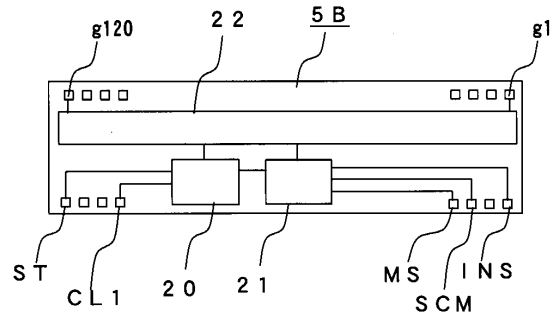
(a)



(b)



7

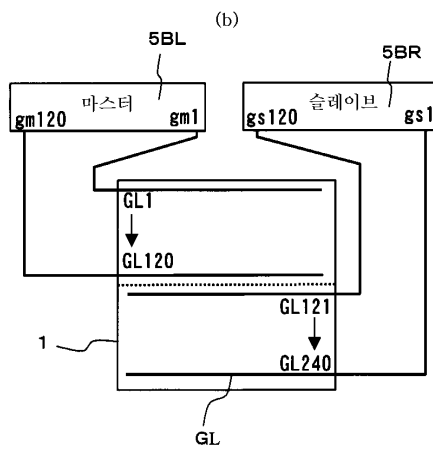
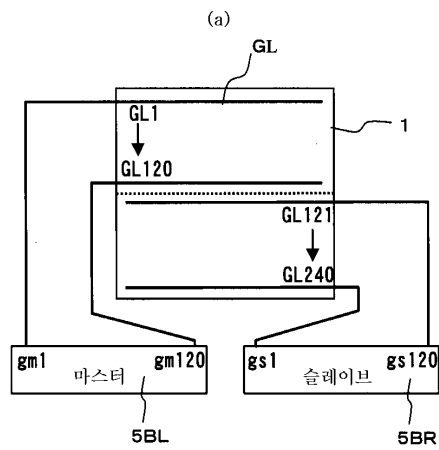


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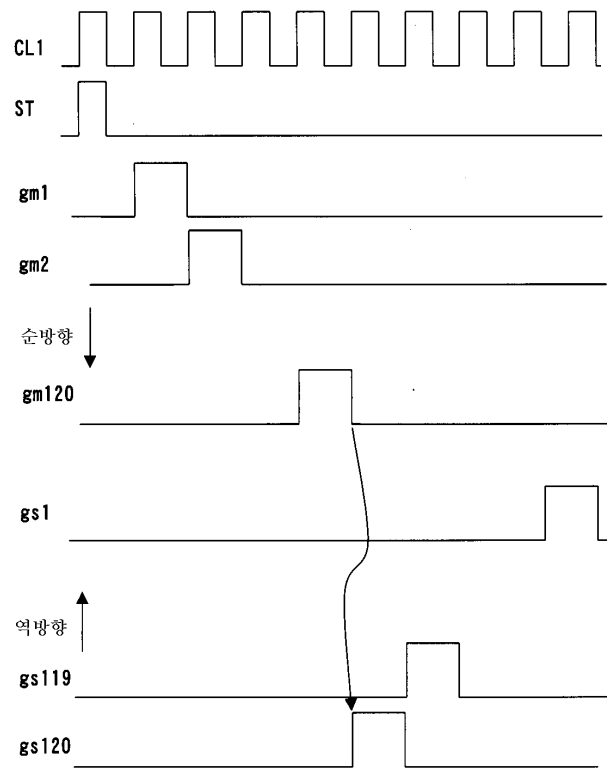
D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
0	0	0	*	GON	*	*	*	*	*	*	*	*	*	*	SLP
1	1	0	0	0	GS	NL4	NL3	NL2	NL1	NL0	SC4	SC3	SC2	SC1	SC0
1	1	1	0	0	0	0	0	0	0	0	0	0	0	FL1	FL0

