

(19) (KR)
(12) (A)

(51) 。 Int. Cl.⁷ (11) 10-2004-0081109
G09G 3/36 (43) 2004 09 20

(21) 10-2004-7010529
(22) 2004 07 05
2004 07 05
(86) PCT/JP2003/008249 (87) WO 2004/042691
(86) 2003 06 27 (87) 2004 05 21

(30) PCT/JP02/11587 2002 11 06 WIPO(WO)
PCT/JP03/02757 2003 03 07 WIPO(WO)

(71) 가 가 2 2 3

(72) 2 2 3 가 가

(74)

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(54)

(N20) (14) , (6) 1 (N10) 1 (15) , 1 (N10) 2
(N20) 2 (16) , 2 (N20) (VCOM)
(19) , 2 (N20) 1 (N10) (2) (20)
. 1 (15) 2 (16) , (4) 「H」 .

76 , (302) (303) (304)가 76 , (301) (305)
 (307) 305 , 302 N300 , (304) , (301)
 「H」 (305) , 307 , N300 76 , (305)
 (306) VCOM
 303 , N300 VCOM
 (301) 「H」 (305)가 N300 (302)
 (301) 「L」 (305)가 N300
 (307) (303) , N300
 , (306) N300 (301) 「L」 (302) 가 (302) 가
 N300 (302) () 가 , N300 가
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 , 가 ,
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 , 1 2 1 ,
 1 2 1 ,
 1 가 2 , 가 1 ,
 , 가 , 1 2 1 2
 , 가 , 1
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 1 1
 2 1
 3 1
 4 3
 5 4
 6 4
 7 1
 8 1
 9 1
 10 , 1

11	1	.	
12		2	.
13	12		.
14	2	.	
15	2	.	
16	2	.	
17		3	.
18	17	.	
19	3	.	
20		4	.
21	4	.	
22	4	.	
23	4	.	
24	4	.	
25	4	.	
26		5	.
27	26	.	
28	5	.	
29		6	.
30	6	.	
31		7	.
32	31	.	
33		8	.
34	33	.	
35		9	.
36	35	.	
37	35	.	
38	9	.	

39	9	.	
40	9	.	
41	9	.	
42	9	.	
43	9	.	
44	9	.	
45	9	.	
46	9	.	
47	9	.	
48	9	.	
49	9	.	
50		10	
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51	50	.	
52	50	.	
53		11	
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54	53	.	
55		12	
56	55	.	
57	12	.	
58	12	.	
59		13	
60	13	.	
61		14	
62	14	.	
63	14	.	
64	14	.	
65	64	.	
66		15	

67	16	.
68	67	.
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72	16	.
73	16	.
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75	18	.
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1, (1), 1 (7) (8), 1, . 1, .

(1) (2), (4) (5)

, (6)

(2) 3 3 (2), (3) 3 (2) R, G, B 가

「H」 (7) (4), 「H」 (4), (4) (2) (2)

(6) (8) 12, (7) 1 (4) VG (2)

, VG

(7) (8) (1) (2), (1)

2 1 (8)

(10) (13) (10) (13), (8)

(6) (12)

(10) 1 V1(5V) 2 V2(0V) n+1

(, n 10a) 11.1 11.n+1, n+1 11.1 11.n+1 n

n+1 11.1 11.n+1 n, n 가 12.1 12.n

ΦP 가 VG (13), 10a (6), n VG가

(6)

3 (2) (14) 3 , (6)
 (14) , (15, 16), (19) (20) 15, 16 , (4) 「H」
 (20) 15, 16 , , (4) 「L」
 , (4) .

15, 16 3 15, 16
 17, 18 , 15, 16 15, 16 ,
 , N P N P
 (4) , (15, 16) N (4) , (15, 16)
 6) P .

19 N20 19 (5) V
 COM (20) , N20 N30 20
 N30 , 15 16 N10 (2) .
 (2) VCOM .

(14) (4) 「H」 (15, 16)
 가 , N10, N20, N30 가 (6) (4) 「L」
 , N20 19 N10 (20) N20
 , N10 N20 17, 18 (6) 가 N10
 , (20) (6)

4 (20) 4 , (20) , (21, 25), (29), (30) (33) .

