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10-2004-0011378
2004 02 05

(21) 10-2003-0052208
(22) 2003 07 29

(30) JP-P-2002-00220606 2002 07 30 (JP)

(71) 가 가
3300
가 가
3681

(72) 3-1-2

가 2330-1

가 3-47-14

가 460

13-2

(74)

:

(54)

가 , 2 가
, 가 , 가 ,
, 가 , 가 ,

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- 1 .
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- 24 .

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34

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1 :

2 : TFT

3 :

4 :

8, 9 :

10 : ()

11 :

12 :

15 :

16, 17 :

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21 :

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32, 33 :

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36 :

38 :

39 :

43 :

44 :

50 :

51 :

52, 53, 54, 55 :

56 : 가

57 :

58, 59 :

81 :

82 :

83 :

84 :

86 :

87 :

200 :

400 :

410 : 가

411, 412 :

415 :

416 :

420 :

STN(Super Twisted Nematic)

TFT(Thin Film Transistor)

가

가

, 1

2

, 1

2

, 2

가

가

가

가

3

2

, 1

, 1

2

가

가

가

가

가

, 2

2 가 , 1 2 , 2

가 , 2 , 2

< >

1 , 1 (1) , 2 (200) , 1 (50) , 2 (200)

1 (1) 2 (200) GL (DL) GL () DL , (11)가 (11) (11) (12) (10)가 (8) , (12) (9) (10) TFT (2) , () , 가

2 (200) TFT

1 (1) , 2 (200) (10)가 , 가 (10) , 가 (12) (10) , (12) (DL) (12) (15) 가 , TFT , 가 (10)가 , (12) , 가

(15) TFT (2) DL 가

(1) , (200) GL, DL , (15) (50) 가 (50) , (1) TFT (2) (50) , TFT (2)

DL, GL, 1 (16), 2 (1) (2) (2) (50) , TCP(Tape Carrier Package) , TFT (2) , TFT (2)

(50) , DL (10) , (12) , (15) ,

가 , , 가가
 , (1) (200) , , 2
 , 2 (1) (200) (26)
 (26) 가 (1) (21, 22, 23)
 (200) (27, 28, 29) (1) (2
 00) 가 가 , (1)
 , , 2 , (1)
 (1) (200) 가 , 2 ,
 (200) .
 2 (1) (50) , (58) (5
 7) (1) (1) (35) , (21)
 (58) (35) , (26)
 (21) (200) 가 ,
 (200) (27) 가 (200)
 (36) 가 (27) GL (1) (1)
 가 (36) (1) (58)
 GL .
 (58) (1) (16) , (200)
 (17) , (57) TFT (2) 가
 (36) (16) (1) (17) TFT (2)
 (200) (2) (23) (200)
 (17) , (26) (200)
 2 , (200) (9) (50) , (1) (8)
 , (200) , (35) , (8)
 (8) , DL (1) (200) 가 ,
 (35) , 가 .
 (30) , (50) , (56) 가 , (51)
 (50) .
 (57) , (200) , DL(2)
 (1) (200) (200)
 (200) (43) , (1) (44) , (200)
 DL(2) DL(2) (1) (200) DL(1)
 (200) (200)
 (25) , 가 , (25)
 (1) (200) , 1 , 2
 가 , (25) , (39) .
 3 , (1) (58) (200) (59)가
 (57) . 3 (1)
 (36) (58) GL ,
 (1) (35) , (59)

(35) , (21) (21)
 (200) 가 , (26) (200)
 (27) 가 .

3 , (58) (59) (57)
 , (8) (36) (35)
 1 (50) , (58) (59) (57) ,
 , (58) (1) ,
 (59) (200) ,

4 , (26) (50) (50) 4 , (1) (200)
 (200) 가 . (1) , 4
 (50)가, (1) (8) (200) (9)
 , (1) (200) 가 , (1)
 (26) (35) (51), 가 (56) , (38) 가가 . ,

4 (50) 4 , 1 , 4 (1)
 , 가 4 (200) , 1
 . , (26) (1) (200)
 , 가 (1) (200) ,
 , (50) (1) , (200)

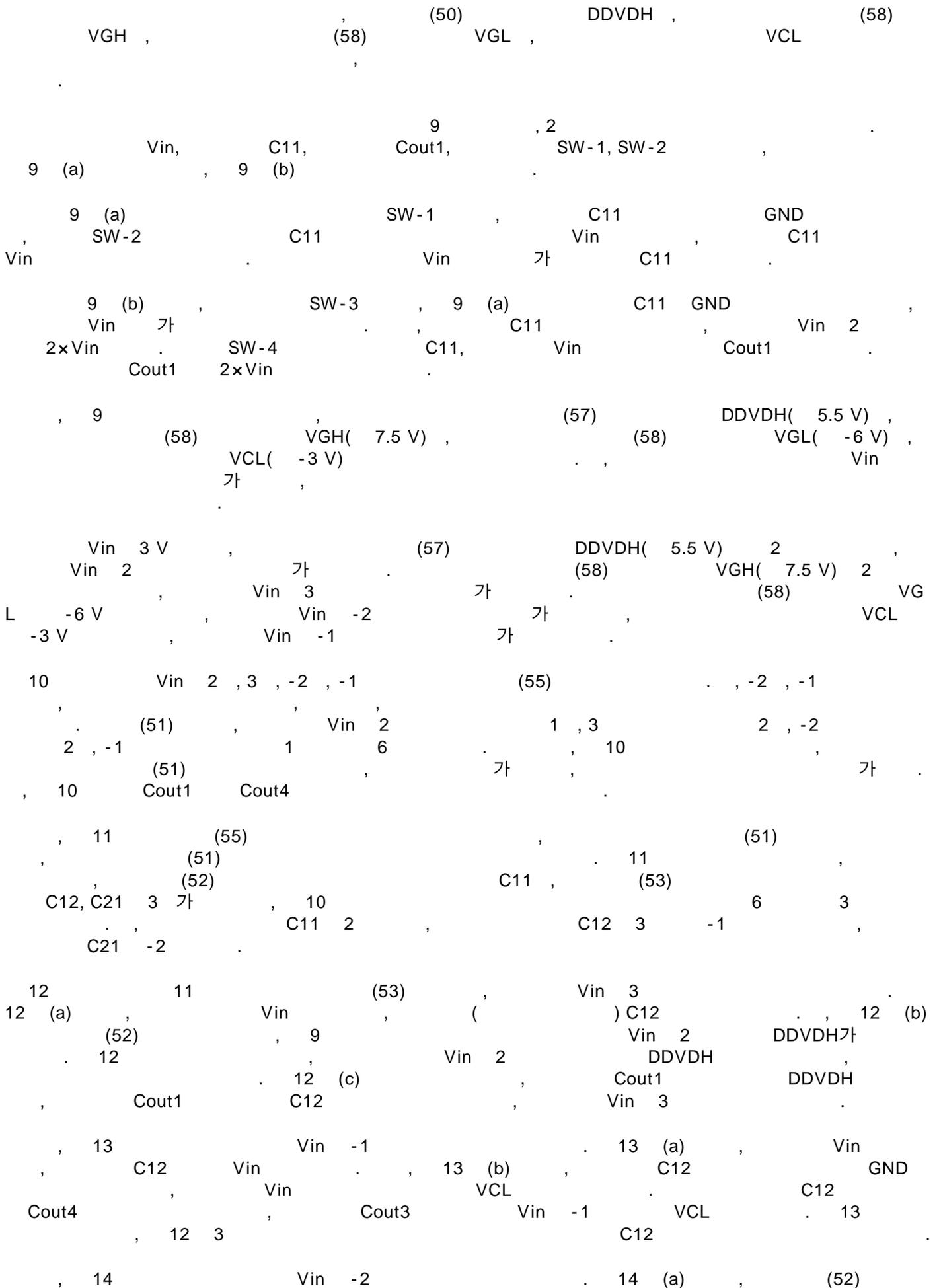
5 , (1) (200) (50) 4 (50)
 (50) (1) (8) (200) , 가
 , 5 (200) 가 ,
 (1) (35) .

5 (50) 5 , 1 , 5 (1) (1)
 , 가 . 5 (200) , 1
 가 . 가 (1) (200)
 , (50) (1) , (200)

6, 7 , (58) , GL
 6 (a) , (1) , 가 176 , (200)
 가 64 , (58) , 가 240 go1 ,
 go240 GL1-1 GL1-176 , GL1-176 GL2-1 ,
 GL2-64 .

(1) (200) , , 가 , 가
 , (58) , (57)가 , 가
 , (1) , GL 가 240 , 1 (1))

50 Hz , 1 (1) 50×240=12 kHz 가 . ,
 64 , 50×64=3.2 kHz 가 .
 , , GL1-1 GL1-176 1 1 H(, H) (1)
 , GL2-1 GL2-64 가 (200)
 , 6 (b) , (200)
 1 , go240 GL2-64 , go
 GL1-1
 (58) 6 (a) , 6 (b) 가 240 ,
 , 7 (1) (200)
 , (58) (58-a 58-b) , ,
 , ga177 , ,
 (58-a) 176 (58-a) , (58-b) 176 가 가
 , (50)가 가 가 가
 7 (b) , (58-a) 가 2 , 176 ,
 (58-b) (58-a) (58-b) , ga176(2) ,
 64가 ,
 , 2 , 가 가 ,
 , 가 가
 , 1.5 V 4 V ,
 , 8 (1 , 200) (15)
 VCOM ,
 8 VGON (10)(TFT) VG , 7.
 5 V 가 , VGOFF VG , VG ,
 , -5.5 V . VGH (58)(VGON 7.5 V)
 , VGL (58) VGON 7.5 V
 , VGH 8 V , VGOFF가 -5.5 V , VGL -6 V .
 , VDH . VDH () (57)
 5.0 V 가 . DDVDH (50) (57)
 (57)가 VDH가 5.0 V , (57)
 6.0 V , 5.5 V 가 .
 VCOMH , VCOML . VCOMH 5.0 V 가 ,
 VCOML -2.5 V . VCL , VC
 OML . VCOML -3 V 가 .



Cout1 DDVDH C21 DDVDH 14 (b)
 C21 GND C21 Cout4 DDVDH VGL
 -2 VGL Cout4 Vin
 11
 Cout1 13, 14
 Vin 가
 (57) DDVDH 가
 (58) VGL VCL (58) VGH
 C12, C21, C22
 가
 15 11 (53) VGH 16
 W1 12 (a) SW3 15 SW1 SW3 S
 C12 Vin SW1 SW3 (52) DDVDH가 SW4 SW3 (b) 가
 SW1 SW8 SW3 SW4 (c) C12 DDVDH
 Vin 3 Cout2 Cout2
 13 SW3 SW2 C12 13 (a) 가 SW1 SW SW
 SW9 SW3 Cout3
 Vin -1
 14 SW7 SW6 C21 14 (a) 가 SW5 SW SW
 SW10 SW7 Cout4
 15 C12, C21 SW1, SW3, SW5, SW7 16 SW4, SW8
 C12, C21 SW2, SW9, SW6, SW10 () 가
 15 가
 17 가
 18 VGH 21 Vin 17 18 (58) DDVDH
 Vin 2 (52)
 17 SW7 SW5 SW5 C21 DDVDH 가
 SW5 SW7 C21 SW11 SW17 18 (a) 가
 Cout2 Vin 4 SW11 SW17 18 (b) 가
 19 (58) VGH Vin 5
 C21 DDVDH 19 (a) C12 Vin (b)
 C12 C12 C21 DDVDH

, Vin 5 , SW16 C12 C21가
 20 , (58) VGH Vin 6
 2가 가 , 가 , 가 20 (b) C2 SW
 19 , , 가 가 20 (c) C21 C22 , C2
 6 , C22 DDVDH SW15 , Vin
 21 , (58) VGL Vin -5
 C21 DDVDH가 , 21 (a) C12 Vin
 21 (d) , 21 (c) C22 DDVDH가 , 21 (b)
 , Vin -5
 , 가
 , 21 , 가 , ,
 , 가 , ,
 , VCL , VCL 가 VCL ,
 , 17 VCL 가 , VCL
 , 가 가 가 VCL
 22 , C3-1 C3-2 2 가 VCL 22 C3-1
 Vin Cout5 , , 가 가 SW3-1 SW3-3 SW3-7
 , Vin -1 ,
 , C3-2 C3-1 C3-2 , C3-4 C3-5 C3-2 Vin
 Cout5 , , C3-1 C3-2 SW3-6 SW3-8
 , Vin -2 , 15, 17, 22
 , 가 , ,
 , 23 (50) (4) 23 (4)
 , (81) , 84 , 86 , 82 , 83
 M , VCC (50) , 87 Vin ,
 , 23 , 가 , (81)
 , (83) , 가
 가 (81) (83) (42)
 , 24 , VCOMH VCOML
 , VCOMH-1 VCOML-1 ,
 , VCOMH-2 VCOML-2
 , (82) , (88) , (81)
) (83) , 가 ,
 23 , (84) , VCOMH (82)
 , (82) (≡) (88) ,
 (83) (83a) , (81) (81a) ,
 (82) , ,

