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2001 12 10

(21) 10 - 2001 - 0030045  
(22) 2001 05 30

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2001 - 004163 2001 01 11 (JP)

(71) 가 가

1 1 1

(72) 1-9-2가 가  
1-9-2가 가  
1-9-2가 가  
1-9-2가 가  
1-9-2가 가  
1-9-2가 가

(74)

:

(54)

GND

1

, , , TFT, , , , ,

1 1 .

2a 1 , 2b 2a 가 .

3a 3c 2a .

4 2 .

5a 5e 4 (20) .

6 3 .

7 3 .

8 3 .

9 4 .

10 5 .

11 6 .

12 7 .

13 8 .

14 8 .

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10 :

11 : (TFT)

12 :

14 :

13 :

15 :

16 :

17 : NchTFT

18 : NchTFT

19 :

20 :

21 :

22 :

23 :

24 :

25 : NchTFT

26 : NchTFT

27 : PchTFT

28 :

29 :

30 :

31 :

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36 :

38 :

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41 :

42 :

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48 :

50 :

100 :

101 :

102 :

103 :

104 :

105 :

110 :

115 :

116 :

117 :

118 :

120 :

136 : NchTFT

137 : PchTFT

138 : NchTFT

139 : PchTFT

200 :

300 :

400 :

500 :

S :

G :

C :

Cs :

CKV :

STV :

CKH :

STH :

VDD1 :

VDD2 :

GND :

CKU :

pg :

Vth :

:

VDD :

ps :

Vthn :

Vthp :

Vg1 :

Vg2 :

가 TFT( )

가 TFT

가 TFT

TFT Si TFT Si

TFT TFT TFT

가

TFT

1 2 1 2 1 2

1 1 2

1 3 1 , 2 2 , 1  
 1 , 2 2 2 1 , 3  
 2 2 1 2 1 3 3 1  
 1 2 가 2 1 가 1 , 2 2 1

2 , 3 1 1 2  
 , 2 .  
 , 4 , 1 1 2 2  
 , 2 .

2 2 5 1 1 2 2  
 2 1 1 2 , 1 1 2 ,  
 2 2 , 1

6 1 ,  
 2 , 1 2 ,  
 , , 1

1 2 .  
 1 , 2 .  
 1 2 , 3  
 1 pg , 2 ps .

1 2 2 n . , 1 n , 2 p 1  
 p 2 n .  
 < >

[ 1 ]

1 1 . 1

(101) (103), (104), (105) (10)가

(103) S1, S2, S3 ... ( , S ), G1, G2 ... ( , G )가 TFT(11)가

TFT(11) S (12) (12) (12)

(103) (12) (102)

(12) (12)

(12) (13) C1, C2 ... ( , C ) Cs (13)

C (13) (13) (102)

(104) 1 (102) CKV G1, G 2 ... STV가

(104) STV ( ) CKV ( )

) , ( ) G1, G2 ... ( )

(105) ( ) ( )

(102) S1, S2, S3 ... CKH STH가 (105)

STH ( ) 가 CKH S1, S2, S3 ... 가 /

(104) (105) VDD1 VDD2 VDD1

(102) VDD1 ( ) VDD2 (101)

VDD2 (10) (102) VDD1 VDD1 (10)

VDD2 (104) (105)

(10) GND (15) (10)

(16) (101) (15) (16)



가 (10) 2a (10) 2b

FT(17) (10) 2 NchTFT(17, 18), (15) (16) NchT (16)  
 NchTFT(18) pg

3a 3c (10) 2 3  
 (10)

(14) Vs CKU (21) 3a 10V  
 1.5MHz VDD1 DC10V

pg (14) CKU가  
 ( 0V ) VDD1 NchTFT(17) Vth  
 , NchTFT(17) Vth가 2V pg 8V(VDD1 - Vth)  
 (14) CKU가 ( 10V )  
 , 가 1 , 3b 8 18V(VDD1 - Vth+ Vs)  
 . 8 18V , 8 18V (22)  
 (14) CKU가 VDD1 - 2Vth+ Vs  
 , 3c NchTFT(18) Vth 2V , 16V가  
 . 1 VDD2

[ 2]

2

2 1 2

4 2 (20) NchTFT(25), NchTFT(26), P  
 chTFT(27), (29, 32) (35)

NchTFT(26) PchTFT(27) NchTFT(25) pg N  
 chTFT(26) PchTFT(27) (28) (29)  
 NchTFT(26) PchTFT(27) CKU가 , (31)  
 (32) NchTFT(26) PchTFT(27) ps CKU

4 (29, 32) 1 (16) (34) GND  
 (35) 1 (15) , VDD , 2a VDD1

5a 5e (20) , 5  
 (20)

(28) Vs CKU (31) Vs  
 /CKU , 5a, 5b 10V 1.5MHz  
 (33) VDD , DC10V

pg CKU , CKU가  
 VDD NchTFT(25) Vth , NchTFT(25)  
 Vth가 2V pg 5c 8V(VDD - |Vth|) , CKU  
 가 , 8 18V(VDD+Vs - |Vth|) ps NchTFT(26)가 , CKU  
 V가 , CKU가 Vs가 VDD가 , pg가 18V, VDD가 10V 10  
 , NchTFT(26)가 , CKU가 0V가 , 5d ,  
 , /CKU Vs 가 , ,  
 , /CKU 10V 가 , 20V(VDD+Vs)  
 가 , (34) PchTFT(27)가 , /CKU가 Vs가  
 ps 가 , ps (VDD+Vs)가 ,  
 pg가 8V, ps가 20V 20V가 ,

4 NchTFT(26) Vth가 , VDD  
 - |Vth|가 , NchTFT(26) , 2 (20) NchTFT(26)  
 Vth ps , (/CKU) 가 ,  
 (VDD+Vs)

, 2 (20) 1 TFT

[ 3]

3 , 2 ,

3 3 1

6 3 (30) 2 (36, 38),  
 chTFT(137) (42) (44) (36) NchTFT(136) P  
 , , (38) NchTFT(138) PchTFT(139)  
 5) , 2 (36, 38) , (30) (4  
 VDD가 (43) CKU가 ,

6 (44) 1 (16) (41) GND  
 (42) 1 (15)

$n(N_{chTFT}) + V_{thp}(P_{chTFT})$   
 가  $V_{thn} + V_{thp}$  (36, 38) 2 TFT  $V_{th}$   
 $V_{thn} = 2.5V, V_{thp} = -1.5V$  ,  $V_{thn} = 1.5V, V_{thp} = -2.5V$  NchTFT PchTFT (30) TFT  
 hp = -2.5V 6 (30)  $V_{thn} = 2.5V, V_{thp} = -1.5V$  ,  $V_{thn} = 1.5V, V_{thp} = -2.5V$  2V  
 7 chTFT 3 가 (46, 47) (40) NchTFT P  
 8 40 3 (50) 8 6 (30) (  
 (40) (30) 2 (36, 38) NchTFT PchTFT  
 (30) (40) (50)  
 VDD가  
 가 FT (30, 40) TFT (50) , T  
 $V_{g1}, V_{g2}$  (50)  $V_{g1}, V_{g2}$  (50)  
 8 2 (50) (50)  
 [ 4]  
 4 (102)  
 9 4 (200) 9 1 (200) 1 4  
 (10) VDDP VDD2 (102) (10) VDDP  
 1 (105) (102) VDD1 (104) (105) VDD1 (104)

CKH (10) (102) CKH (10)

(19) CKH (10) CKU (10)

9 (10) (10) 가 (16)

(102) (101) (10) (16)

(102) CKH (19) (10)

CKH

4 가 (200) (102) (10) CKU (10) CKU (102)

(101) 가 (10)

4 (200) 1 가

(102)

[ 5]

5 (102)

10 5 (300) 10 9 9

5 4( 1) (300) 4

5 (19) (10) CKH (19) (48)가 (10)

(10) CKH CKH CKU (10)

가 (48) CKH 가 (10) (10)

가

5 (300) 4 가 (10)

2)

[ 6]

4 5 (105) CKH (10)

가 (104) CKV

STV (10)

CKV( STV) (105) CKH( STH) (104) , CKV ST

V CKH STH 가 , CKH( (10)가 CKV(  
 STV) , CKH( STH) ,  
 (10) ,  
 11 .