I D

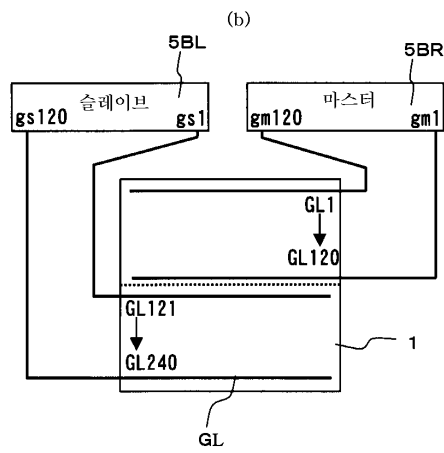
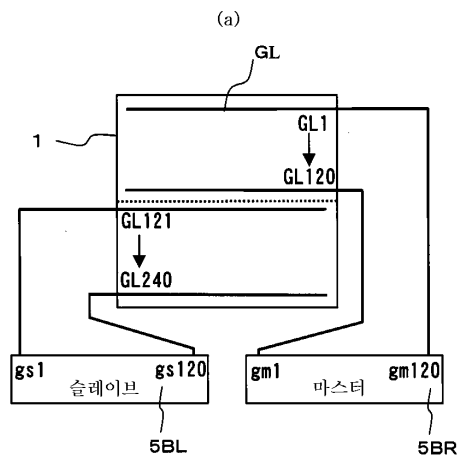
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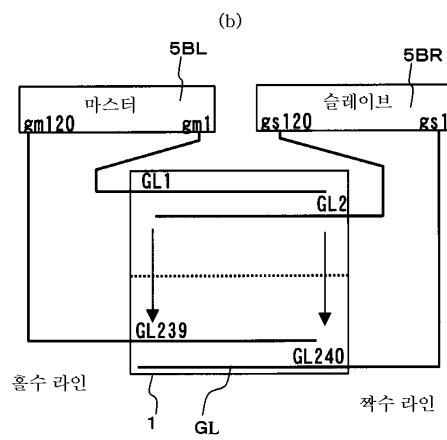
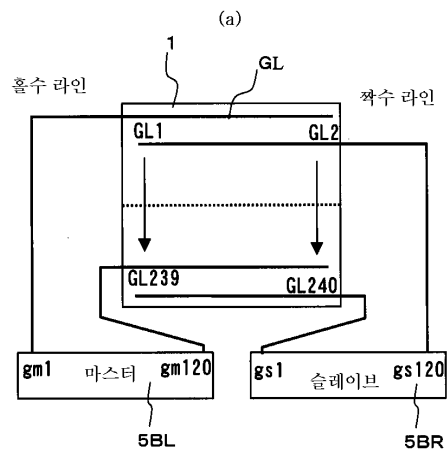
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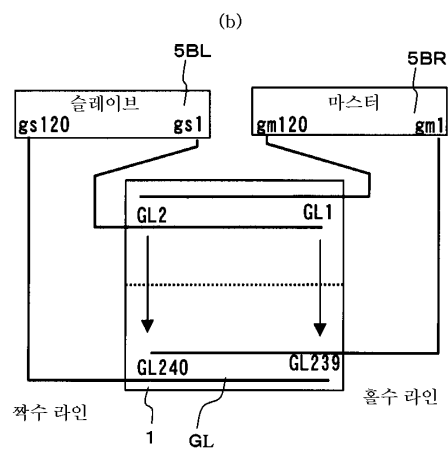
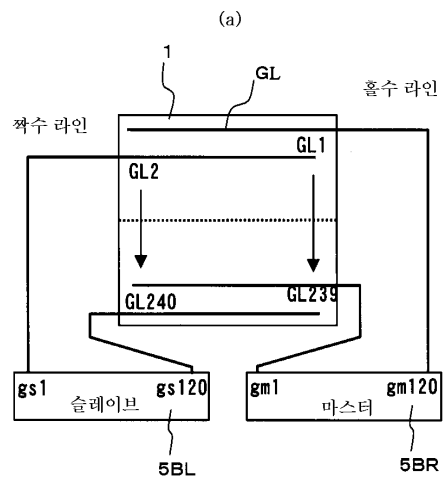