OML , VCOMH (81) (81b) , VC
 (83) (83b) (81) VCOMH-1
 (81a) VCOML-1 (83) VCOMH-2
 (83a) VCOML-2 (83b)
 (81) (83) (82)
 23 (52) 23 C1-1 C1-2 2 VCL DDVDH Vin
 2 3 가 (81, 82) VGOFFH VGOFFL (89) 가
 VGOFF
 23 VCL (54) (53) VCL (5)
 3) VCL 가 VCL (54) VCL 가
 (81, 82) 가가 (53 54) VCOMH VCOML
 23 C3-1 (54) C3-2(23)
 C3-1 -1 가 22
 SW3-4, SW3-5 (50)
 (50) 가
 (50) 25 NPN PNP 가 81 PNP 가 82 , Vin-D
 DVDH , GND-VGL NPDP VF , Vin<DDVDH, VGL>GND VGL GND
 가 (5) VDH Vin 가 , Vin-GND
 가
 25 (76 77) 26 (a)
 26 (b) 26 (b) 가 가
 (78) , GND-VGL VF
 27 (a) (81) (85) 2 26 (b) DDVDH VGH Vin
 (82) DDVDH VGH DDVDH VGH (81) VGH 23 (81)가
 (52) VGH DDVDH A A
 AP
 B (53) VGH VGL VGL VCL VGL VC
 가 , VGH>DDVDH 가 가 PON
 가 B 가

가 (元)

가 27 (b) D Vin

가 VCOM (10) C DDVDH, VCL, VGL GND 가 (10) 가

0) VGH 가 (50) 28 GON (5)

(50) VGH DDVDH VGH

(50) 가 ms (50) ms (50) 28 (a)

가 28 (b) CA1 CA2 RESET VCC 가 VCC

(50) RESET 가 (50) 가 RESET (5)

0) RESET 가 DDVDH VGH RESET

29 (79) (81) (85) DDVDH VGH

RESET (81) (85) 26 AP 27 (a) A PON

SLP VGH, VGL, VCL 27 (a) B

29 (79) VGH > DDVDH VGH , VGH < DDVDH VGH > DD

VDH VGL 27 (81) 가 (85) (85) (81)가 (79)

(81)가 (85)가 VGH DDVDH (81)가 (79)

30 가 30 (a) 가 가 (50)가 30

(b) 30 (50) (58) RESETout

(57)

31 (1) 31 (1) (400) (400)

가 (410) (420) (415)

가 (410) 31 (a) (411) (412) (416)

가 (1) (1) (400) (420)

(1) (1) (400)

(410) 31 (b) (411) (412) , 가 , 가
 (1) , (420) , (415) ,
 , (400) 가 , (1) (50)
 (94) 가 , 32 (a) 가
 MCLK가 , 가
 가 , OSC ,
 (93) ,
 32 (a) , (92) (93) (91) (93) (52)
 (94) , (93) S3 (52) S1 , (52)
 S2 , S4 , (52) MCLK+ , MCLK- D
 DVDH , MCLK+ , MCLK- S3
 , 32 (b) (94) , MCLK+ , MCLK- S3
 MCLK+ , 가 , MCLK- 가 , MCLK+ , DC , 가
 가 , High , DDVDH, Low GND가
 , , ,
 가 , DDVDH (5 V) , Vin (3 V) ,
 , , MCLK+ MCLK- ,
 DC () MCLK+ MCLK- MCLK- GND , S4 , S4가 High
 MCLK+ MCLK- GND가 32 (a) 32 (b) S4 , DDVDH Vin
 (가) , MCLK+ MCLK- High DDVDH Vin
 High , 32 (b) , , S5 , (52)
 , 32 (b) (81, 82, 83, 84) DDVDH , Vin , 26 (a)
 , 32 (82)가 , DDVDH , DDVDH Vin , 26 (a)
 Vin , DDVDH , Vin ,
 DDVDH , 26 (a) 81, 83, 84 , (52) , 가 ,
 DDVDH ,
 , 33 (50) , (451) , 452 (,
)(1) , (452 453) , , 453 () (200) , (35) , (36)
 2 , (50) , (451) , (30) , (30)
 (451) , (30) , 가 ,
 , 2 ,
 , 34 , 34 가 , 34 16

가 , 34 (50) , D15 34 D13 3 6 가 가 ,

(000) , D0가 SLP 가 , D11 /
 GON . D1 D3 , AP
 . AP0 AP2 가 0 , 27 (a) A가 ,
 DDVDH가 . D4 D6 , DC
 (4) (53) , 가 . D7 D9 BT , 23

(001) , D11가 가 , D11가 1 0
 . D11 가 0 , D7 PON , VGH, VGL, VCL
 . PON =1 VGH, VGL, VCL 27 (a) B . D9
 D10 VCOM1
 . D11 가 1 , D3 D4 MI , MCLK+ MCLK-
 . D1 D3 MFL , MCLK+ MCLK

(010) , D0 D4 가 VCM , V
 COM2 , D0 D4 (11111) ,
 가 . D5 D9 VDV , VCOM1
 VCOM2

(110) , D0 D4 5 가
 SC0 SC4 가 , D5 D9 5 가
 NL4 가 , D10 GS NL0
 (111) , D0 D1 2 가 FL

, , 110
 , 100 , 가 .

(1) , , 가 . ,

(2) 가 가 , ,

(57)

1.

1 ,

2 ,

1 2 ,

1 ,

1 가 ,

, 1 ,
1 1 , 2 2
.

1 2.
1 ,
1 , 2
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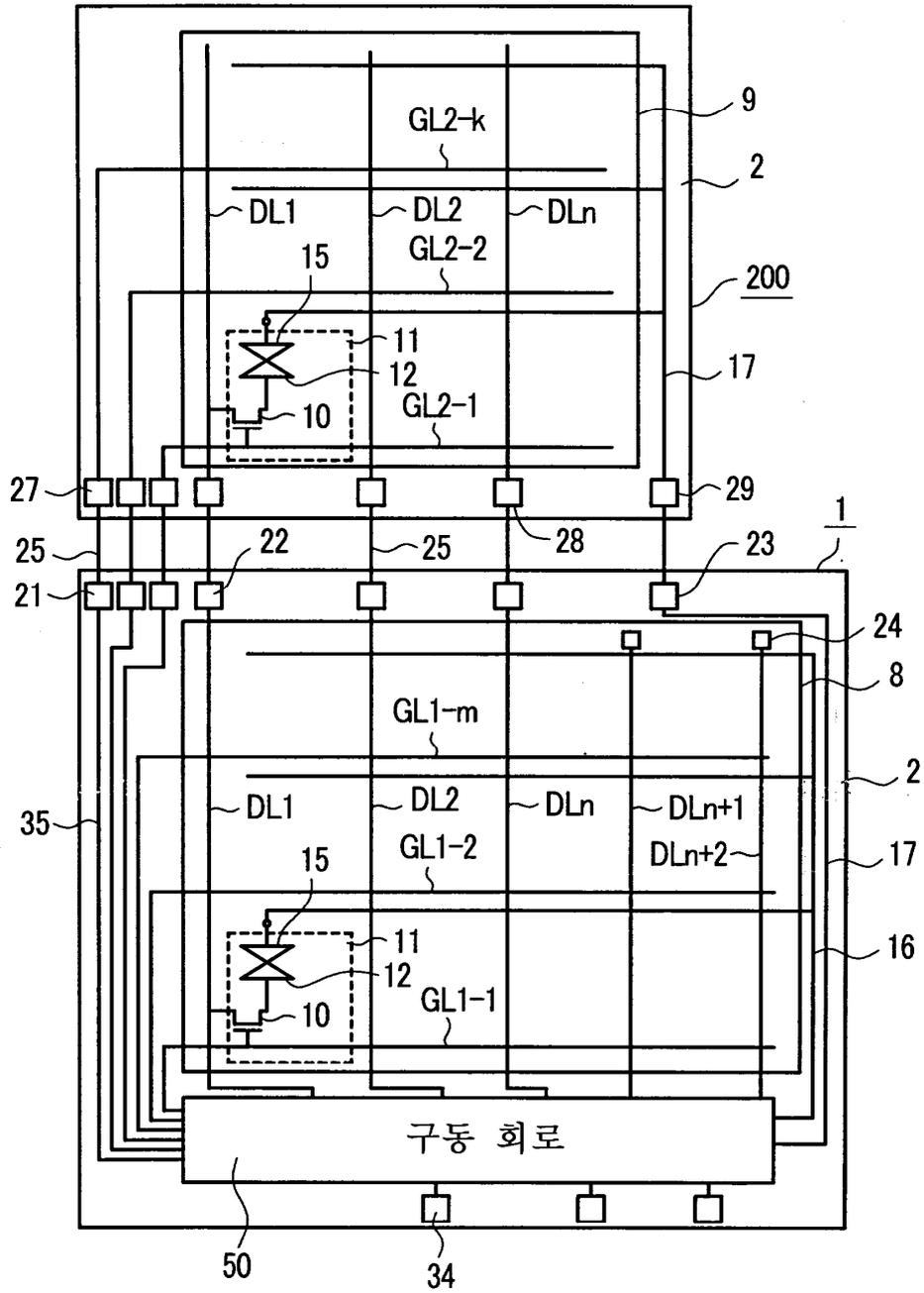
1 3.
1 ,
1 .

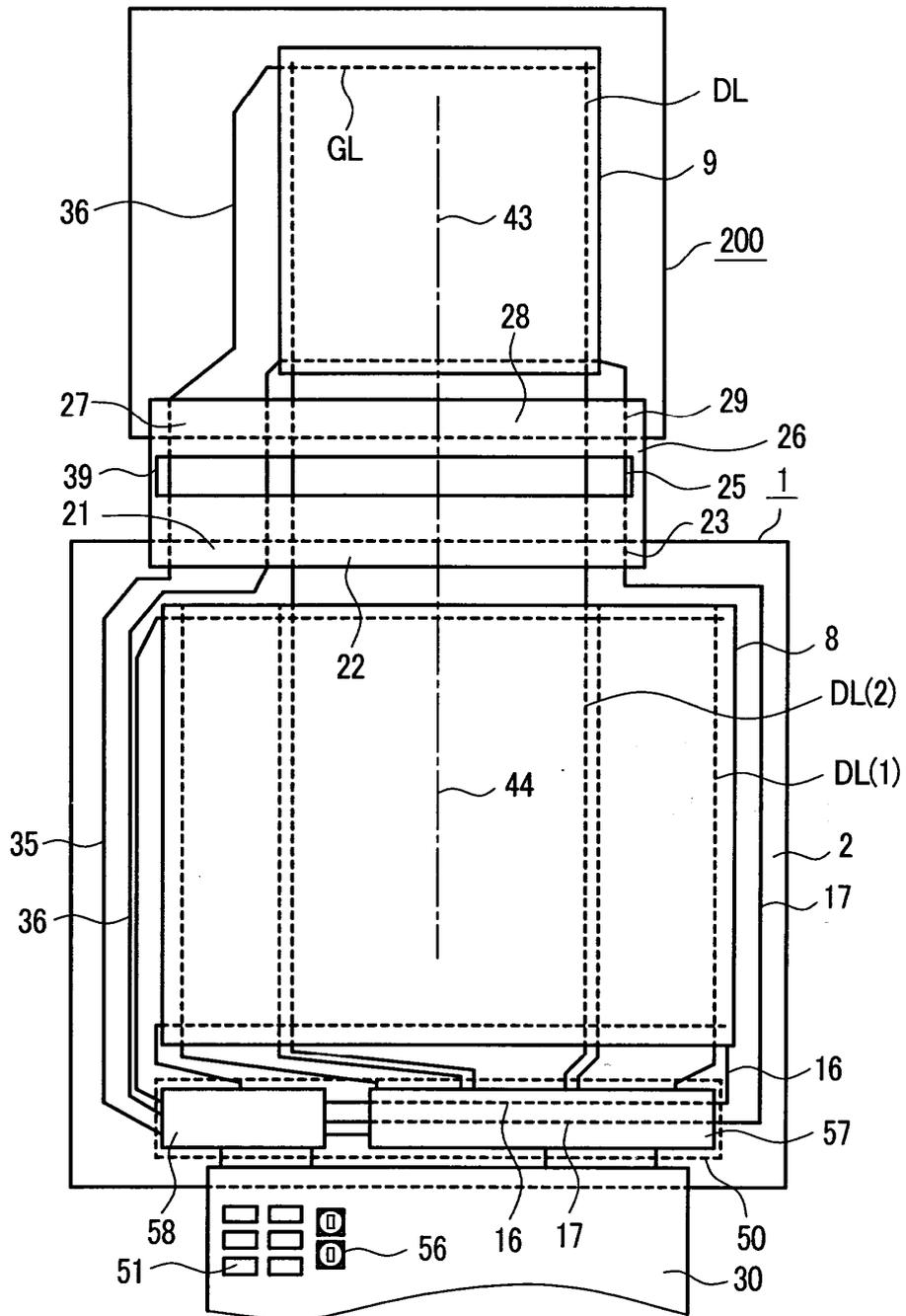
1 4.
1 ,
2 1 ,
.