11 . 11 10 .

11 (23) (10) (23) ,  
 Vref VDD2 (24) (23)  
 (24) ,

(10) VDD2 VDD2 Vref VDD2 VDD2 Vref ,  
 VDD2 < Vref (23) Vref VDD2 (OUT) (24)  
 (23) CKV( STH) , CKH( STH) CKV  
 ( STH)가 CKH( STH)가 (23) Vre  
 f ,

6 (10)  
 (24) 9 5 (19) 11 (23)

[ 7]  
 7 (102)

12 7 (400) 12 9 9  
 7 (400) 4  
 , 7 4( 1)

7 (104) (105) VDD1  
 (10) VDDP 가 , 9 (102) (102)  
 , 7 (400) 4 가 ,  
 (102)

11 7 5 (48) ,  
 (10) ,

[ 8]

8

13 8 (500) 13

(110) (101) (104)가 A  
 (115) (116) (110) ,  
 (117, 118) (104) (110) (11  
 0) GND ( )  
 가 (101)

(104) 13 (103) L (104) (105) (103)  
 (103) 가 .  
 가 TFT Si (110)

8 13 (101) A (110)  
 A (101) (110) Si TFT (110)  
 (10) 13 (110) (101)

14 (110) (101) (120) (120) (120) ,

1 8  
 EL

가 , TFT  
 가 ,  
 가 ,

(57)

1.



7.

4 ,  
1 2 , 2

8.

4 ,  
1 2 , 2

9.

1 1 2 2 1 1 2  
1 1 2 2 1 2 1 2  
, , 2 2 , 1 , 2 2  
, , 2

10.

1 ,  
가

11.

10 ,  
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12.

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16.

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가  
가

17.

1 ,

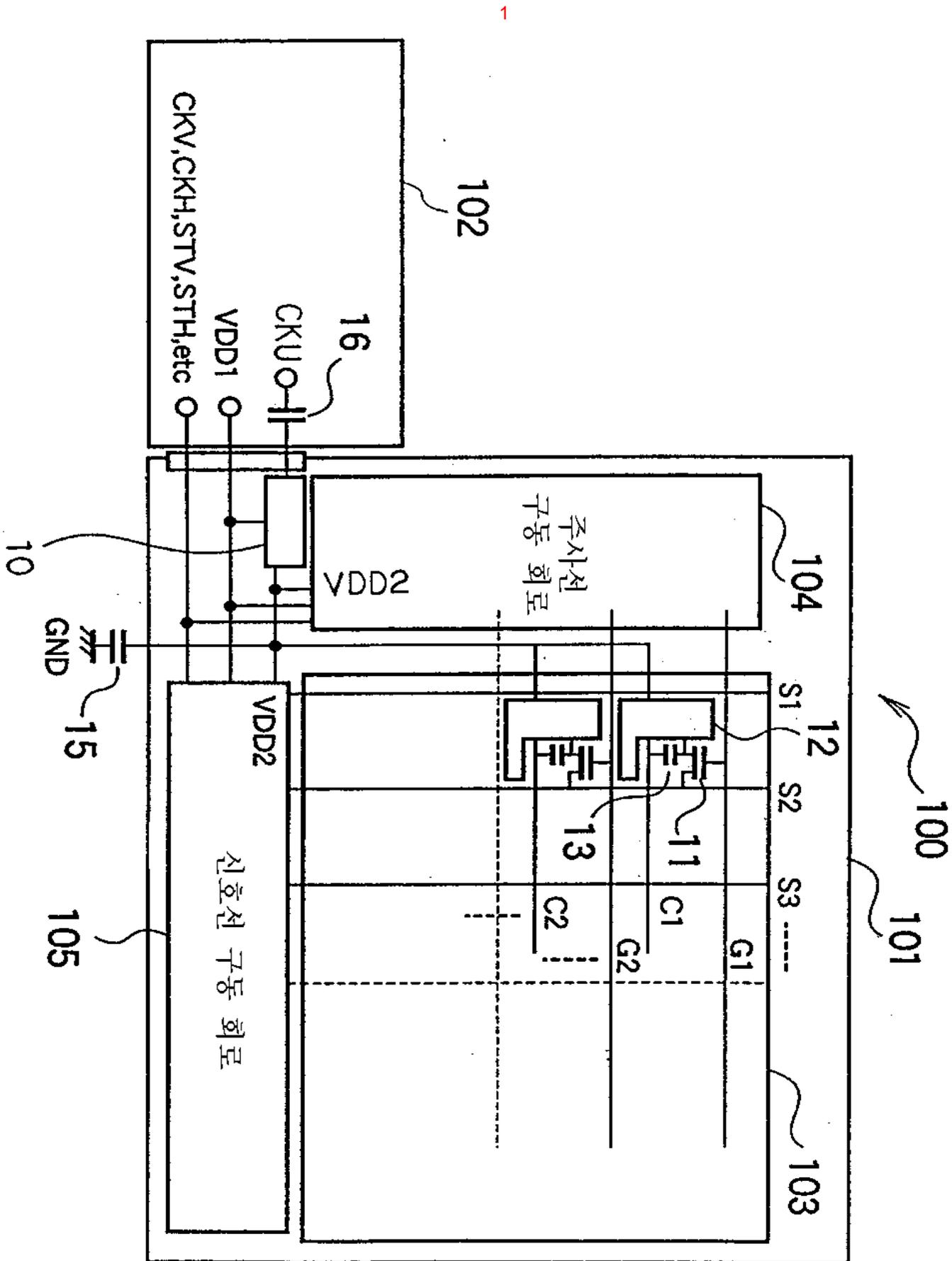
18.