21 3 V3(15V) GND 22,
 N (, N) 23 P (, P 23 ,
) 24 . N 23 (N22) . N 22 ,
 . P 24 , N20 22 ,
 23, 24 .

N20 () VI , P VTP , N
 VTN , P 24 (N23) V23 N 23 (N
 22) V22 (1)(2) .

$V23 = VI + |VTP| \dots (1)$

$V22 = VI + |VTP| + VTN \dots (2)$

21 , VI | VTP | + VTN V22 .

25 , 4 V4(5V) 5 V5(110V) N
 26, P 27 28 . N 26 N20
 . P 27 , (N27) . P 27 , .
 28 , 26, 27 .

N 26 (N26) V26 P 27 (N27) V27 ,
 (3)(4) .

$V26 = VI - VTN \dots (3)$

$V27 = VI - VTN - |VTP| \dots (4)$

25 , VI - VTN - | VTP | V27 .

29 21 N22 25 N27
 26 , N22 N27 , N27 N27 .

30 6 V6(15V) N30 N 31 P
 32 . N 31 . P 30 21 (2) V22 (15, 16)) 36 32
 6 V6 , N 31 . N 31 .
 , 5 , P 32 (N301) N30
 가 (N301) 가 V301 , (5). (6) 31 (N31) V31 P 32

$$V31 = V22 - VTN = VI + |VTP| \dots (5)$$

$$V30' = V31 - |VTP| = VI \dots (6)$$

4 가, 33 , 7 V7(-10V) N30 P
 35 N 34 . P 35 25 V27
 . N 34 . N 34 , P 35
 . P 35 7 V7 , P 35
 , 5 , N 34 (N30') N30
 가 (N30') 가 V30' , (7)(8) 35 (N34) V34 N 34

$$V34 = V27 + |VTP| = VI - VTN \dots (7)$$

$$V30' = V34 + VTN = VI \dots (8)$$

(7)(8) , P 32 V7 (N30') N 34 (N30') 6
 V6 7 V7 , 22, 28 N30 VO가
 N20 VI . ,
 , VO=VI가 ,
 6 , (20) () 6 ,
 , VI=VL , V22, V27, VO ,

$$V22 = VL + |VTP| + VTN$$

$$V27 = VL - |VTP| - VTN$$

$$VO = VL$$

t1 VI가 VL VH , V22, V27, VO .

$$V22 = VH + |VTP| + VTN$$

$$V27 = VH - |VTP| - VTN$$

$$VO = VH$$

VH , N 26 25 , t1 VI가 VL
 27 - P , N26 27 V26 , N27 , P V2
 7 .
 N27 V27 , N30 VO VL 29 VH N22 V22가 VH-VL
 .

t_2 , V_{I2} 가 V_{H2} , V_{L2} , P_{23} , 24 , N_{23}
 V_{23} , N_{22} , V_{22} 가 , N_{23} , N_{23}
 N_{22} , V_{22} 가 , N_{30} , V_{O2} , V_{H2} , V_{L2} , N_{27} , V_{27} , $V_{H2}-V_{L2}$
20 , 30 , 33 , 22, 2
6 , 23, 24, 26, 27 , 21, 25 , V
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1 , (14) , (6) , (20) , N_{20} , 2 , (15,
16) , (6) , 가 (20) , (15, 16) , N_{10} , N_{20} , N_{20} , N
10, N_{20} , N_{30} ,
(2) , , 가
(2) , 2 , 1 , V_{I1}
5V , 0V , 2 , V_{I2} , 0V , 5V , 3
 V_{COM} , 0V , 5V ,
(14) , 가
(20) , 가 ,
(20) , , MOS , TFT() ,
TFT , a-Si , TFT ,
TFT , $10^{12} \Omega$, 가 ,
21, 25 , V_{32} , V_{42} - V_{52} 가 , V_{22} , V_{22}
7 , 가 , 10 , 100
1/10 , 1/100 , a-Si
가 , 7 , 40 , 4 , 20 , 29
36 , 23, 24, 26, 27, 31, 32, 34, 35 ,
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29 ,
8 , 41 , 4 , 20 , 23, 27, 32, 34 ,
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N , 4 , 20 ,
23, 27, 32, 34 ,