1 5.
2 ,
1 2 ,
1 ,
1 가 ,
1 , 1 , 2
2 ,
가 .

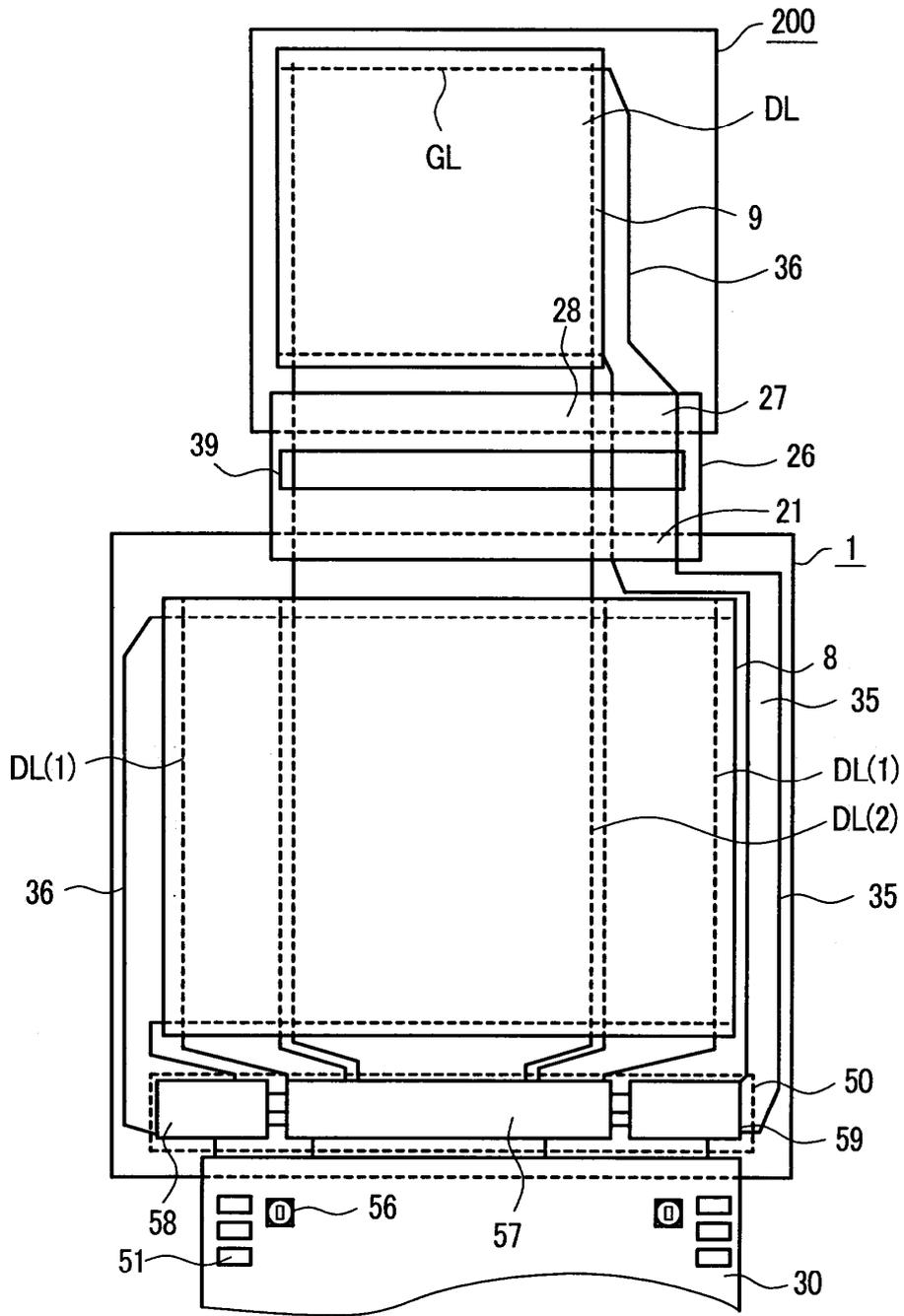
5 6.
1 ,
1 .

5 7.
1 ,
2 1 ,
.

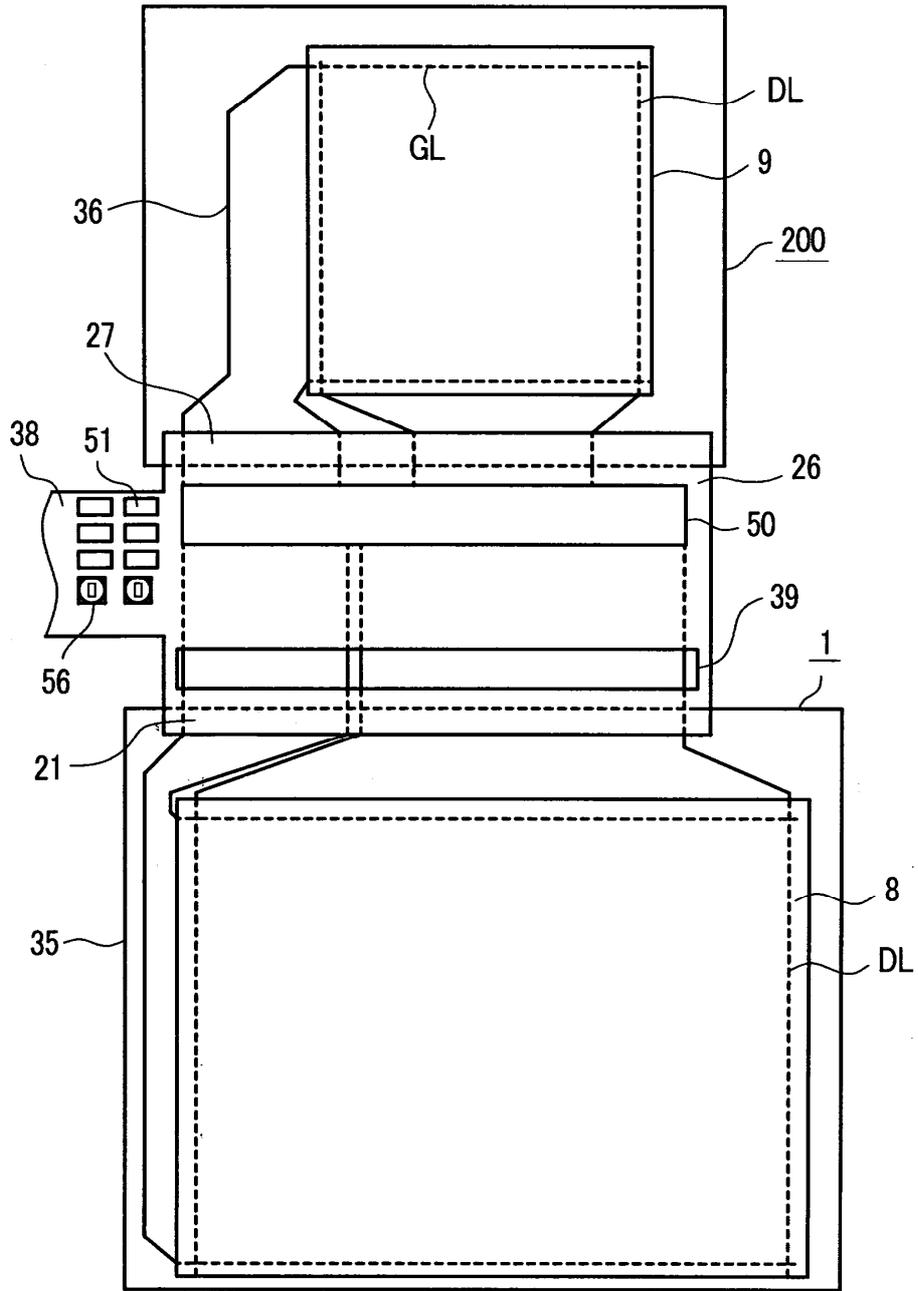




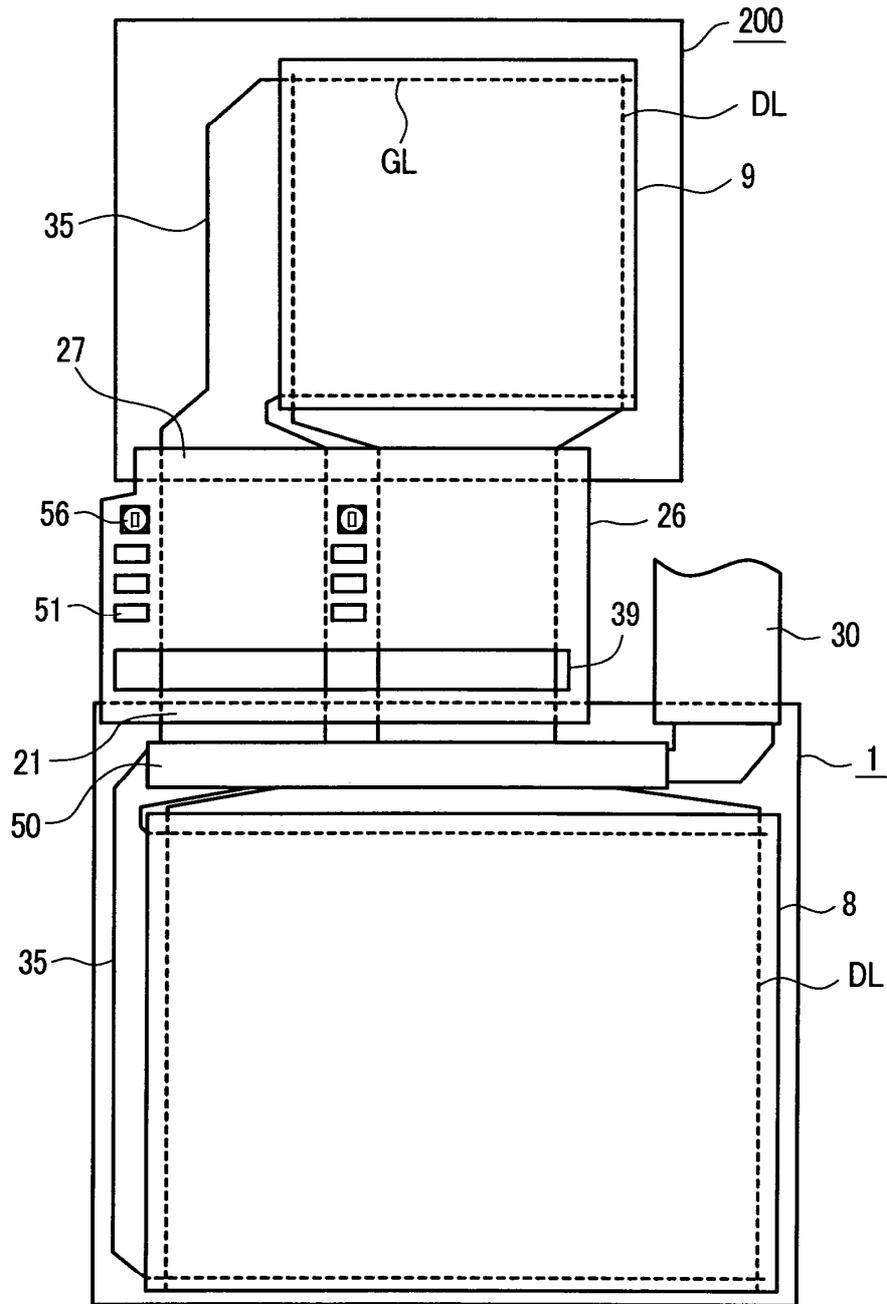
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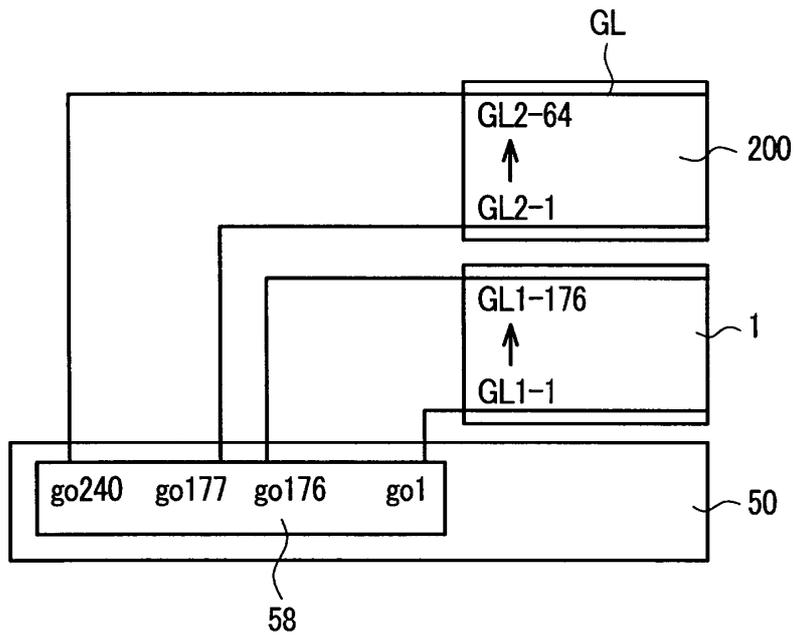