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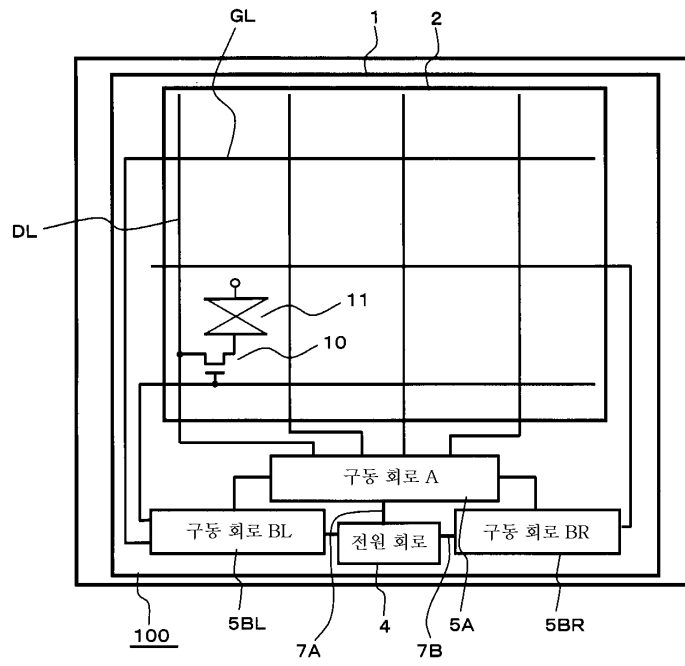




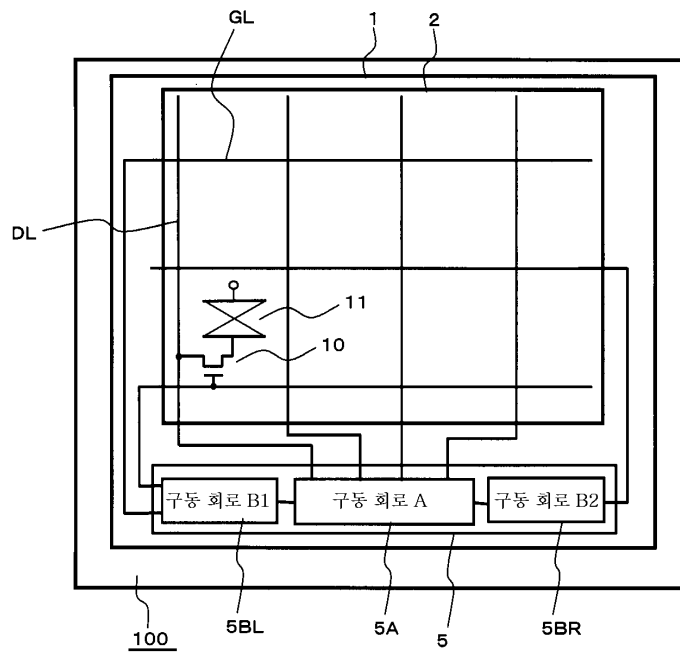
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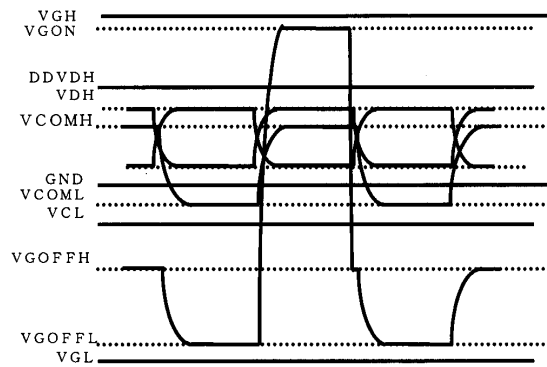
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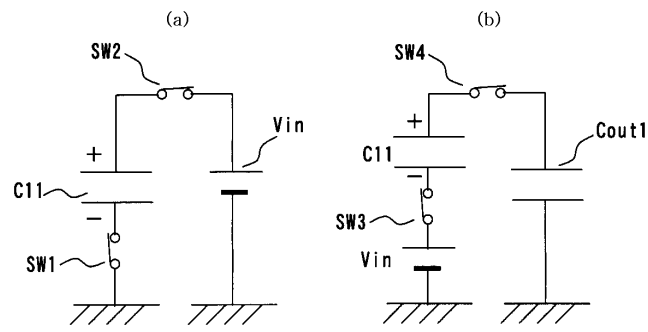