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15가, 20

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67, 67, 가, . P, 67, GND, 66
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67, 3, V3, 65, 66, N22

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N, 69, VTN, 가, 68, 4, 69, 70, 68, , 68
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15, 72, 13, 60, N, 23, 34, P, 27, 32
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16, 73, 15, 72, 29, 36

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 B, N27

18, 17, 75, 18, t1
 N22, N27, V22, V27, VO, V22, V27, VO
 VI가 「L」, VL, 「H」, VH, V22, V27, VO
 가

t1, t2, ΦB 가 「H」, / ΦB 가 「L」
 $\Delta V1$, ΦB 가 「H」, 76, N22, V22가
 V27, / ΦB 가 「L」, 77, N27
 N, 31, $\Delta V2$, P, 35, N30, 「H」, VH
 (V22, V27, VO, t2).

V22, N22, 23, 24, GND, 가, VI+
 $|VTP| + VTN$, V27, 4, V4, 26, 27
 N27, 가, VI- $|VTP| - VTN$

t3, ΦB 가 「L」, / ΦB 가 「H」, ΦB 가 「L」
 / ΦB 가 「H」, 76, N22, V22가, $\Delta V1$
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 33, VO, 30, VO, VO, $\Delta V2$

V22, 3, V3, P, 65, N22, 가
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 VI+ $|VTP| + VTN$, V22가

V27, N27, N, 70, 5, V5, 가
 , VI-VTN- $|VTP|$, V27, VI-VTN- $|VTP|$, V22가
 VI-VTN- $|VTP|$

t4, VI가 「H」, VH, 「L」, VL, V22, V27, V4
 가, V22, V27, V4

t4, t5, ΦB 가 「H」, / ΦB 가 「L」
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 / ΦB 가 「L」, 77, N27

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V27 , N27 N 70 5 VO 가 , VI-VTN- | VTP | N27 V27 , VI-VTN- | VTP | 70 , V22가 VI-VTN- | VTP | .

3 , VI가 「L」 VL 「H」 VH N22 V22 VI+ | VTP | +VTN VH VO VI가 「H」 VH 「L」 VL N27 V27 VI- | VTP | -VTN , VO 75 .

19 , 3 78 78 , 17 75 23, 27, 32, 34 , 23, 27, 32, 34 , VO VO=VI+ | VTP | -VTN .

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ΦP , / ΦP , 3 ΦB , / ΦB VI가 「L」 VL 「H」 VH , / ΦP , ΦP 가 「L」 「H」 , P 81 N 82가 N22 V22 , 3 V3 81 23, 24 , VI+ | VTP | +VTN , N27 V27 , 4 V4 5 V5 V4-V5 26, 27 , 82 VI-VTN- | VTP | 가 , 3 , N 31 P 35 , VO VI .

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22 85 , 20 80 N 86 P 87 가 . N
 86 , P 24 GND 87 , 4 V4 N 26 ,
 P . P /ΦP 87 , 3 ΦP . , P 81 N ,
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 23 88 , 22 85 N 23, 34 P 27, 32
 . , 23, 27, 32, 34 , VO가 VO=VI+ | VTP | -VTN
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 24 90 , 20 80 P 24 GND ΦP
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 , N22 V22 V22=VI+ | VTP | +VTN+V9Fa , N30a, N122a V30
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34, 100 P 27, 32, 105 ,

48 150 , 29 110 122a, 122b, 126a, 126b
S1 S4a, S1b S4b 가 36 37 t1 t2
 ΦB 가 「H」 / ΦB 가 「L」 , N
22, N27 V22, V27 ,

49 151 , 48 150 N 23,
 34 P 27, 32 . , .