1 2 1 , 2 , , ,

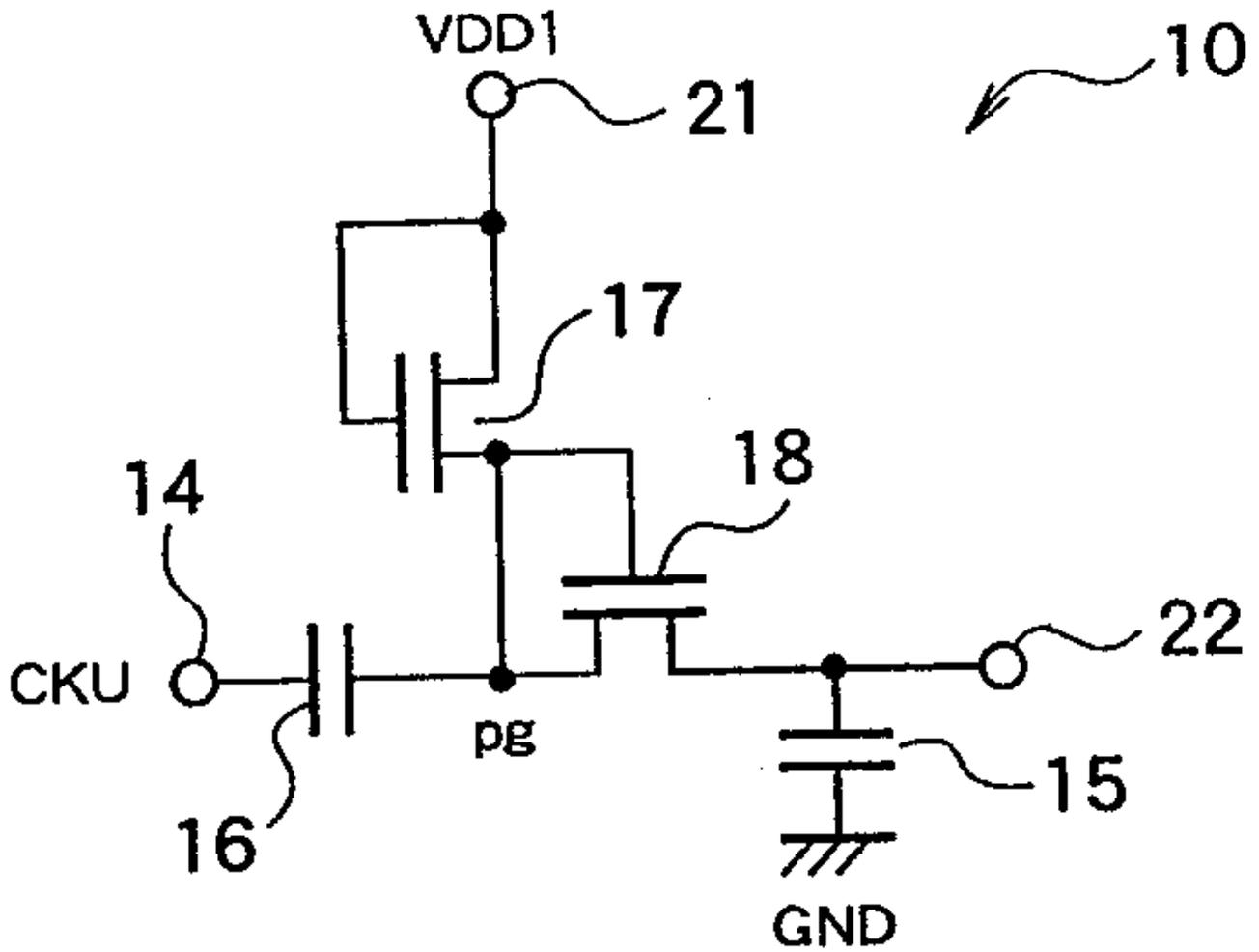
1

19.