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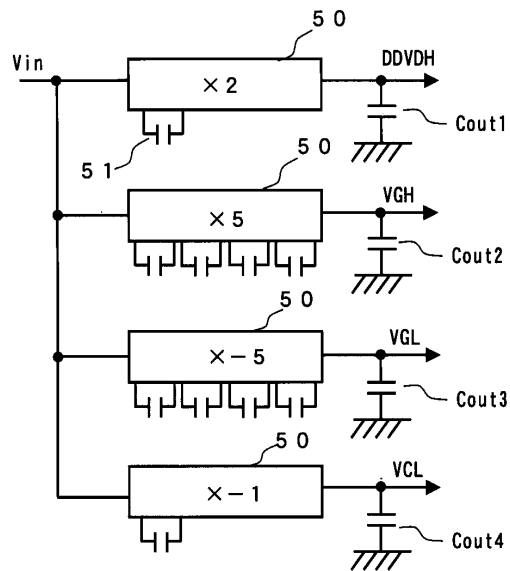


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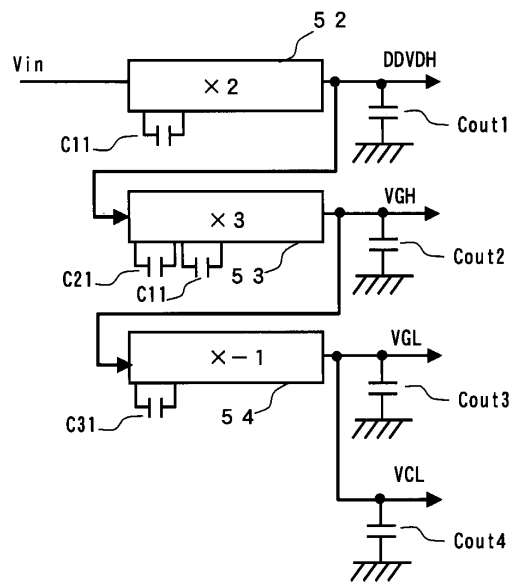
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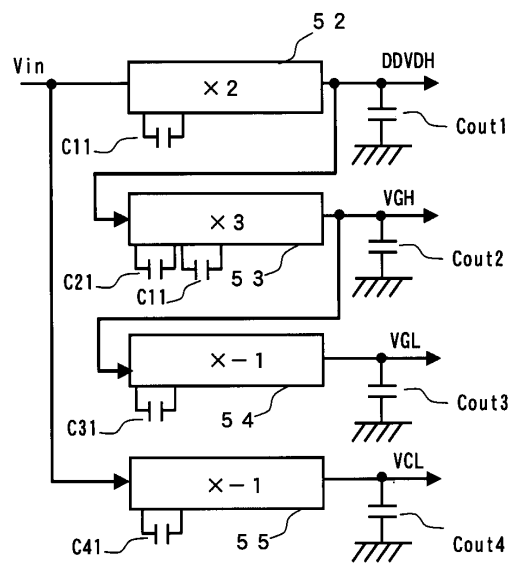
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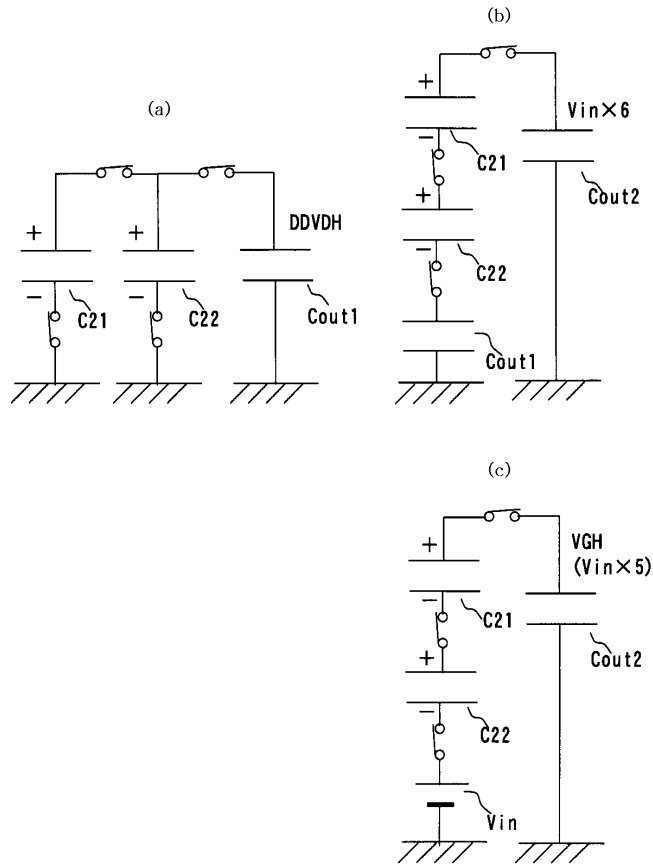
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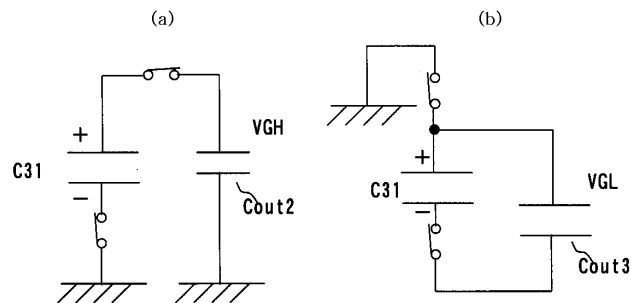