[10]

50 , 10 155 145 ,
 S5 50 , 156 가 , 155가 46 ΦB , / ΦB 가 $\Phi B1$, / $\Phi B1$

4b S5 , S4a, S4b N121 156 , S4a, S
 GND . 36

51 , 50 155 , 36
 . 51 , t9 S5가
 , 36 t1 t2 V22, V30a, V122a가
 VI .

t9 S5가 N121 , VO S4a, S4b
 V156 . 51 , VO가 V156 가 , t
 9 V156 , 31, 32 가 V156 .
 N t10 $\Phi B1$ 「L」 가 가 「H」 N22 V156 V22가 ,
 31 가 가 V156=VO가 VI .

52 , 50 155 , 37
 . 52 , t9 S5가
 가 , 36 t1 t2 V27, V30b, V122b
 VI .

t9 S5가 N121 VO S4a, S4b
 V156 . 52 , VO가 V156 가 , t9
 V156 , 34, 35 가 V156 .

t10 / $\Phi B1$ 「H」 가 가 「L」 N27 V27
 , P 35 가 가 V156=VO VI .

10 , 36 .

[11]

53 , 11 157 155 . 53 156
 , , S5 / $\Phi B1$, / $\Phi B1$.

54 , 53 157 . N
 31 VTN'가 N 23 VTN VOF .
 S1a S3a, S1b S3b S4a, S4b, S5가 , N30a, N
 30b, N20a V30a, V30b, V20a (VH) .

t1 S5가 S30a, S30b 36
 t2 S1a, S1b, S2a, S2b가 , VI가 (VL)
 . N30a, N30b, N20b V30a, V30b, V20b VI=VL . N 31
 VTN'가 N VTN VOF V30a, V30b가
 VI=VL , 가 N30a, N30b VI=VL ,

t_3 / ΦR 「H」, S4a, S4b가 「L」, ΦR 「L」 「H」, t_4
 V_{30b} 가 VL, N30a V_{30a} 가 VL, VL-VOF, N30b
 t_5 N20a, S1a, S1b, S2a, s2b가 V_{20a} 가 VL+VOF가, VOF가, t_6 N30a, S3a, S3b가 V_{30a} VI=VL
 t_7 36, S3a, S3b가 VH, t_8 N30a, N30b, S4a, S4b, S5가 V_{30a} , V_{30b}
「L」, t_9 $\Phi B1$ 「L」, 「H」, / $\Phi B1$ 「H」
7, 76, N22, V_{22} 가, 77, N27, V2
N, 31, N121 「L」, VL, P, 35, V22
, N30a, N30b, N121, V_{27} , V_{30a} , V_{30b} , VO, VL
11
[12]
55, 12, 160, 61, 30, 161, 55, 61
30, 12
61, 3, V3(15V), GND, 62, 56, P, 23
62, N, 23, P, 24, 65, 3, V3, N, 23
(N22), 67, P, 66, 67, 3, V3, GND
P, 65, 66, P, 65, 66, P, 66, 67
가, N, 23, P, 65, P, (N22), N, 23
23, 24, 24, N20, 62
22) N20 () VI, P, VTP, N, 23 (N
VTN, P, 24 (N23) V23 N, 61
 V_{22} , $V_{23}=VI+|VTP|$, $V_{22}=VI+|VTP|+VTN$, V_{22}
VI | VTP | +VTN
30, 6, V6(15V), N30, N, 31, P
32, N, 31, P, 61, V22, P
32, P, 32, N, 31, N
31, 6, V6, N, 31
161, N, N30, GND, 164, N, 161, 56, N30
GND, 162, 163, 164, N, 162, V6, 163
GND, N, 162, 163, 164, N, 163, 163
164, 가, N, 162, N, 163
가, 161, 31, 32

N 31 (N31) V31 $V31=V22-VTN=VI+|VTP|$ 가 , N30
 VO $VO=V31-|VTP|=VI$ 가 .

12 , 93, 24, 31, 32
 , 가 .

57 , 12 165 57
 , 165가 56 160 , 164가 67 2
 62 161 . 67 N 163 , P 66
 GND . N 163 .
 67 164 .

58 166 , 55 160 23, 32
 . VO , $VO=VI+|VTP|-VTN$. , $|VTP|$ VTN , VO VI가
 . , $|VTP|-VTN$ 55 160
 . 23, 32 .
 , 62, 161 .