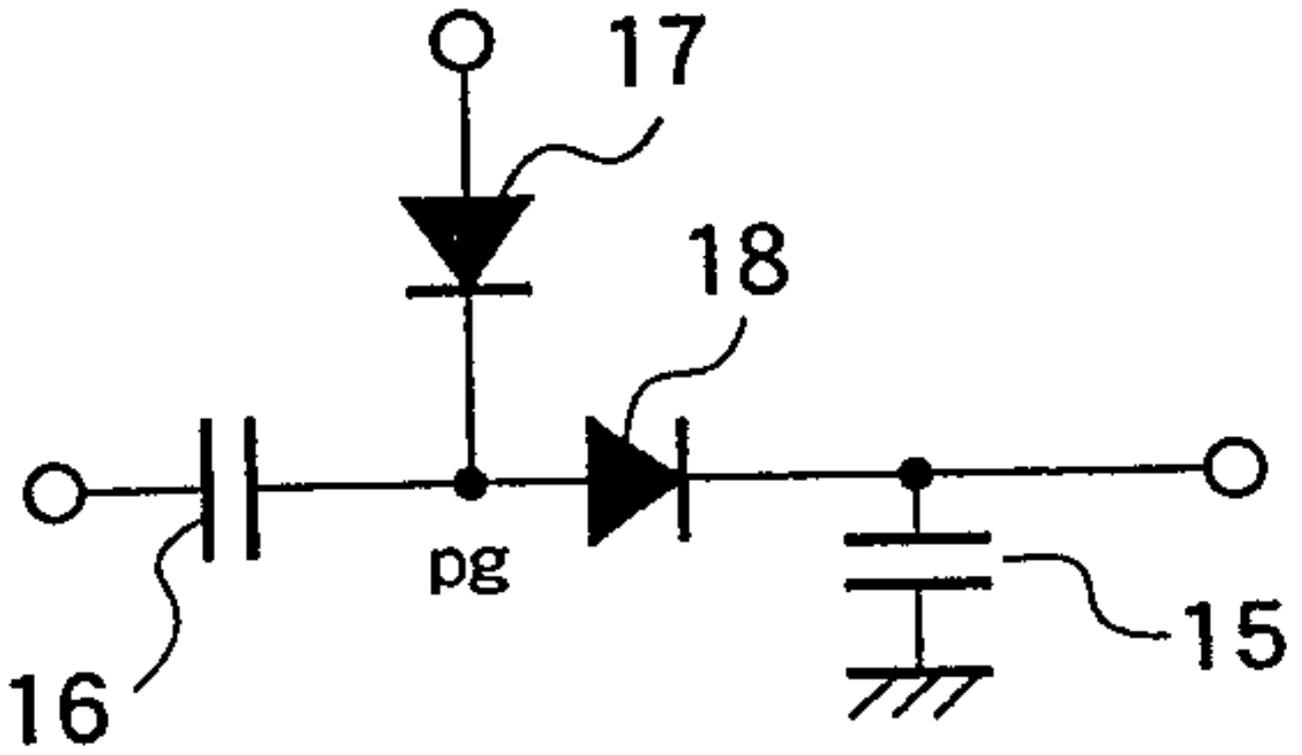
18 ,



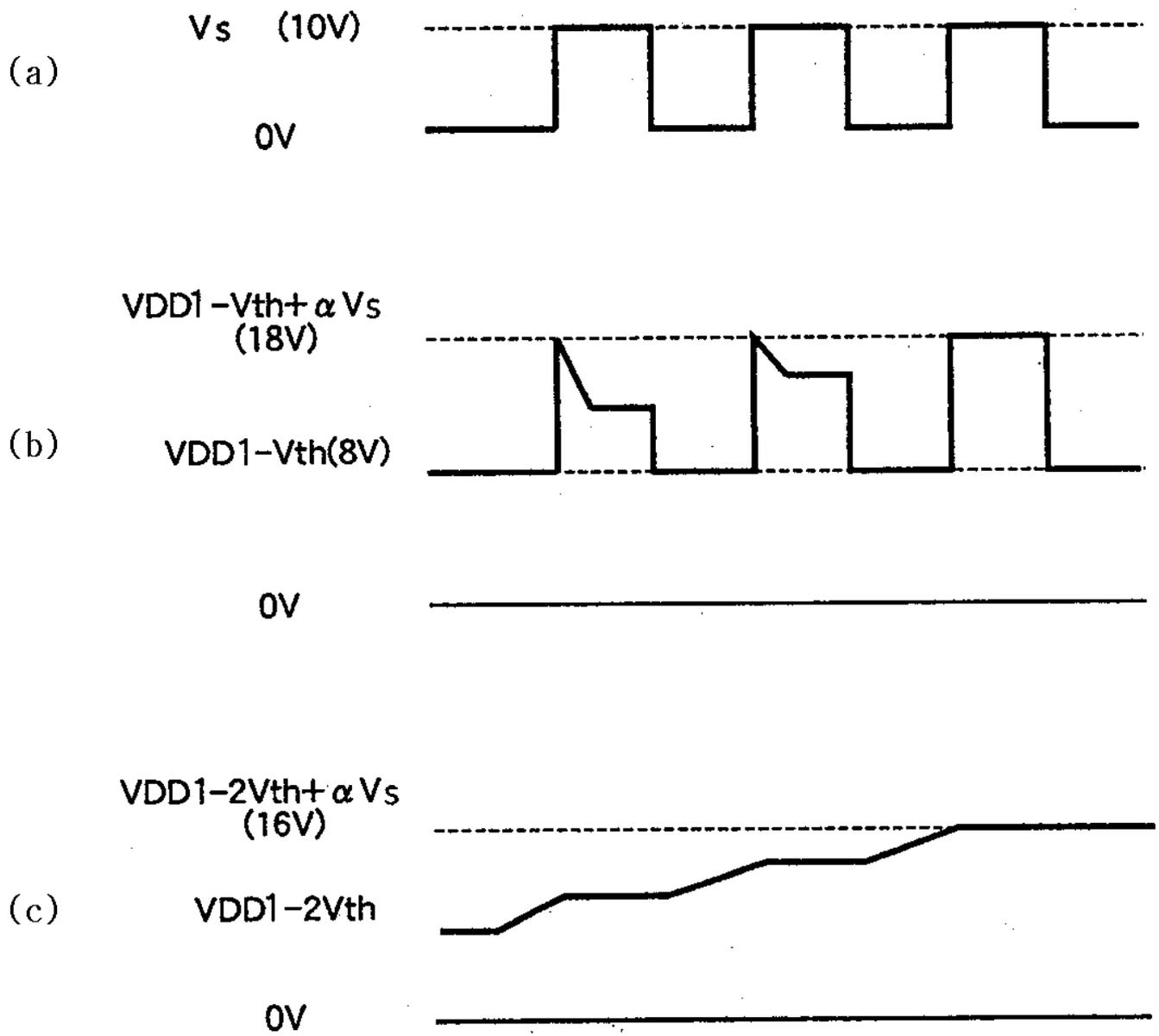
2a



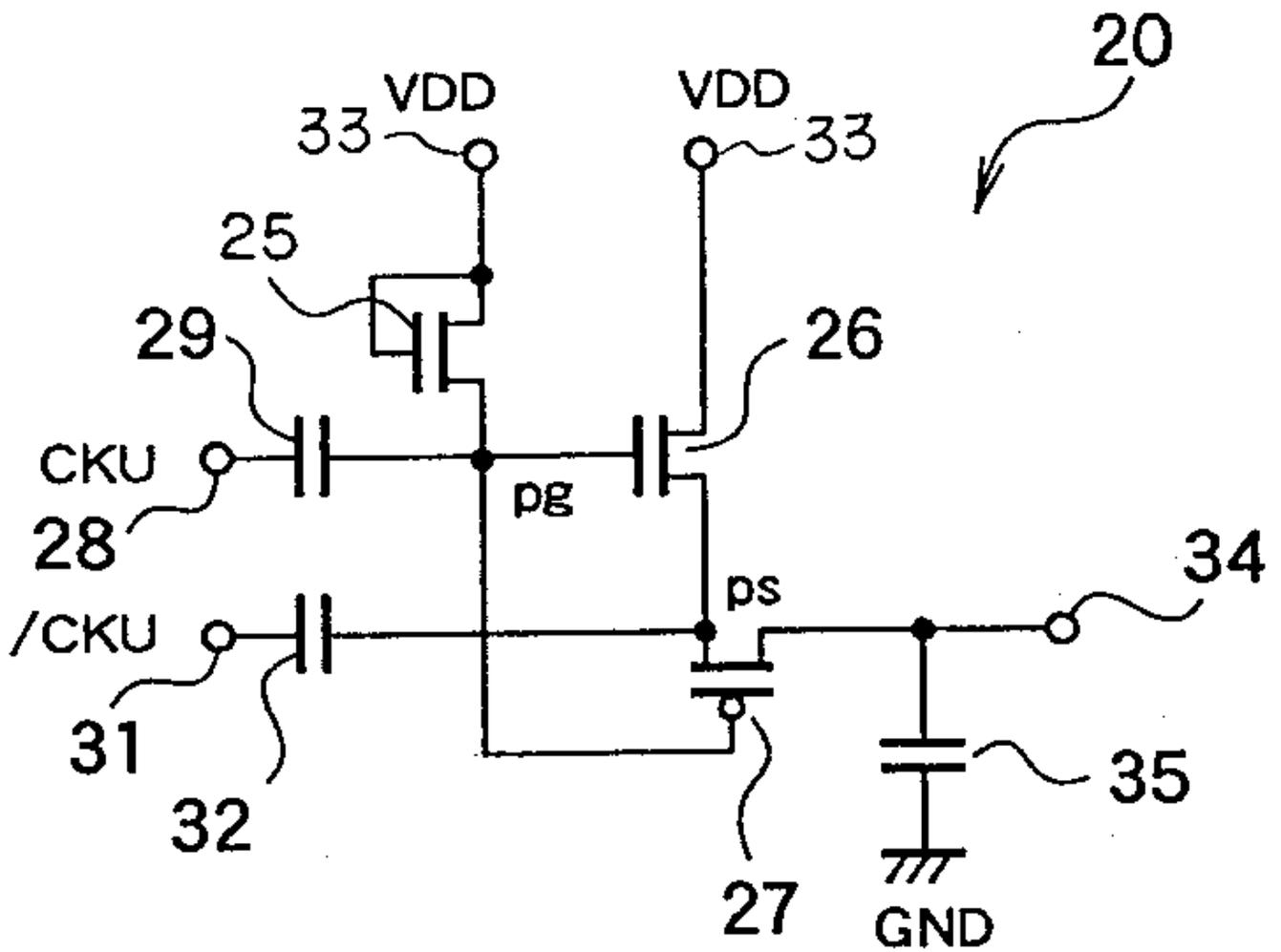