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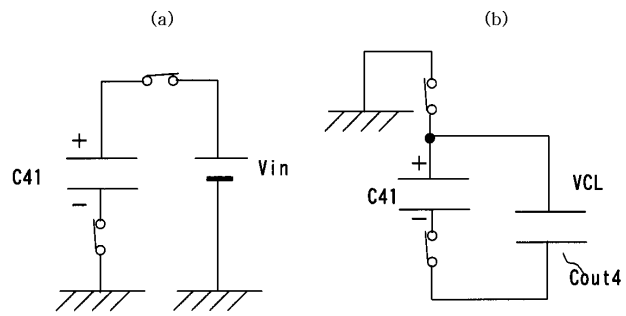
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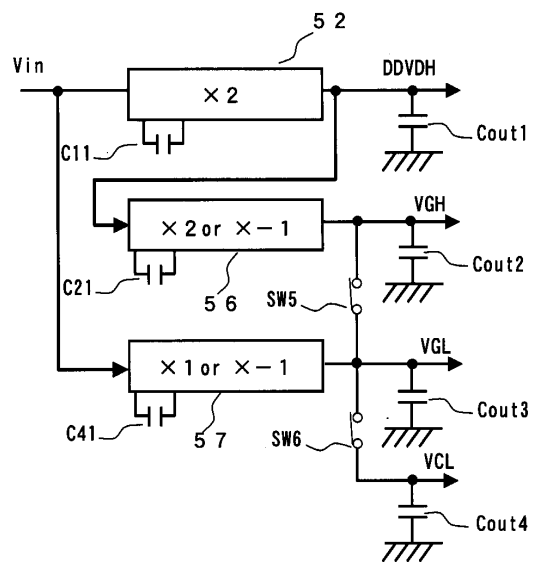
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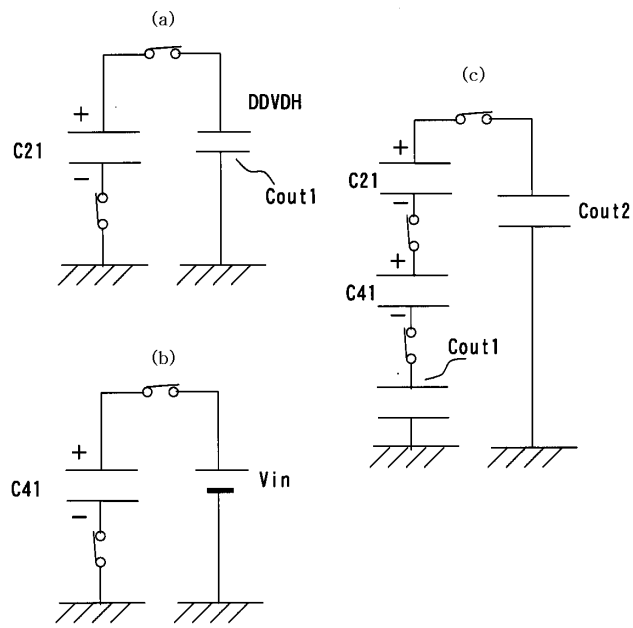
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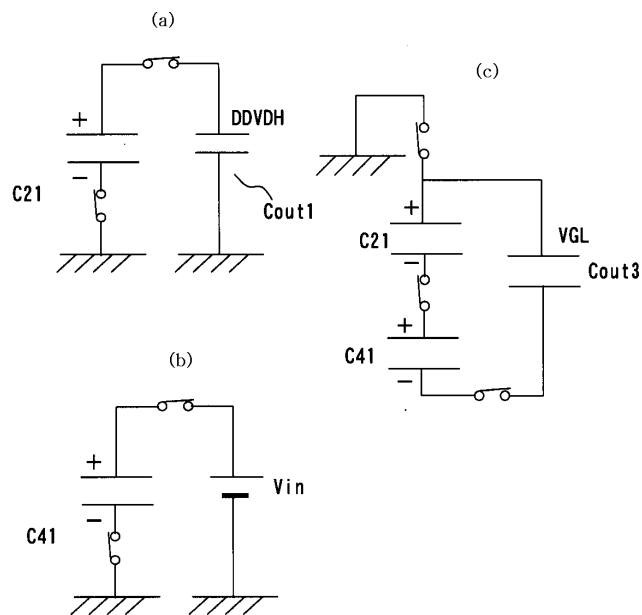
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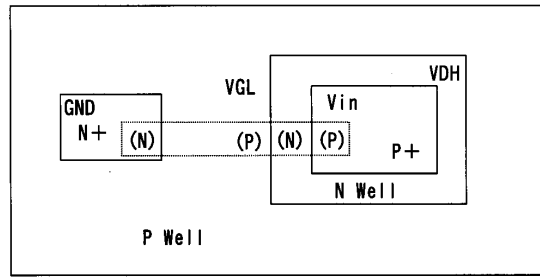
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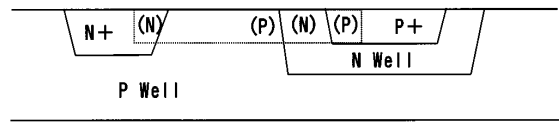