[13]

59 , 13 170 59 , 1
 70 , 63, 171 33 . 63 33 ,
 12 .
 , 63 , 4 V4(5V) 5 V5(110V) N
 VI 26, P 27 64 . N 26 , N20
 . P 27 (N27) . P 27 ,
 . 64 , 26, 27 .

N 26 (N26) V26 $V26=VI-VTN$. P 27 (N27
) V127 , $V27=VI-VTN-|VTP|$ 가 . 63 , VI -VTN- $|VTP|$
 V27 .

171 , 4 V4 N30 33 , 7 V
 7(-10V) N30 P 35 N . P
 35 , 63 V27 . N 34 34 ,
 . N 34 , P 35 . P 35 71
 7 V7 , P 35 .
 , 34, 35 .

P 35 (N34) V34 , $V34=V27+|VTP|=VI-VTN$. N30 VO
 , $VO=V34+VTN=VI$ 가 .

13 , 26, 27, 34, 35
 , 가 .

60 , 13 172 60
 . VO , $VO=VI+|VTP|-VTN$. , $|VTP|$ VTN , VO VI가 . , $|VTP|$
 | -VTN 59 170
 , 27, 34 ,
 , 164, 171 .

[14]

61 , 14 175 61 , 175 ,
55 160 , 59 170 61 P
24 63 N 26 , N20 VI
30 P 32 33 N 34 , N30
. VO가 VI , 30 31, 32가
33 34, 35가 , VO가 30 VO가 VI ,
, 33 34, 35가 , 30 31, 32가 ,
VO가 , VO=VI가 .
175 , , 33 , 34, 35 175가
31, 32 , 30 31, 32 33 175가 34, 35 30
31, 32 . 175가 33 34, 35 30
31, 32 33 34, 35
. 14 , 가 175 , .
, 62 , 14 176 62 ,
176 , 61 170 23, 27, 32, 34
VO , VO=VI+ | VTP | -VTN . , | VTP | VTN , VO VI가 . , | VTP | -VT
N 61 175 .
23, 27, 32, 34 , .
, 63 14 180 63 ,
180 , 61 175 61, 63 181, 183
181 , 61 62 182 183
, 63 64 184 182, 184 , 1
82, 184가 62, 64 , 61
175 .
, 64 , 14 185 64
, 185가 61 175 , 161 N30 5 64 V5
, 171 3 V3 N30
. 62, 64, 161, 171 , 65 67, P 65, 66, 189 N
186 188 . P 66. 67 N 186 , 3 V3
5 V5 . P 66 , N
186 . 66, 186 , .
P 65 , 3 V3 N22 , P 66
. P 189 , 3 V3 N30 ,
P 66 66, 65, 189 , P 65, 1
63, 189 , P 가 . P 65, 1
89 , 62, 171 .
N 187 , 5 V5 N27 , N 18
6 . N 188 , 5 V5 N30 ,
N 186 . N 186 188 , . N
187, 188 , N 186 가 . N
187, 188 , 64, 161 . 61 175 ,
. , 61 175 .

66, 15, 3
 66, 가 1, (2)
 (20) N30 N20

N30 N20 가, 16, (18) N30 N29
 가, N20 가, N20
 N30 N20
 (6) ? VG가 (2)

20 1 14

[16]

67, 16, 66
 67, 가 15, 14가
 190

190, 14, 20, 191, 192 가
 192 191 N30, 21, 30,
 VCOM 201 203 204 191, 68 21 30, 4 5

201 3 V3, 22 N22
 202 6 V6, N 31
 203, P 32 N30 204, P
 32 GND

69, 191, 201 203, (t3-t1)
 (t2-t1) VO=VI가, 22, 204 I1, I2가, 192가 VO
 가 VO ΔV 가 가 201 203 가

16, 15, 191 /

201, 22, N 23 P 24
 31, P 32 201 204 22, N
 202, N

16 가 70 205, 25,
 33, 206 208 209 25 33
 4 5 206 5 V5
 28 N27 207 7 V7
 P 35 208, N 34 N30
 209, N 34 V4 2
 06 208, 68 69 201 203 /