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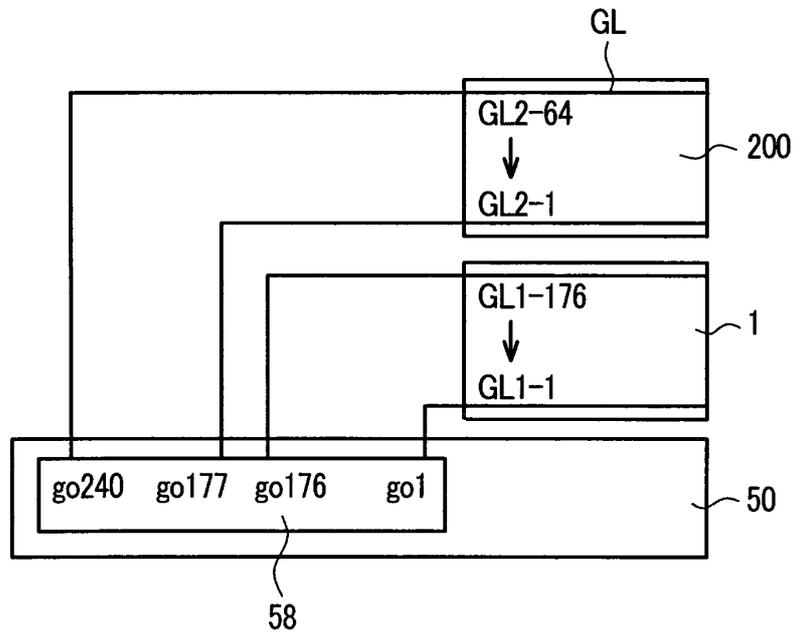


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(a)

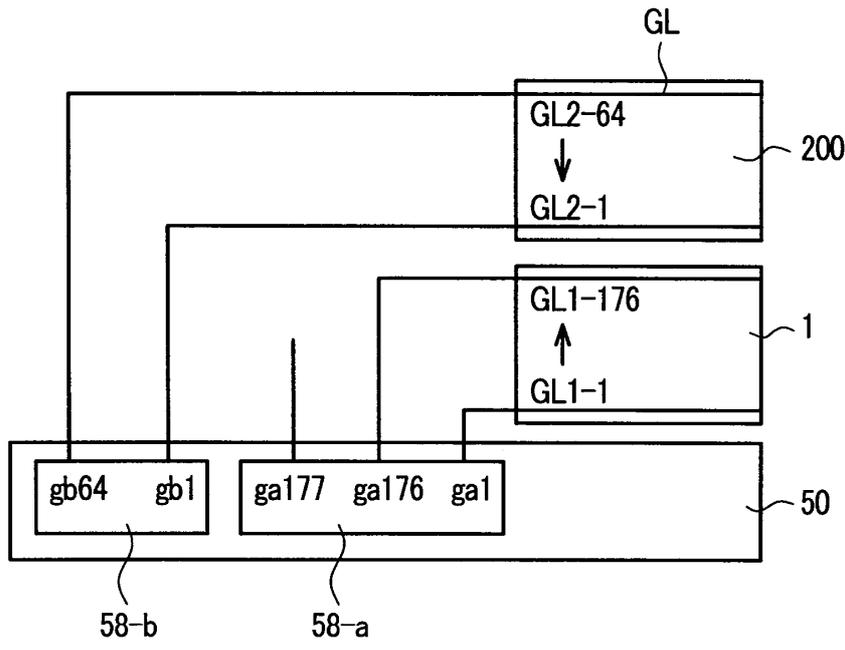


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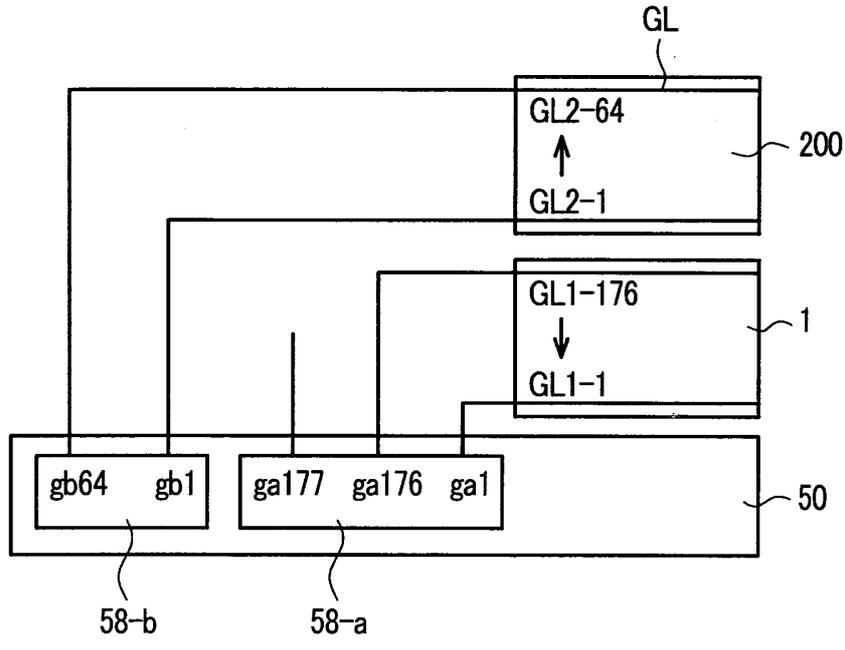


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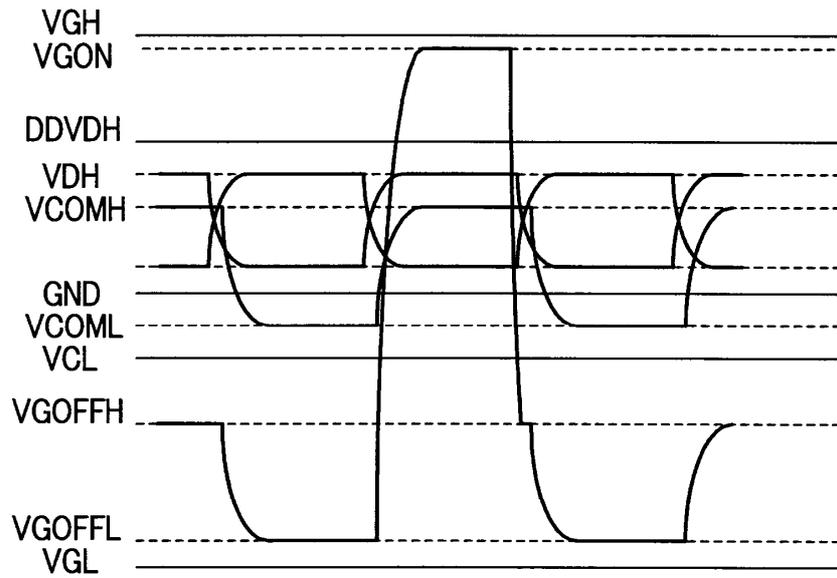
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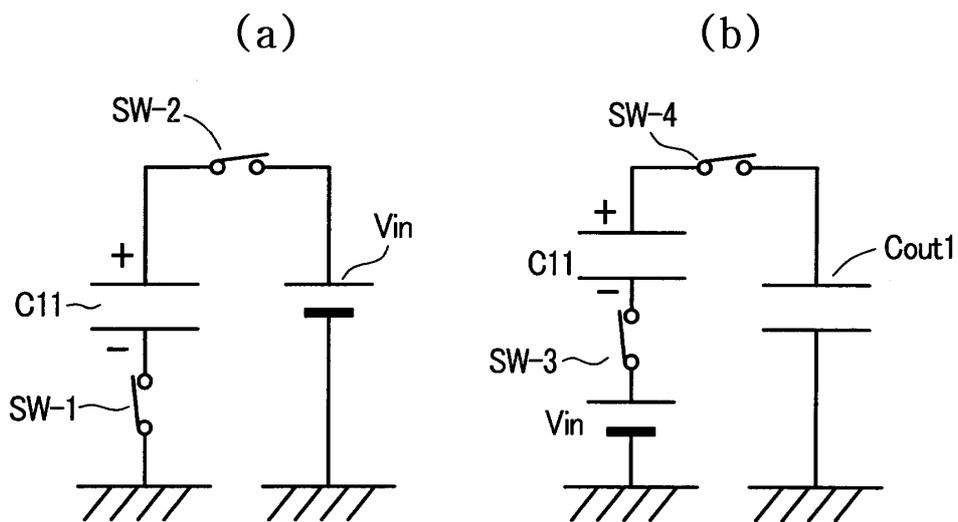
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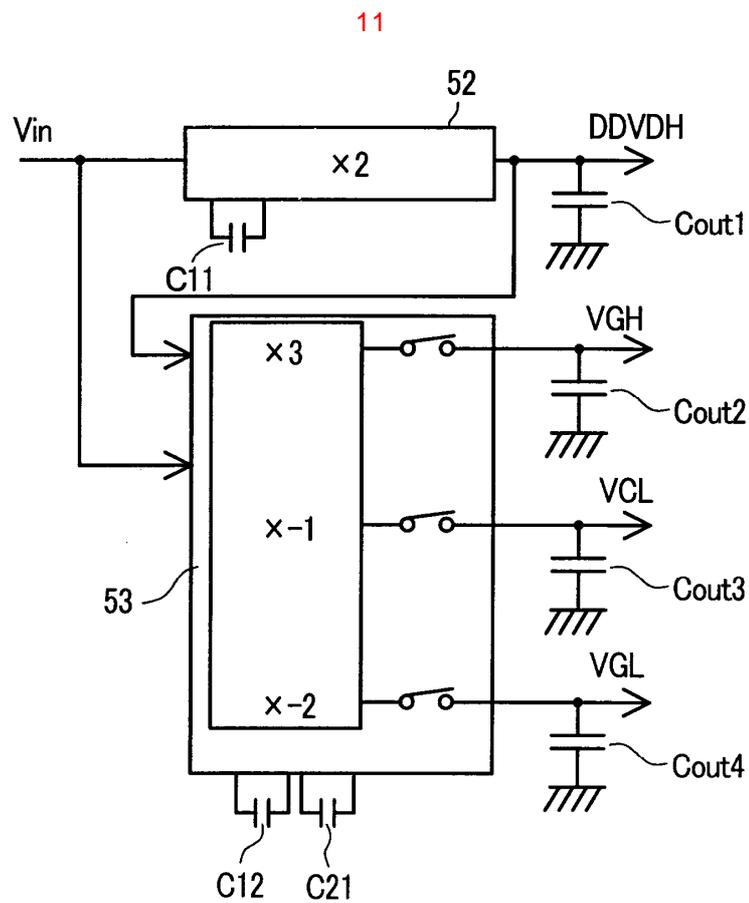
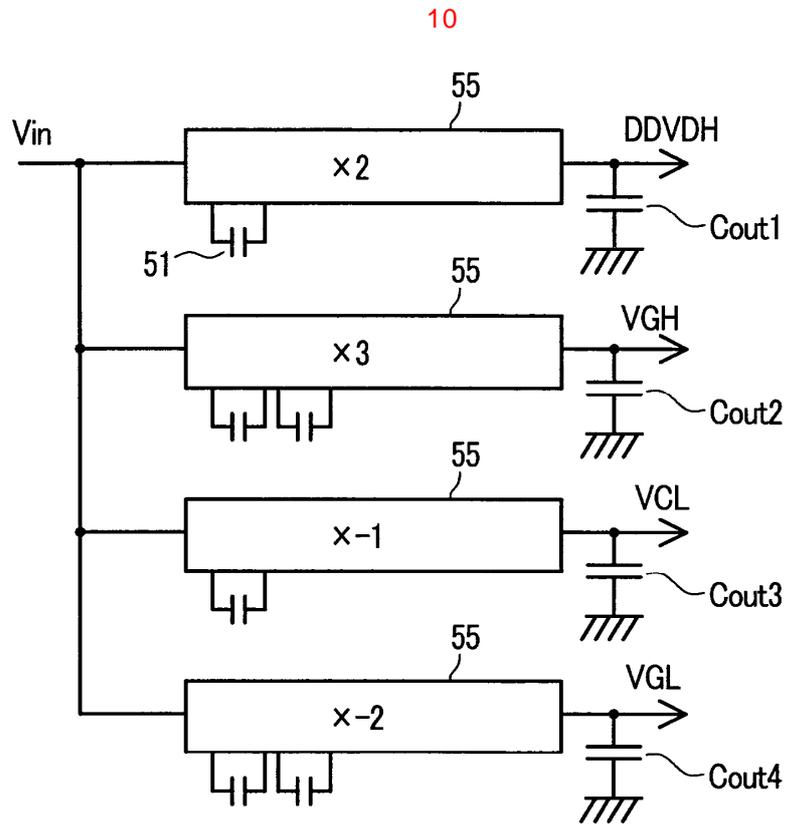