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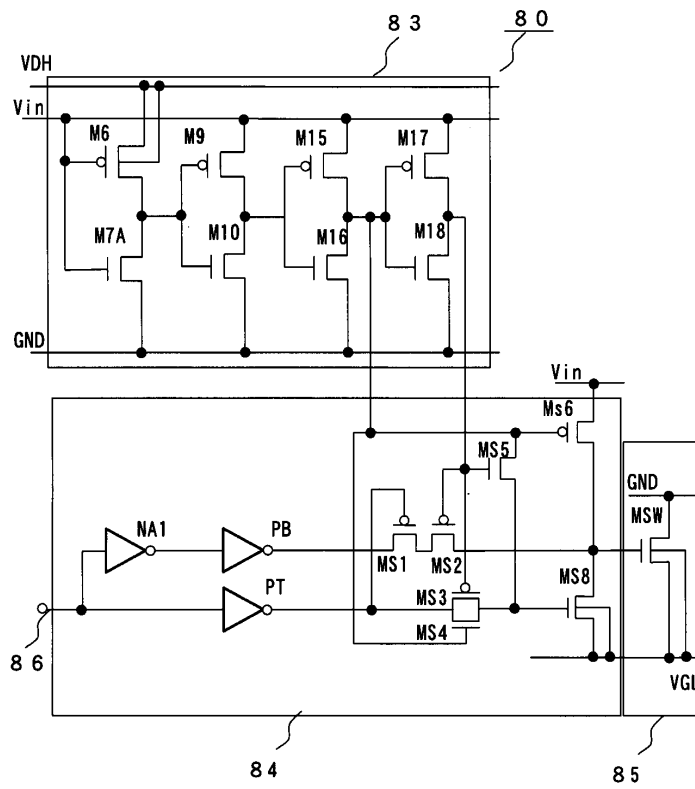
(a)