71 210, 68 191 70 205
 208, P 32 N 34, 203
 N30 201 203, 206, 207 /

72 215, 71 210 206, 207, 2

01, 202 . N 26 201 22
 , N 가 34 , 209 N 31 .
 73 , (2) 191 N30 .
 [17]
 74 , 17
 1 1 , (4) (6) EL 220 22
 1 (8) (10) (13) , IG
 (6) 230 .
 221 , P 222, 223 , P EL 220 , 222 223, VCC 224 225 229 . P
 222 222 224 229 , P 227 , 222 6 P 225, 226 , P
 225, 226
 (4) 「H」 , 225 227 228, 229가
 , P 222, 227 222가 225, 226 6 VCC IG가 P
 , P 222 222 IG 223 P
 222 - .
 P (4) 「L」 , 225 227 228, 229가
 P 222 222 228 EL 20 223 GND VCC P
 IG 222, 228 EL 20 GND IG가 , EL 220
 , P 224 225, 226 가 P 222
 , P 222 가 , EL 220 .
 , 224 226, 229가 , P 225, 227 P 222
 가 6 가 , P 222 가 P EL 220
 [18]
 75 , 18
 1 1 , 4 6 EL 220 231
 6 8 10 13 , IG
 240 .
 231 , N 232, 233, 234 235 239 . EL
 220, 238 N 232 , VCC GND 236, 237 , N
 232 235 , 6 N 232 233 , N 232 236, 237
 234 239 , N 232 232 236, 237
 235 239 , 4 / .
 4가 「H」 , 235 237 238, 239가
 , N 232가 236, 237 , 240 6,
 235 N 232 . 232 GND IG가
 N 232 IG , 233 N
 230 - .

47가 「L」 , 235 237 238, 239가 . N
 220, 232 233 VCC 232 EL
 IG가 , EL 220
 , N 234 236, 237 가 N 232
 232 , EL 220
 , 234 236, 239가 , N 235, 237
 6 가 , N 232 가 N EL 232
 가 220
 , 1 18 , 2, EL 51, 220
 , 가

(57)

1.
 (VG) , (14) ,
 (VG) , 1 1 (15),
 1 (15) , 2 2 (16),
 2 (16) , (VCOM)
 1 (19)
 (N20)가 2 (16) (N30)가 1
 (15) 0) , (N20) (N30) (16)
 2.
 1 ,
 1 2
 3.
 1 ,
 2 1
 4.
 1 ,
 (160) ,
 1 (N20) (VI) 1 (V22)
 (61),
 1 (61) (V22) 2
 (N30) (30, 161)

5.
4 ,
1 (61) ,
1 (V3) 1 (62)
1 1 (62) 2 2 (GND)
, (N20) (VI) 1 1 (24) ,
2 (30, 161) , 1 3 (V6) , 2 (N
30) (31) , 1 (62) 2 2
6.
5 ,
1 (61) , 1 (62)
2 1 (24) 1 2 3 (23) ,
2 (30, 161) , 1 2 (31) 2 , 2
(N30) 1 4 (32)
7.
5 ,
2 (30, 161) , (N30) 4 (GND) 2
(161)
8.
7 ,
1 3 (V3, V6) ,
2 4 (GND, GND)
9.
7 ,
1 2 (62, 161) 1 2
10.
7 ,
1 (62) , 1 2 3 (65)
,
2 (162) , 2 1 4 (161)
11.
4 ,

2 (75, 80) , (N20) (VI)가 1
 (61, 30) (N22) (V22)
 (76, 81) .

12.
 11 ,

(76) , 1 (N22) , 가 2 (N20) (VI)가 (76) .

13.
 11 ,

(81) , 1 (V3) , (N22) 3
 (81) (N20) (VI)가 .

14.
 4 ,

(125) , (122a, S1a S3a) .

15.
 14 ,

2 (30) , (N121) 2 (N30a) ,
 (122a, S1a S3a) ,

2 (122a),

2 (122a) 1 (61) (VI)
 2 (122a) (N30a) 1 (S1a, S2a)

2 (122a) (VI) 1 (61) 2 (122a)
 (VI) 1 (61) 2 (S3a)

2 (N30a) (N121) 3 (S4a) .