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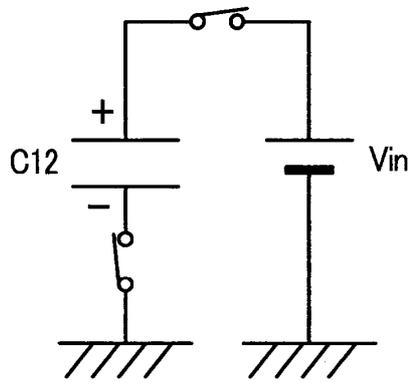


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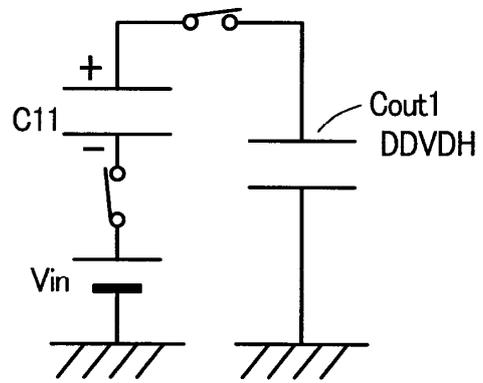




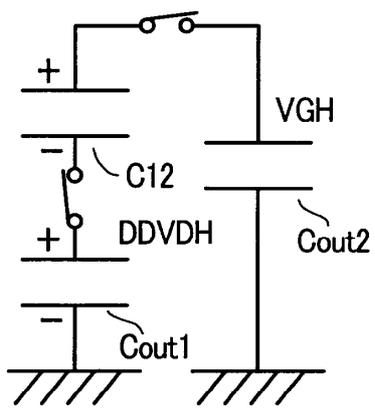
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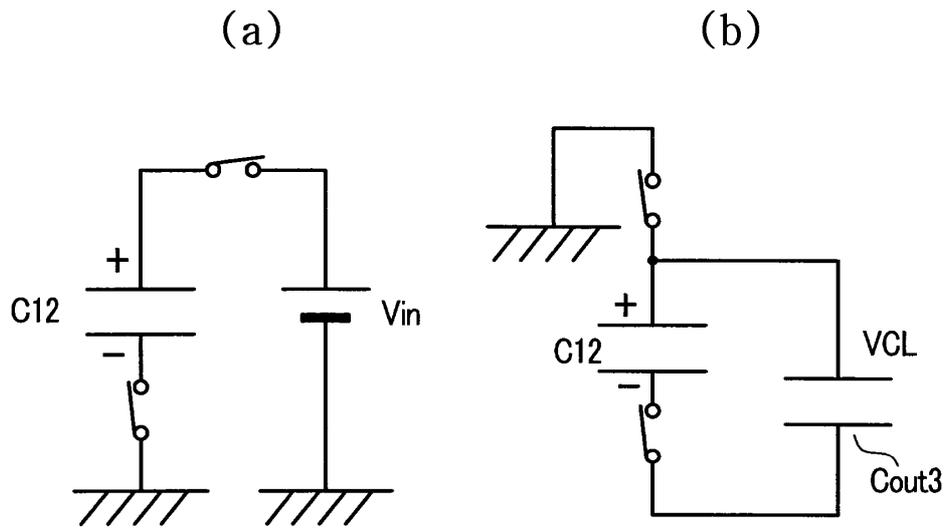
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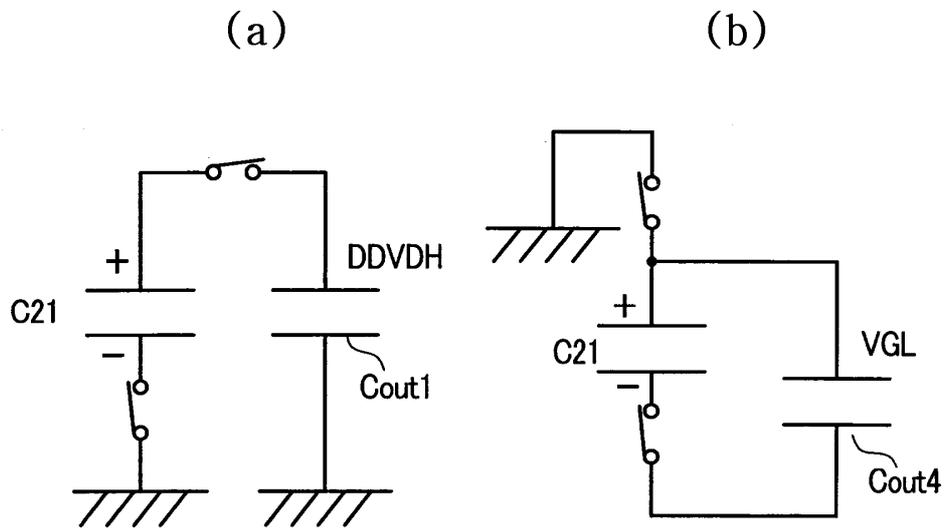
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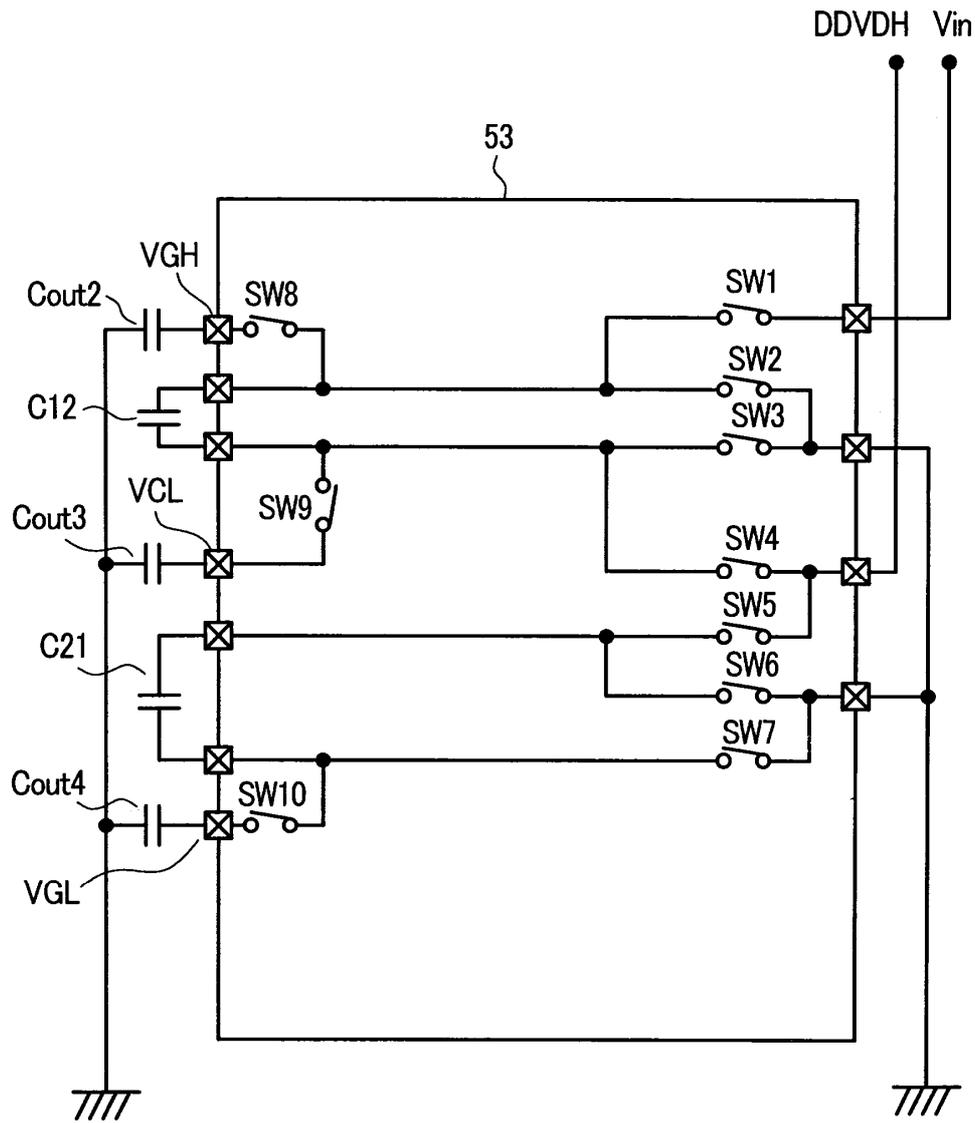


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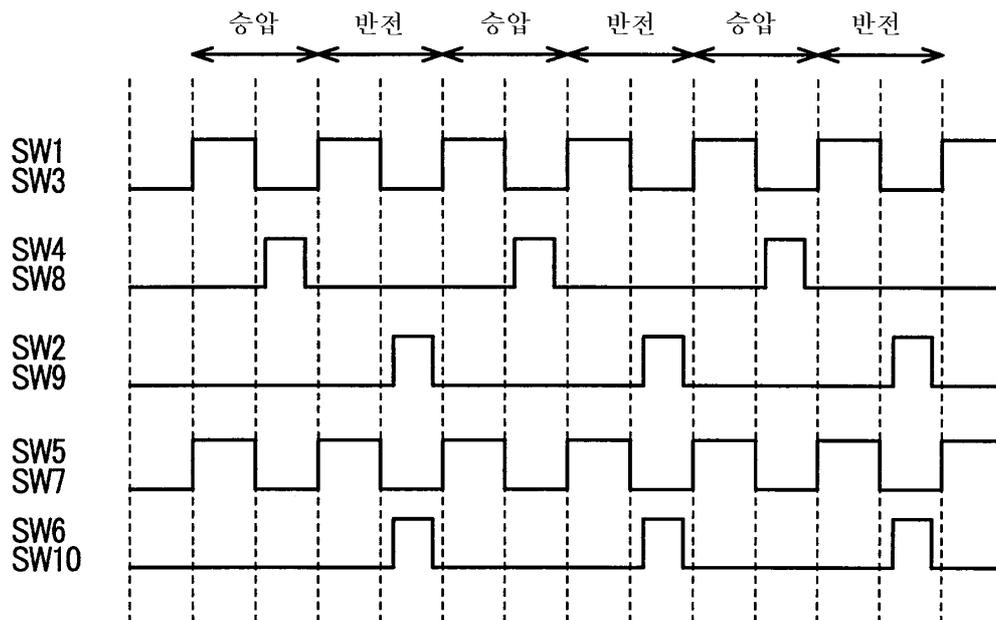


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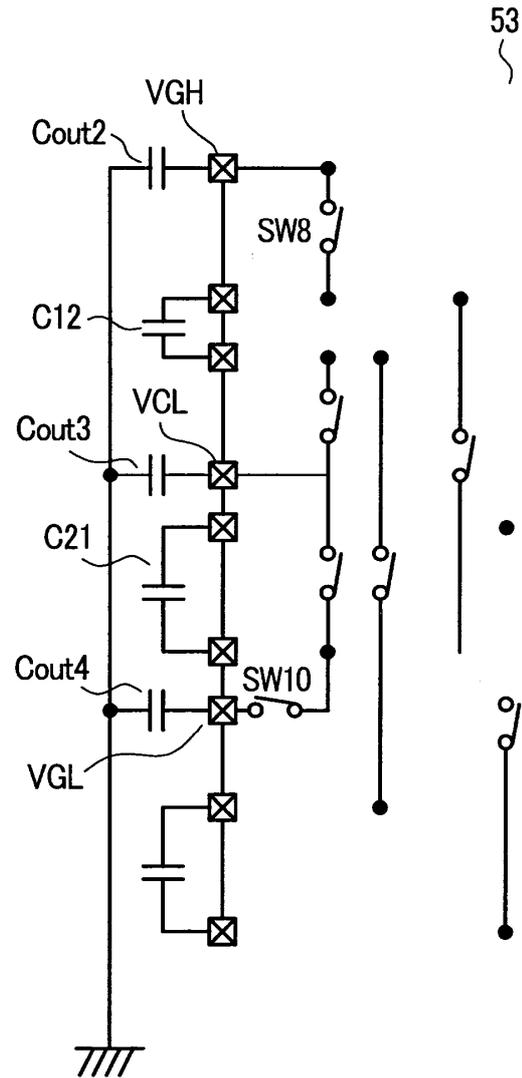




16



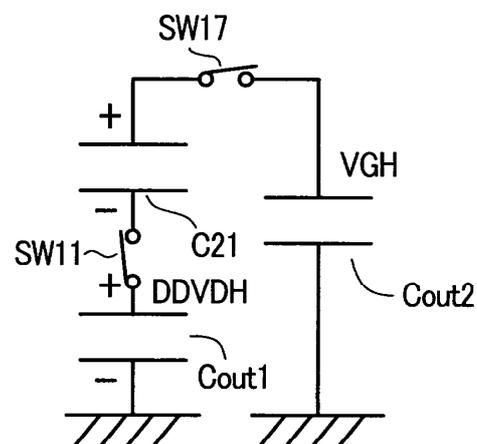
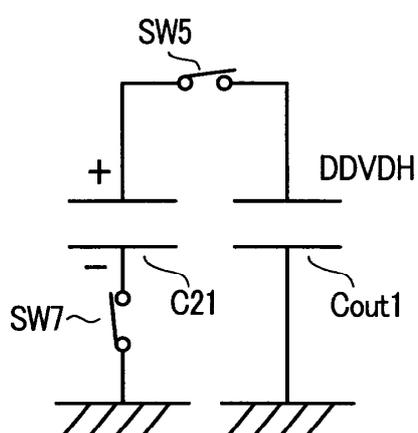
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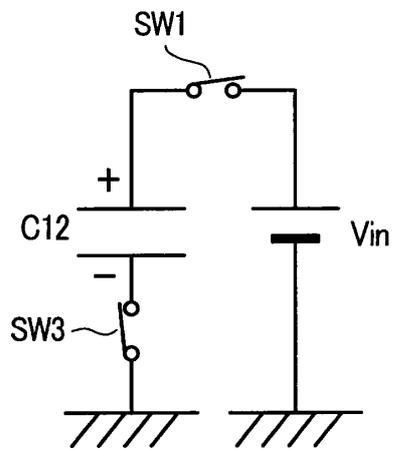
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(a)