(b)



31



专利名称(译)	液晶显示器		
公开(公告)号	<a href="#">KR1020030028710A</a>	公开(公告)日	2003-04-10
申请号	KR1020020059351	申请日	2002-09-30
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA 日立器件工程株式会社		
申请(专利权)人(译)	株式会社日立制作所 地伤装置工程可否让这个夏		
当前申请(专利权)人(译)	株式会社日立制作所 地伤装置工程可否让这个夏		
[标]发明人	AOKI YOSHINORI 아오끼요시노리 GOTO MITSURU 고또미쯔루 SAWAHATA MASATO 사와하따마사또 WATANABE HIROSHI 와따나베히로시 NUMATA YUICHI 누마따유이찌		
发明人	아오끼요시노리 고또미쯔루 사와하따마사또 와따나베히로시 누마따유이찌		
IPC分类号	G09G3/36 G02F1/1345 G02F1/133 H02M3/07 G09F9/00 G09G3/20 G02F1/13		
CPC分类号	H02M3/07 G09G2310/0281 G09G3/3677 G02F2001/13456 H02M2001/009 G09G3/3696 G02F1/13452 G09G2300/0426 G09G2310/0283		
代理人(译)	CHANG, SOO KIL		
优先权	2001305930 2001-10-02 JP		
其他公开文献	KR100604299B1		
外部链接	<a href="#">Espacenet</a>		

#### 摘要(译)

对于用于小型便携式设备的液晶显示器，液晶显示器能够自由使用。安装，其中驱动电路的安装区域小并且被提供。作为用于包括液晶显示装置的液晶显示器和液晶驱动电路，液晶驱动电路是用于驱动扫描信号线的驱动电路，其一侧具有多个LCD面板。并且多个扫描信号线驱动电路将用于驱动图像信号线的电路置于该间隔中。它根据相关的图像信号线驱动电路进行排列并形成。并且用于将信号传送到扫描信号线的布线从LCD面板的右侧和左侧连接到扫描信号线。利用外部信号执行驱动信号的控制。驱动电路，电源电路，LCD面板，扫描信号线，主从端子。