2b



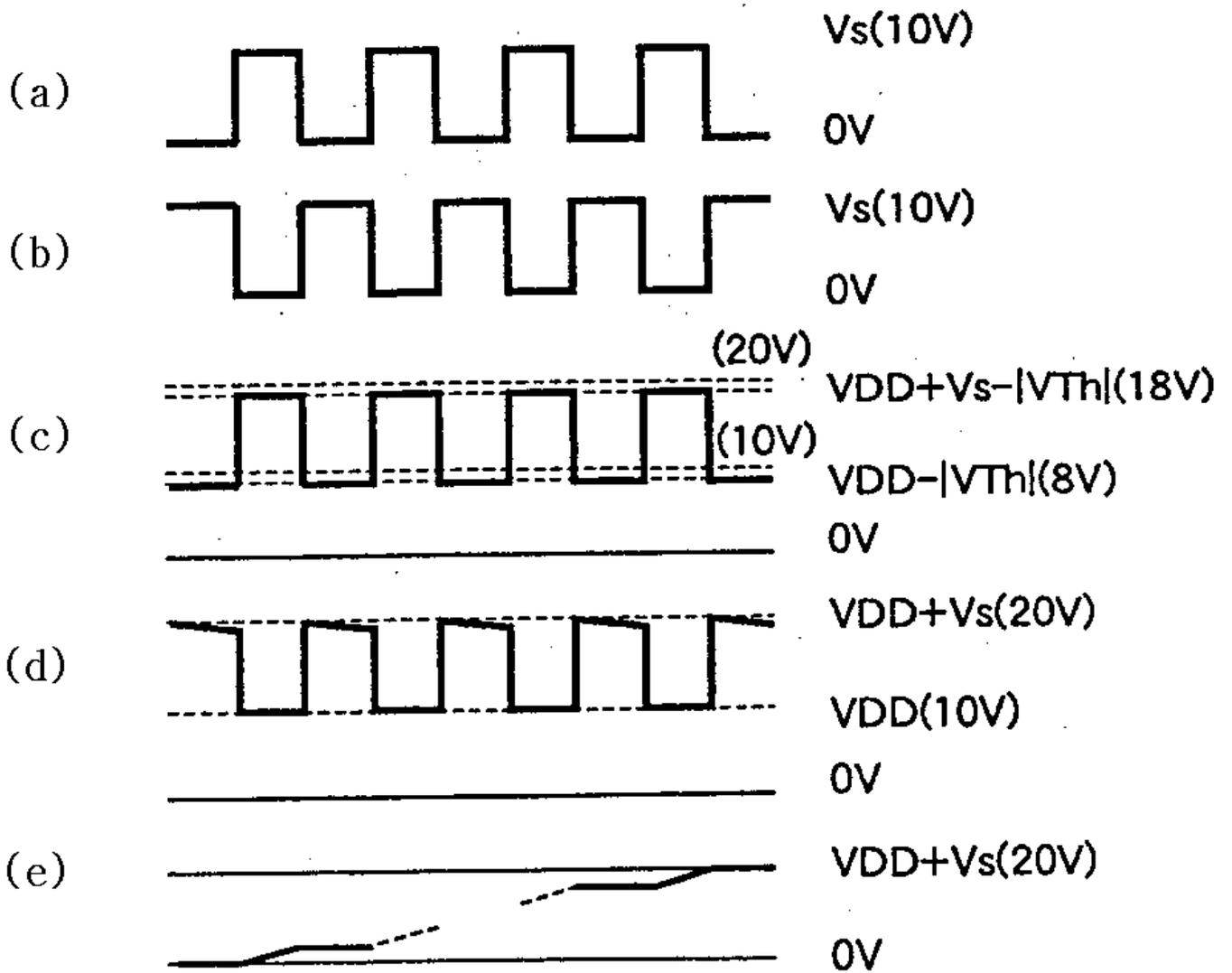
3



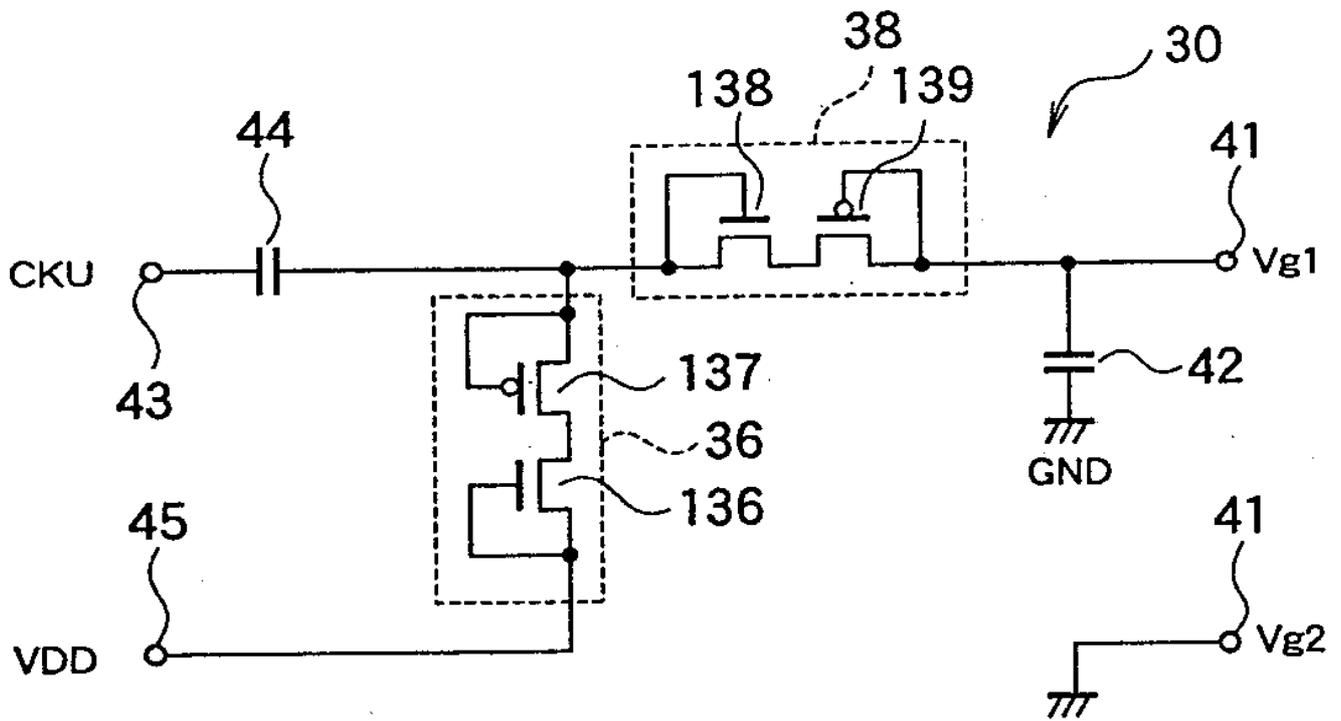
4



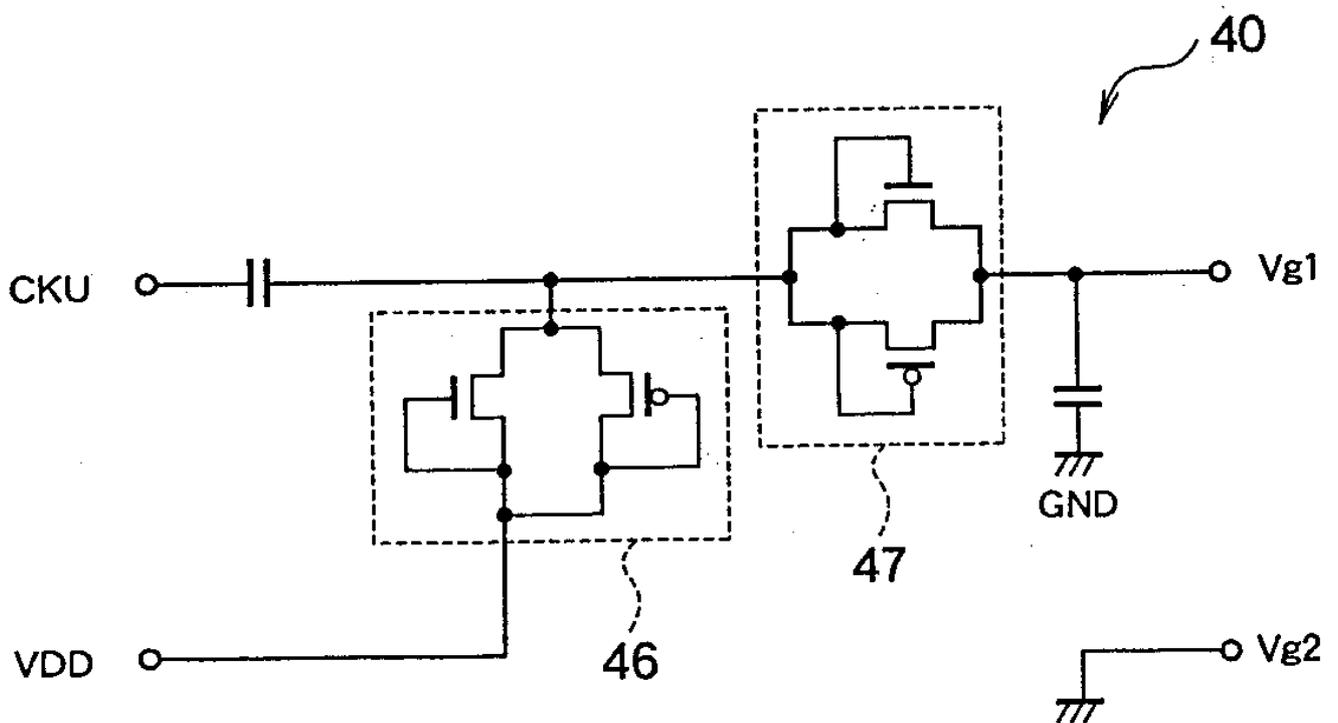
5