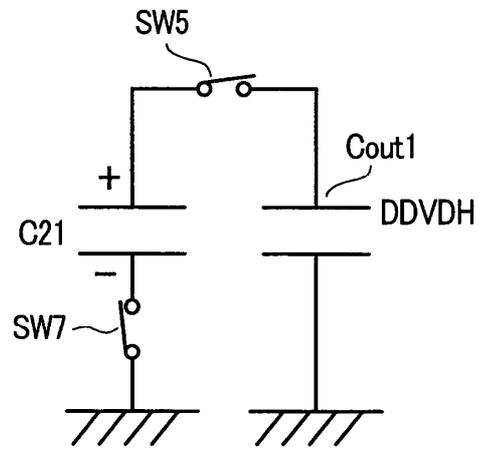
(b)



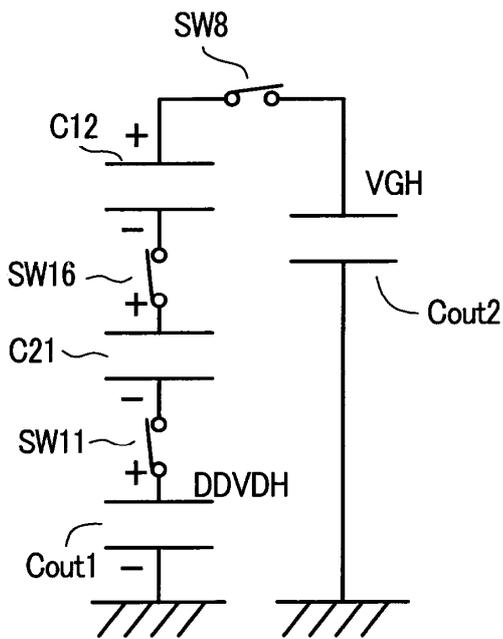
(a)



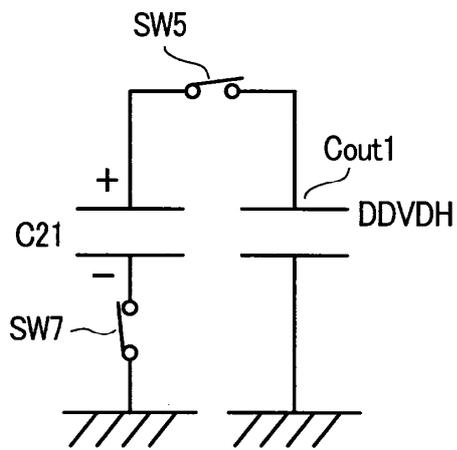
(b)



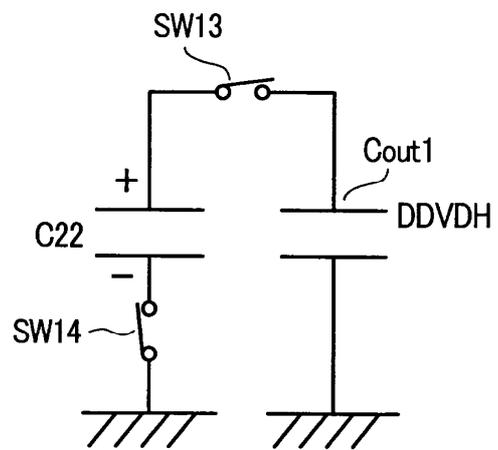
(c)



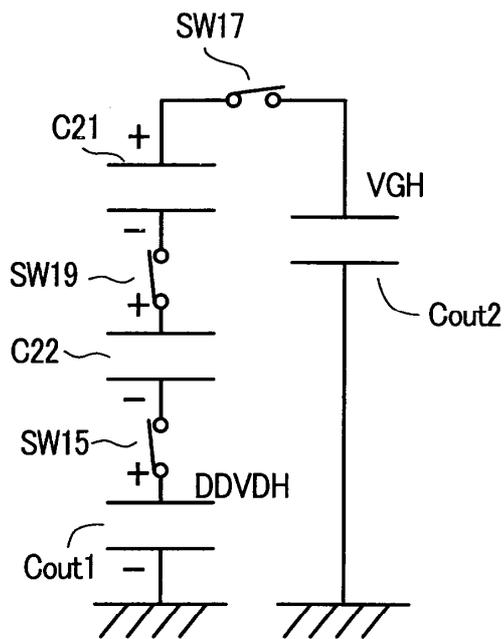
(a)

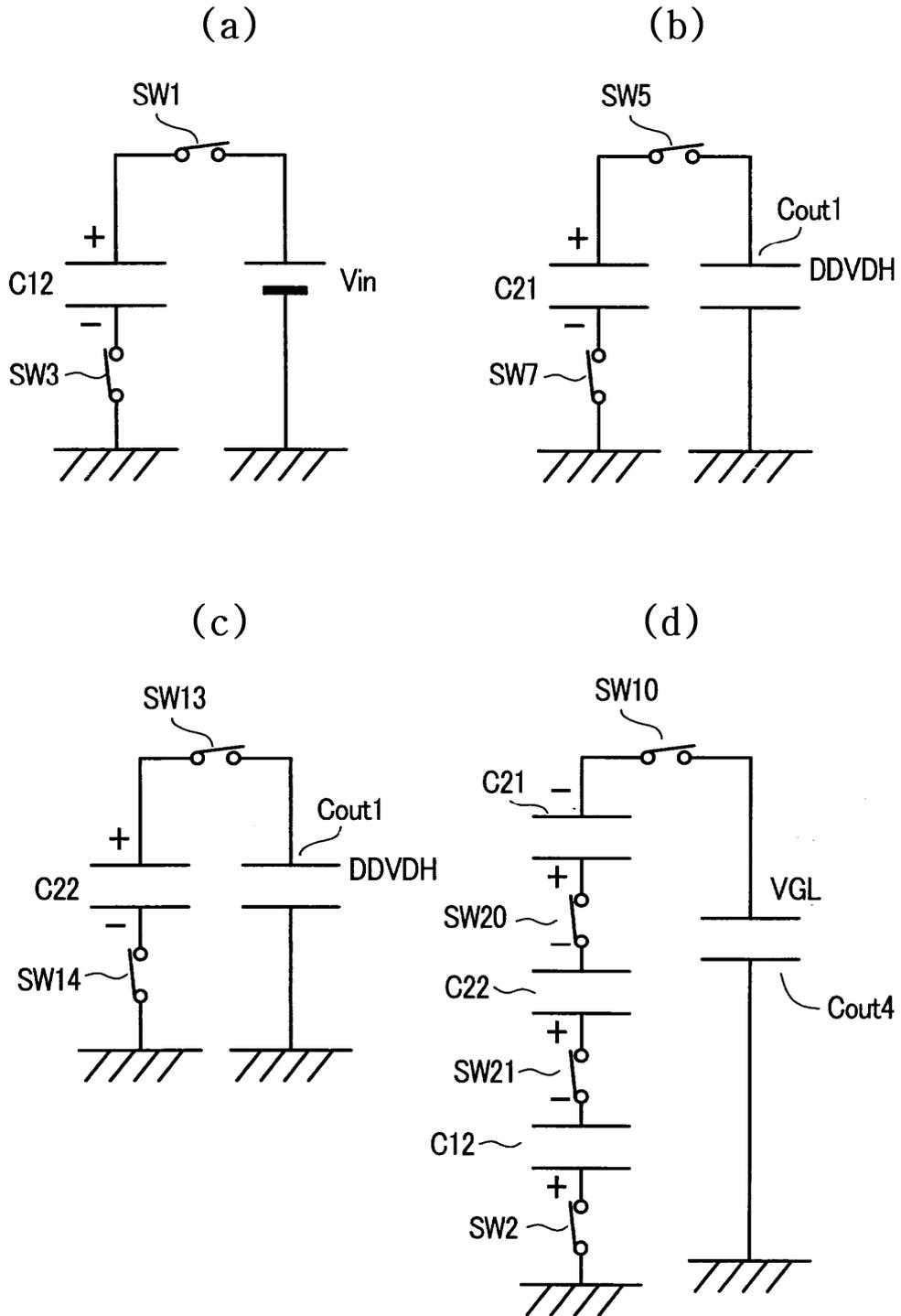


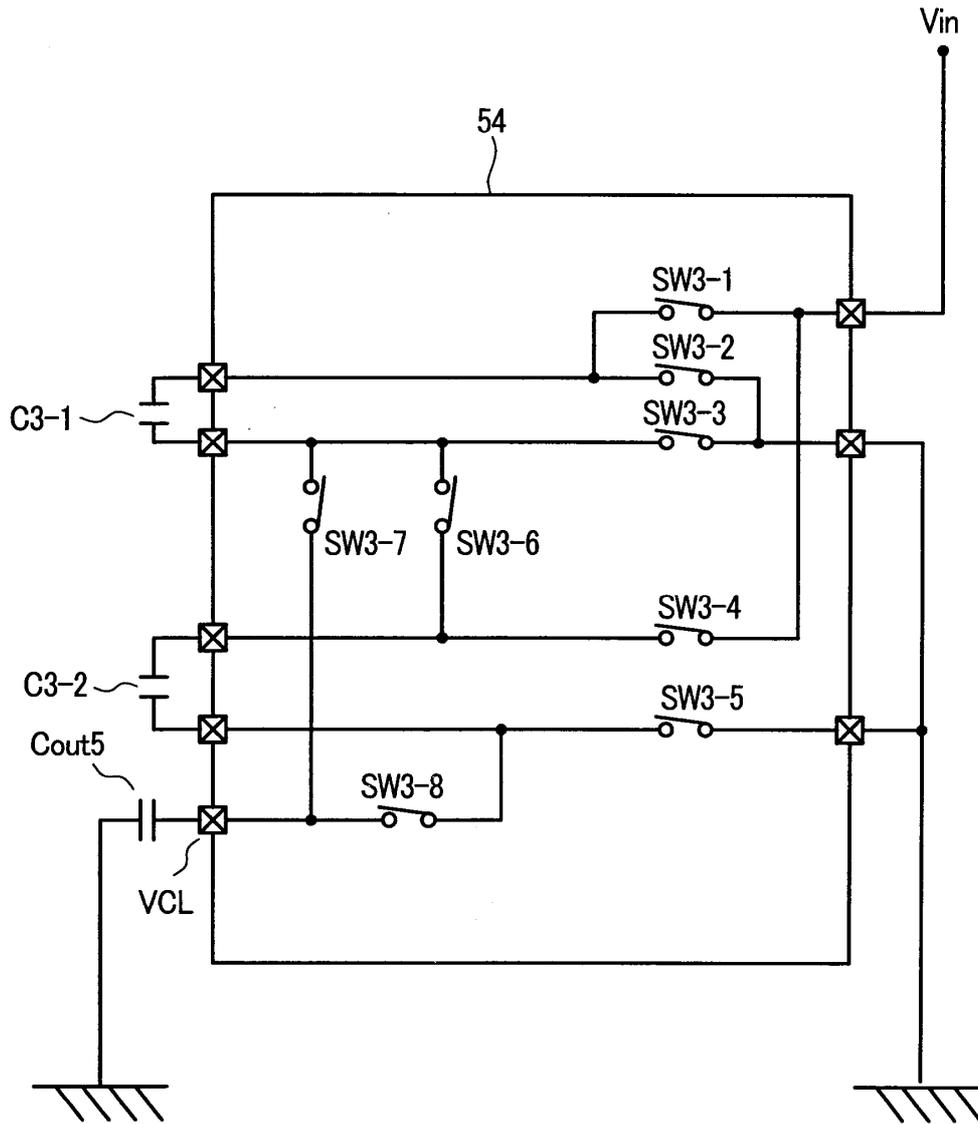
(b)