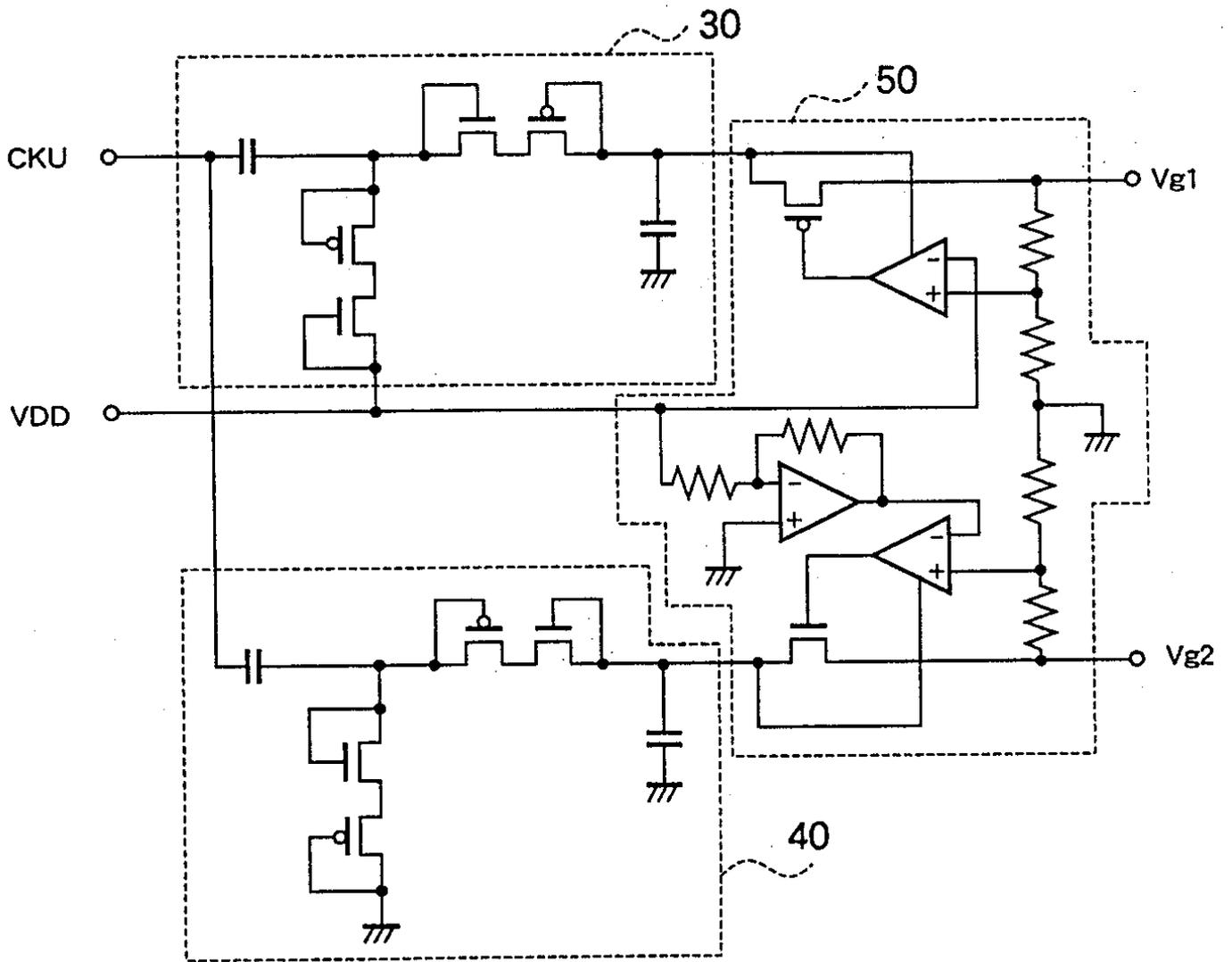
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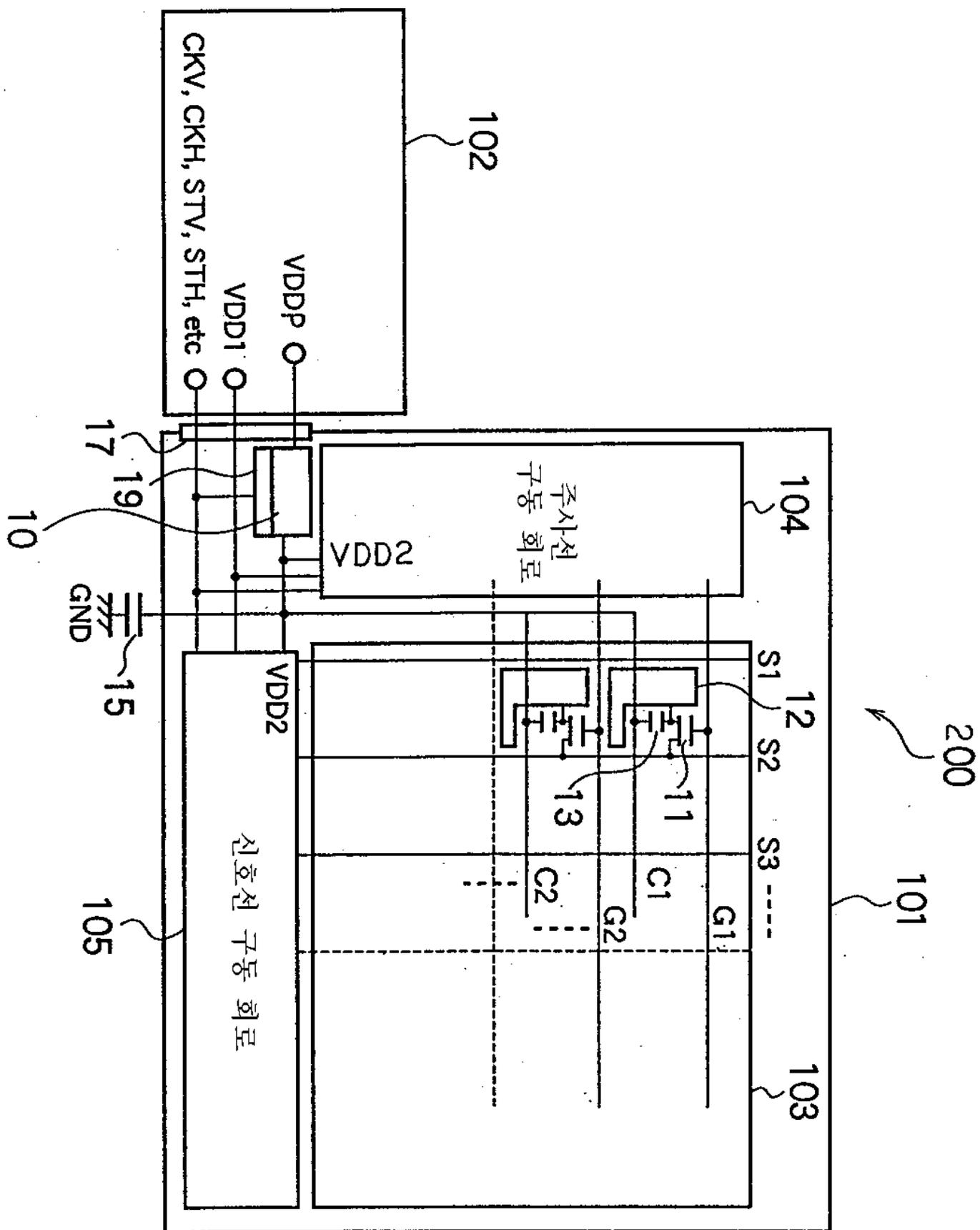