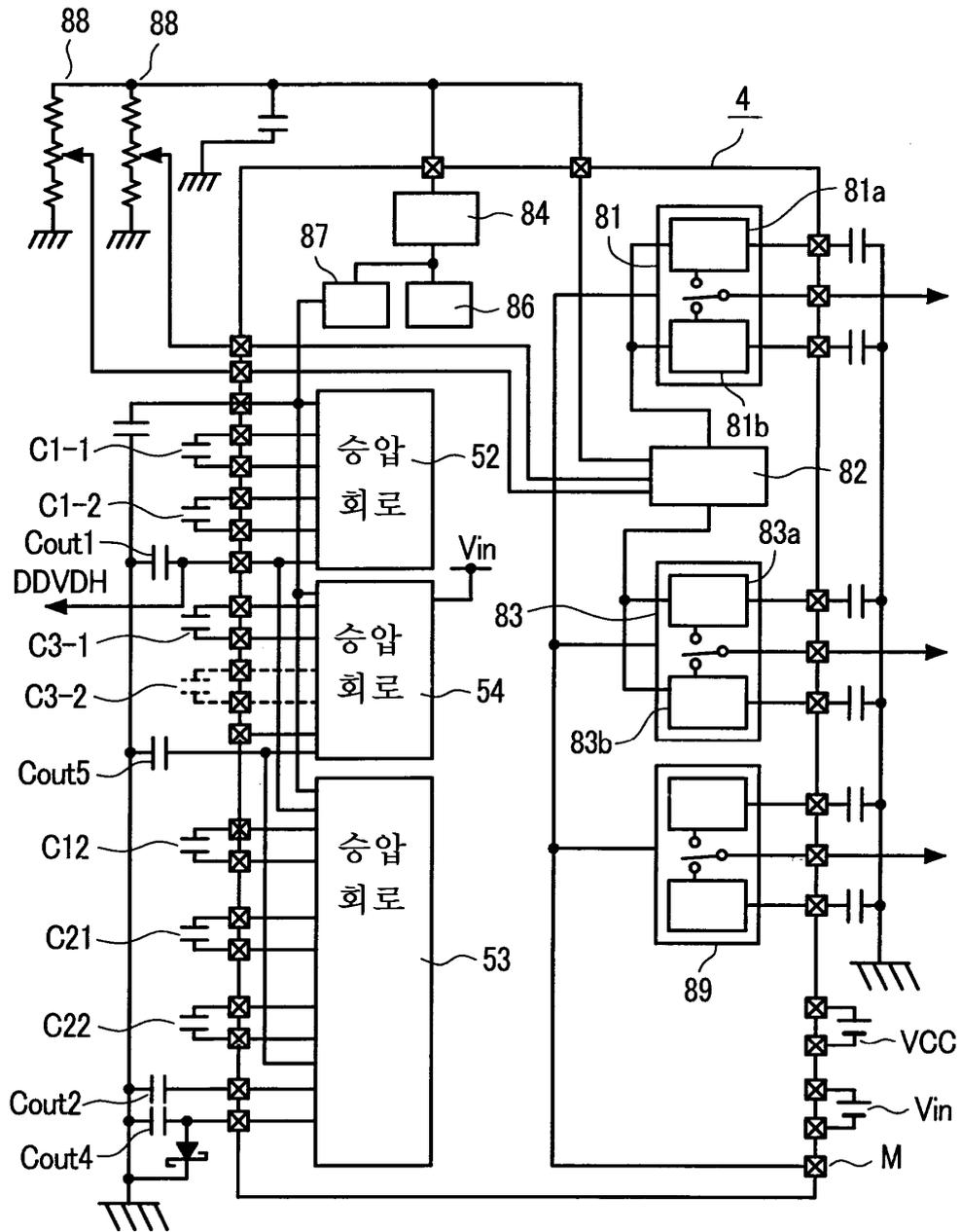


(c)

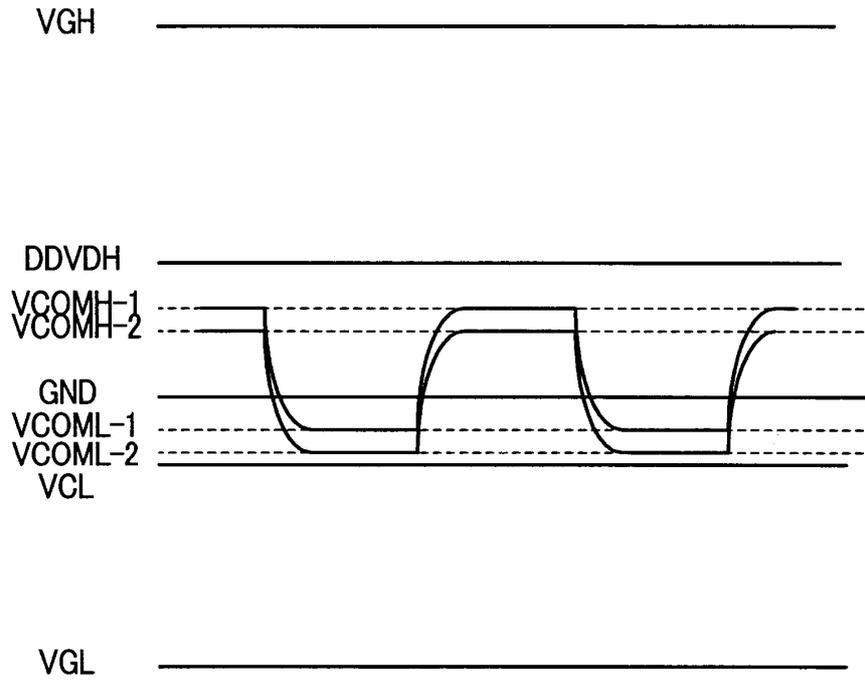




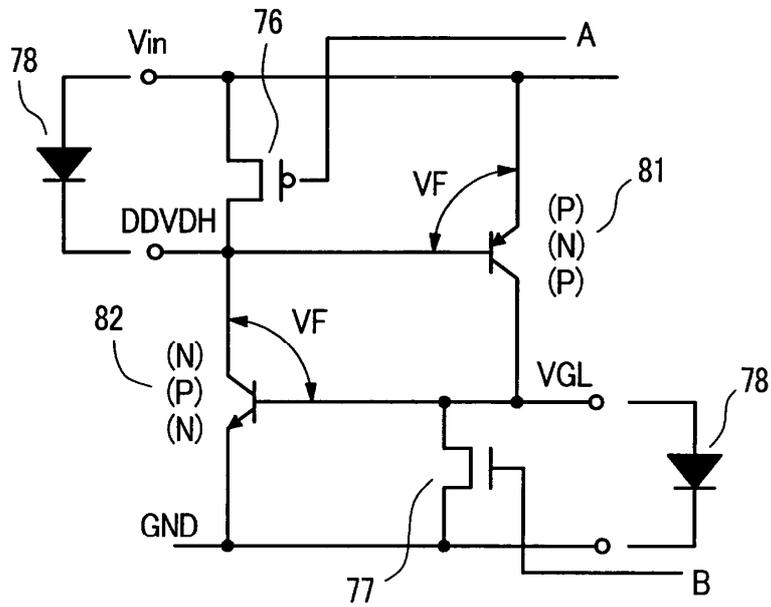


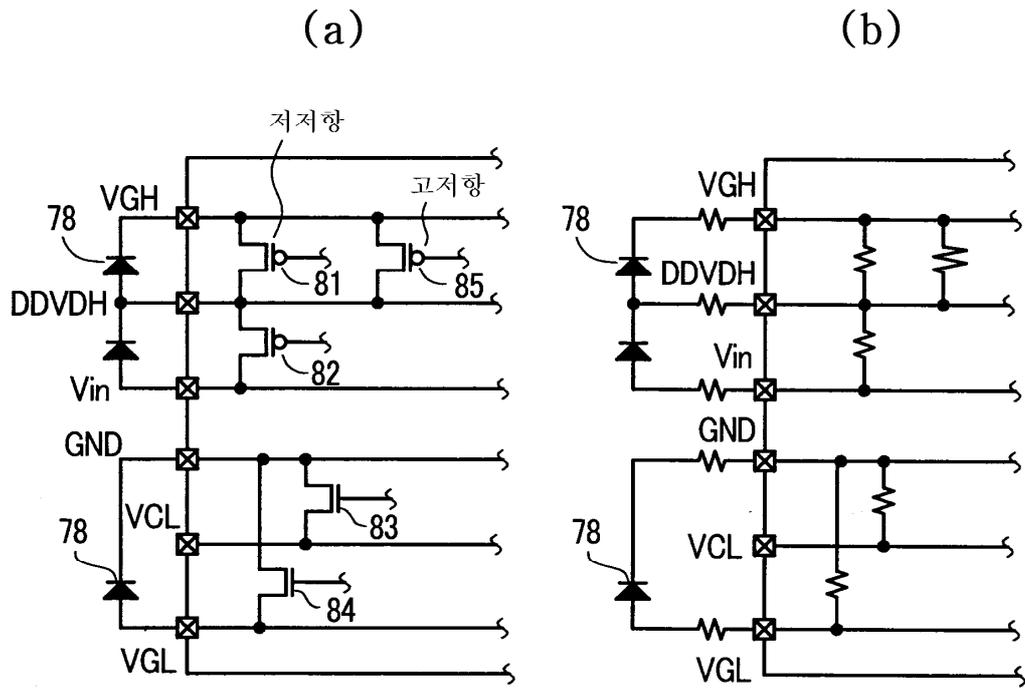


24

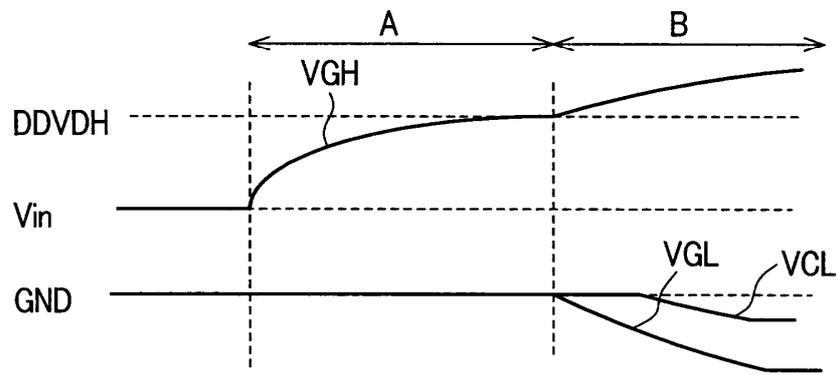


25

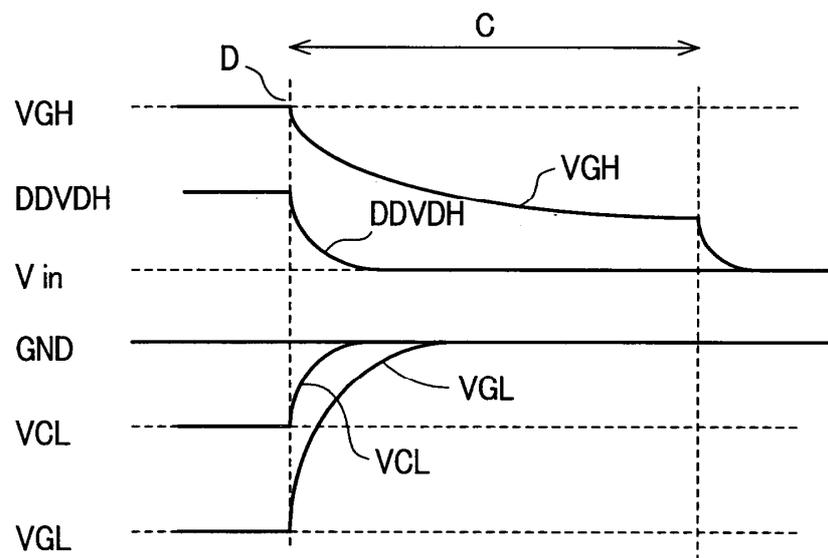




(a)

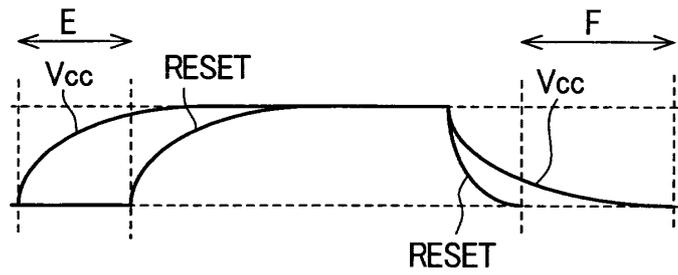


(b)