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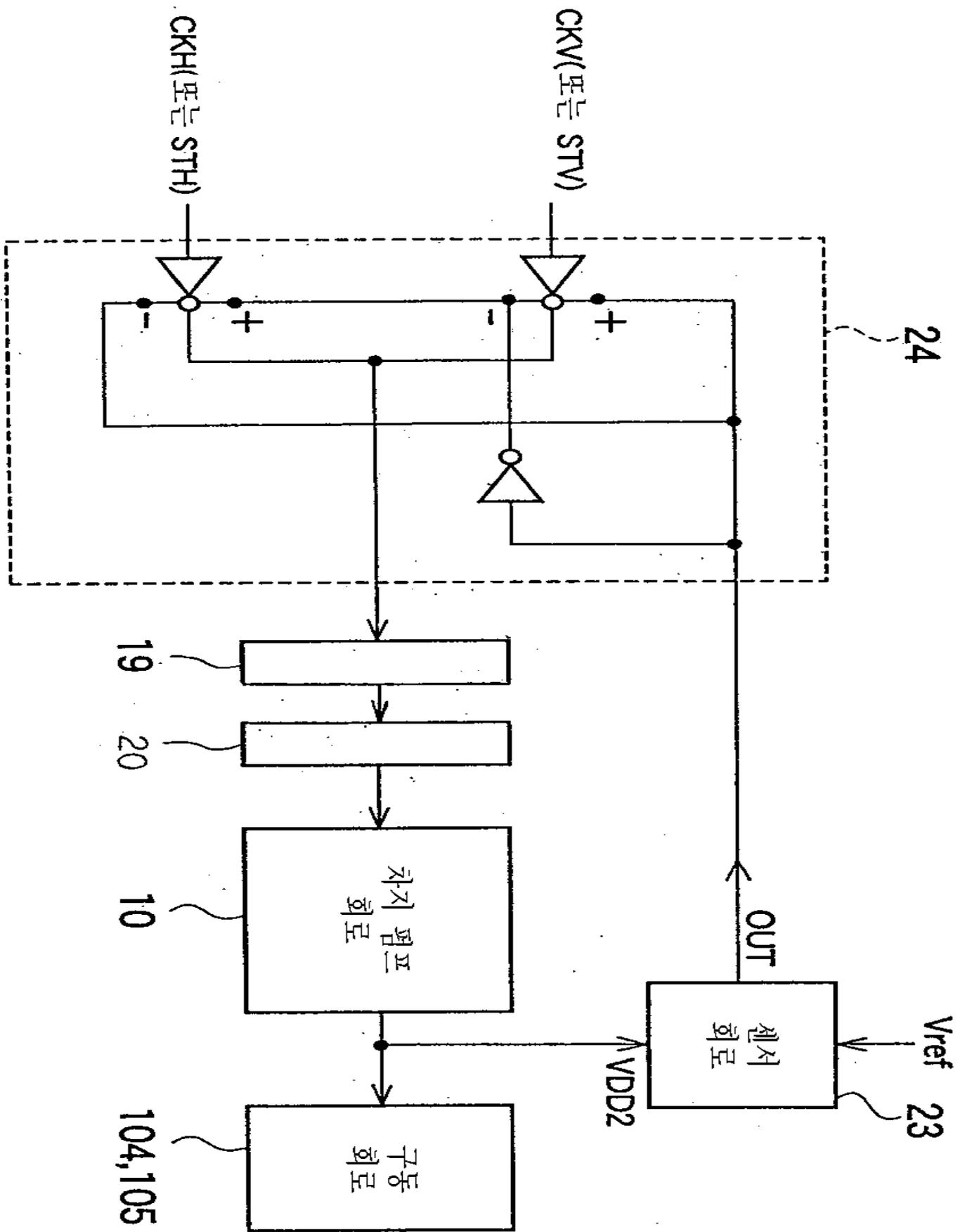


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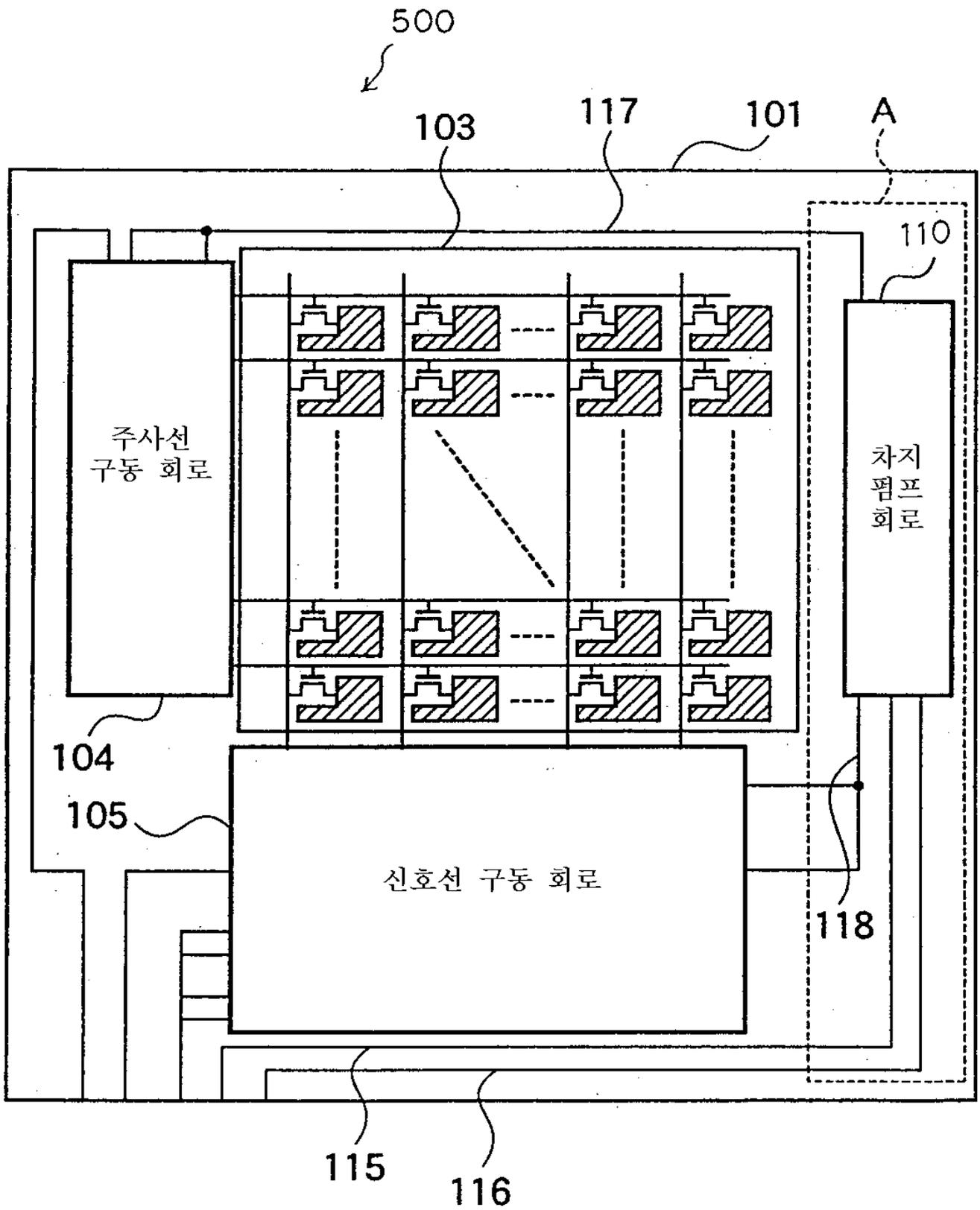




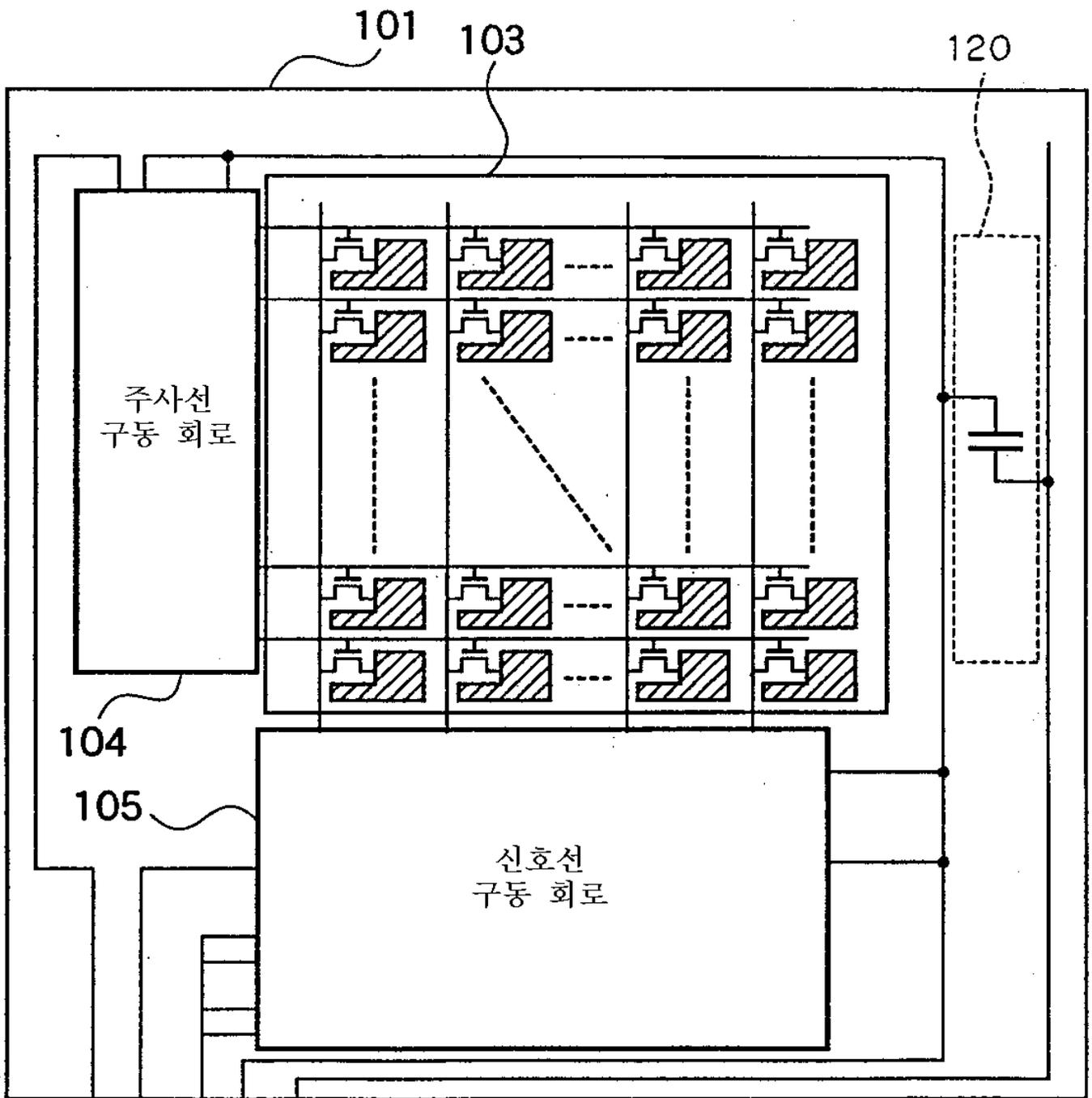




13



14



专利名称(译)	电荷泵电路和平板显示器		
公开(公告)号	<a href="#">KR1020010109485A</a>	公开(公告)日	2001-12-10
申请号	KR1020010030045	申请日	2001-05-30
[标]申请(专利权)人(译)	株式会社东芝		
申请(专利权)人(译)	Sikki东芝股份有限公司		
当前申请(专利权)人(译)	Sikki东芝股份有限公司		
[标]发明人	SASAKI YASUSHI 사사끼야스시 MIYATAKE MASAKI 미야따께마사끼 SATO HAJIME 사또하지메 TSUNASHIMA TAKANORI 쯔나시마다까노리 HANAZAWA YASUYUKI 하나자와야스유키 HIRAI HOKO 히라이호꼬		
发明人	사사끼야스시 미야따께마사끼 사또하지메 쯔나시마다까노리 하나자와야스유키 히라이호꼬		
IPC分类号	G09G3/36 H02M3/07 G02F1/133		
CPC分类号	G09G3/3696 H02M3/073		
代理人(译)	CHANG, SOO KIL		
优先权	2000162780 2000-05-31 JP 2001004163 2001-01-11 JP		
其他公开文献	KR100432292B1		
外部链接	<a href="#">Espacenet</a>		

#### 摘要(译)

公开了在阵列面板上布置驱动电路等的平板显示器实现外部控制电路的紧凑和低成本的技术。包括在外部控制电路中的至少一个电荷泵电路被布置到阵列面板，时钟输入的一部分的输入侧容量和连接在电荷泵电路的输出单元和地GND之间的输出侧容量被布置在阵列面板。液晶显示器，电荷泵电路，平板显示器，TFT，扫描线驱动电路，基板，标记层，像素电极，电极区域。