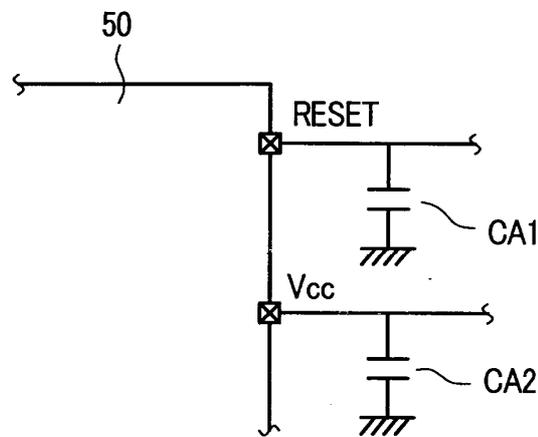


28

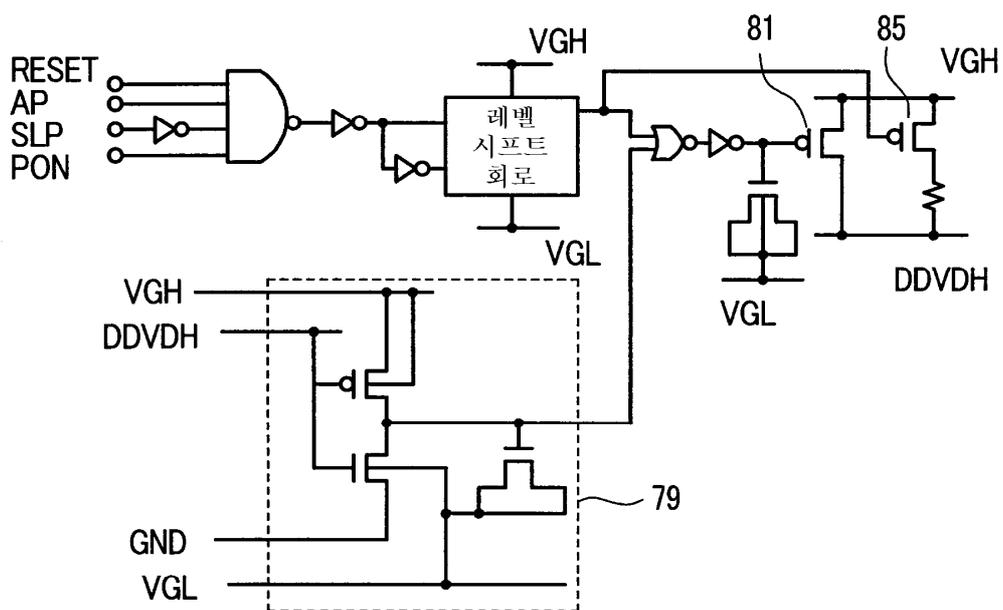
(a)



(b)

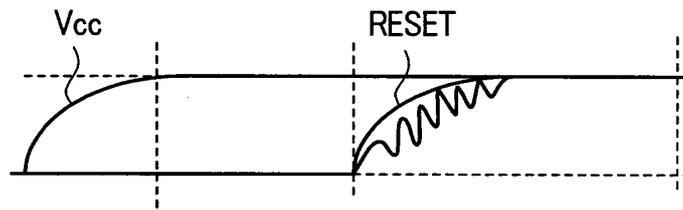


29

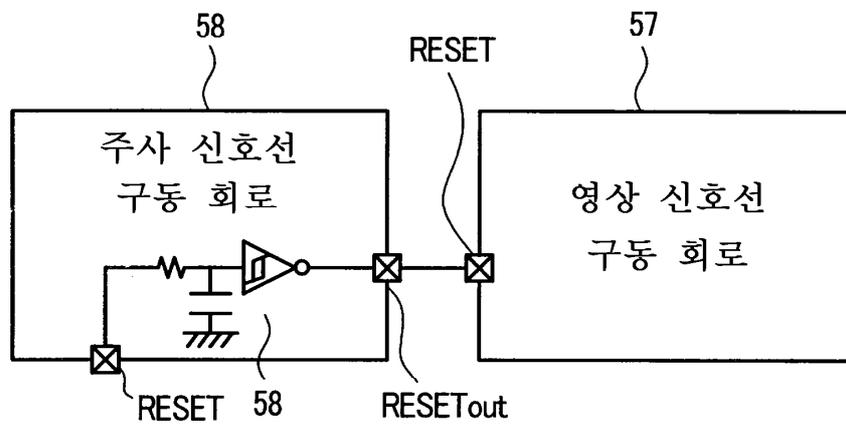


30

(a)

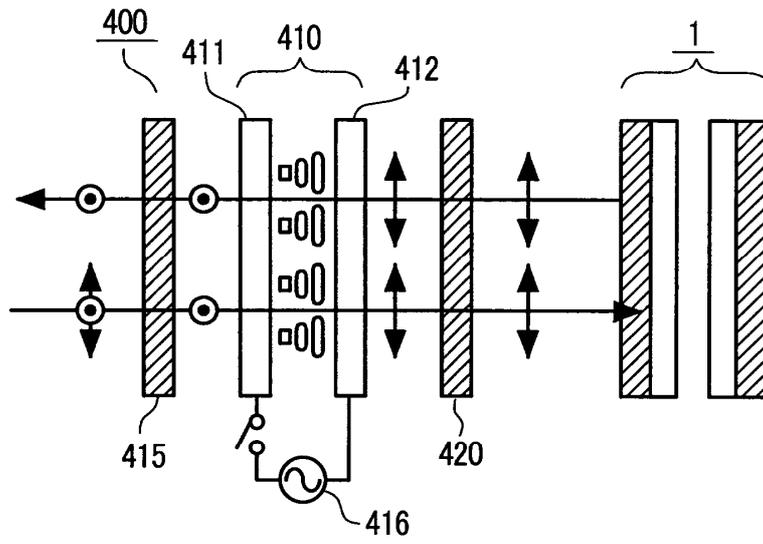


(b)

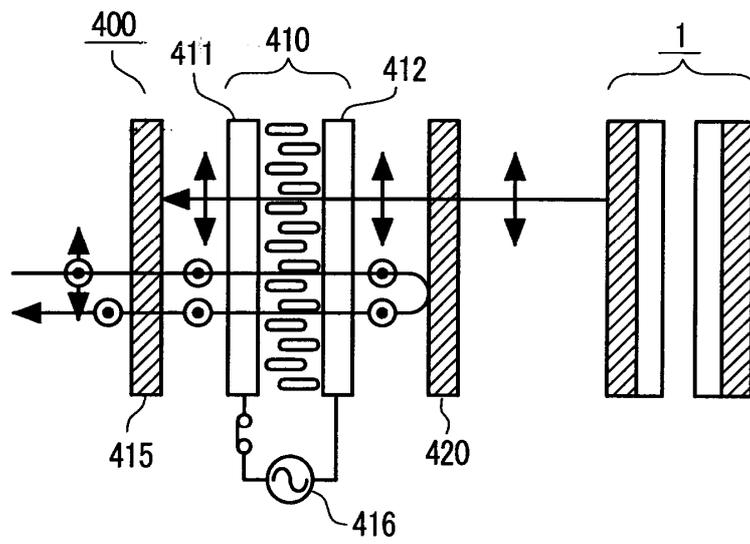


31

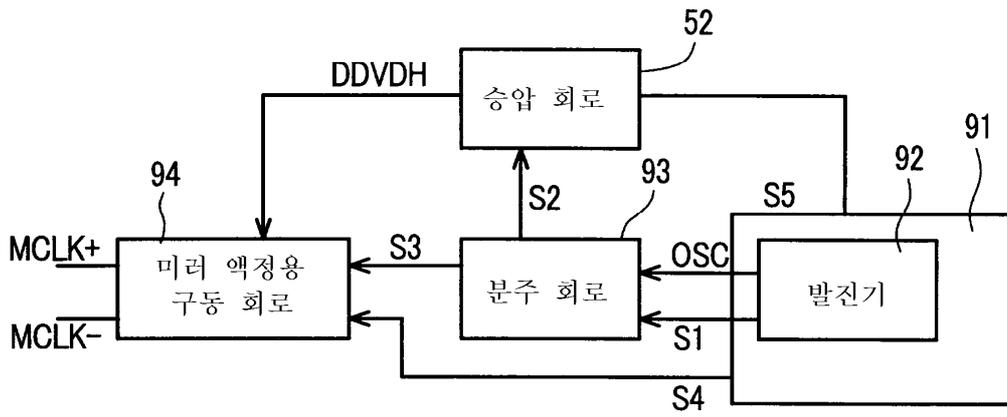
(a)



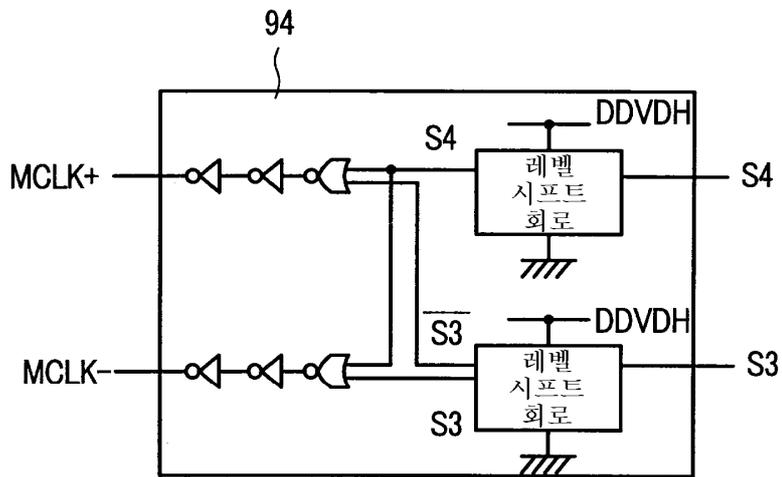
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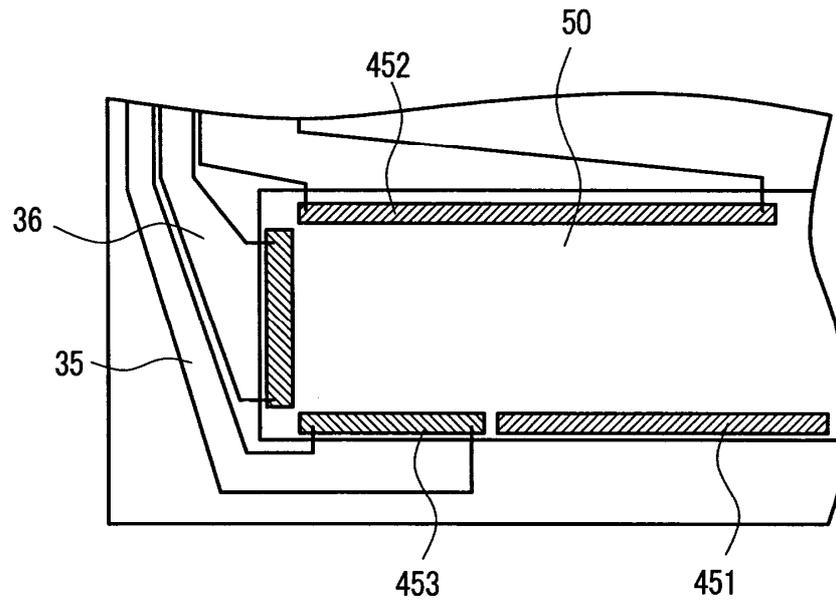
32
(a)



(b)



33



34

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
0	0	0	*	GON	VCMG	BT2	BT1	BT0	DC2	DC1	DC0	AP2	AP1	AP0	SLP
0	0	1	0	0	COM1	COM2	*	PON	*	*	*	*	*	*	*
0	0	1	0	1	*	*	*	0	*	*	MI1	MIO	MFL2	MFL1	MFL0
0	1	0	0	0	0	VDV4	VDV3	VDV2	VDV1	VDV0	VCM4	VCM3	VCM2	VCM1	VCM0
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

ID

专利名称(译)	液晶显示器		
公开(公告)号	KR1020040011378A	公开(公告)日	2004-02-05
申请号	KR1020030052208	申请日	2003-07-29
[标]申请(专利权)人(译)	株式会社日本显示器 日立器件工程株式会社		
申请(专利权)人(译)	株式会社日本排气量 地伤装置工程可否让这个夏		
当前申请(专利权)人(译)	株式会社日本排气量 地伤装置工程可否让这个夏		
[标]发明人	GOTOU MITSURU 고또우미쯔루 NUMATA YUICHI 누마따유이찌 SAWAHATA MASATO 사와하따마사또 AOKI YOSHINORI 아오끼요시노리 OOKII YOUICHI 오오끼요이찌		
发明人	고또우미쯔루 누마따유이찌 사와하따마사또 아오끼요시노리 오오끼요이찌		
IPC分类号	G09G3/36 G02F1/1368 G02F1/133 G02F1/1347 G02F1/1345 G09G3/20 H04M1/02		
CPC分类号	G02F2001/13456 G09G3/3644 H04M1/0266 H04M1/0202 G09G3/3696 H04M2250/16 G09G3/3666		
代理人(译)	LEE , JUNG HEE CHANG, SOO KIL		
优先权	2002220606 2002-07-30 JP		
其他公开文献	KR100557359B1		
外部链接	Espacenet		

摘要(译)

本发明提供一种液晶显示装置，其能够在小型便携设备中使用的液晶显示装置中驱动主侧和副侧的两个液晶显示面板。液晶显示装置技术领域本发明涉及一种液晶显示装置，包括主液晶显示面板，副液晶显示面板和驱动电路，其中驱动电路能够同时驱动主液晶显示面板和副液晶显示面板，端子和信号从输出端子传输到子液晶显示板。驱动电路具有能够向主液晶显示面板和副液晶显示面板中的每一个输出适当的公共电压的电源电路。 1 指数方面 液晶显示器，主液晶显示面板，子液晶显示面板，驱动电路，公共电压，信号布线，电极布线