16.
 15 ,

(122a, 126a, 131a, S1a S3a) , 1 (S1a, S2a) 2 (12
 2a) 가 2 (122a) (N) 30a) (N30a)
 (126a, 131a) .

17.
 4 ,

(191) , 1 2 (21, 30) (201,
 202) .

18.

1 (VCOM) (14) , (2) (20) (N30) ,

19.

1 (VCOM) (14) , (2) (20) (N20) ,

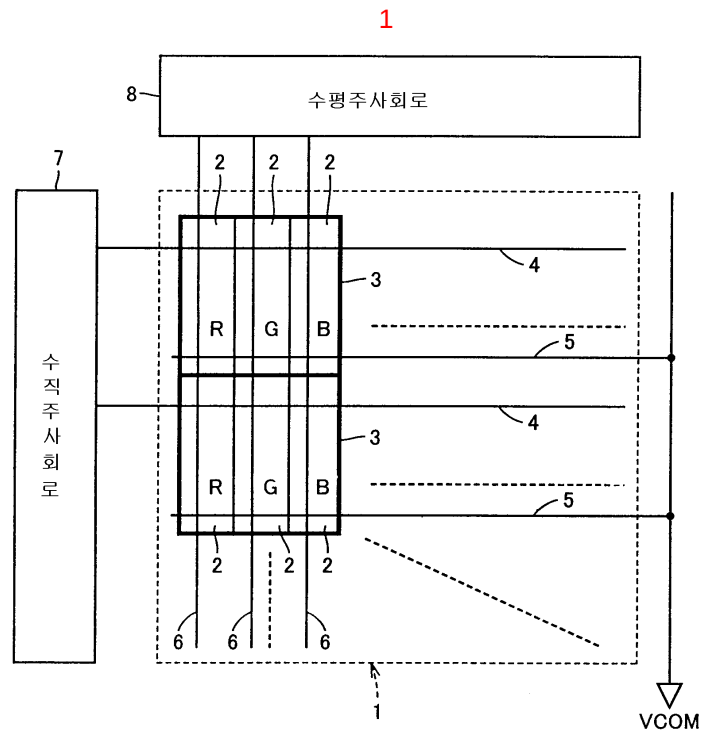
20.

1 (226, 225, 223, 224),

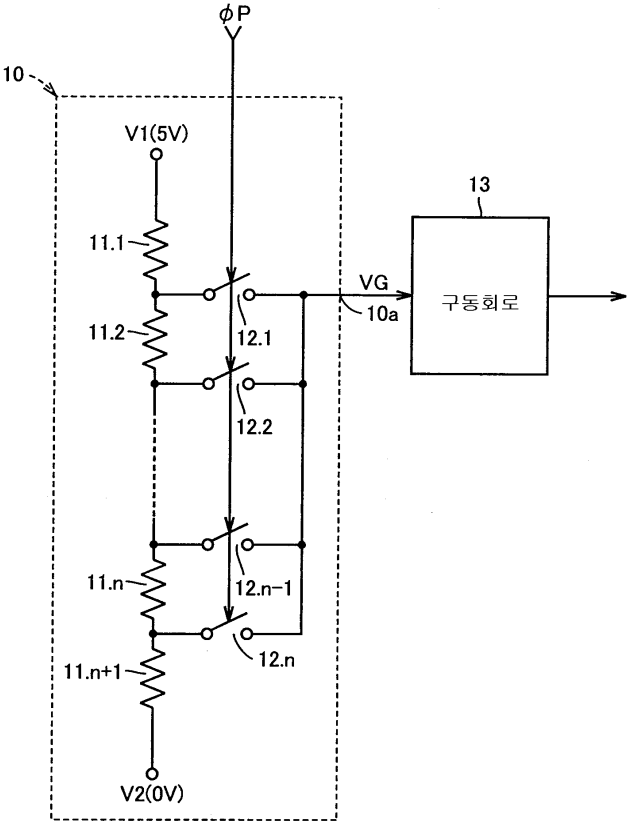
1 , 1 (226) 2 (223) , 2 (225) (222),

1 2 (226, 225)가 (222) (IG) 1 2 (230) (222) 1

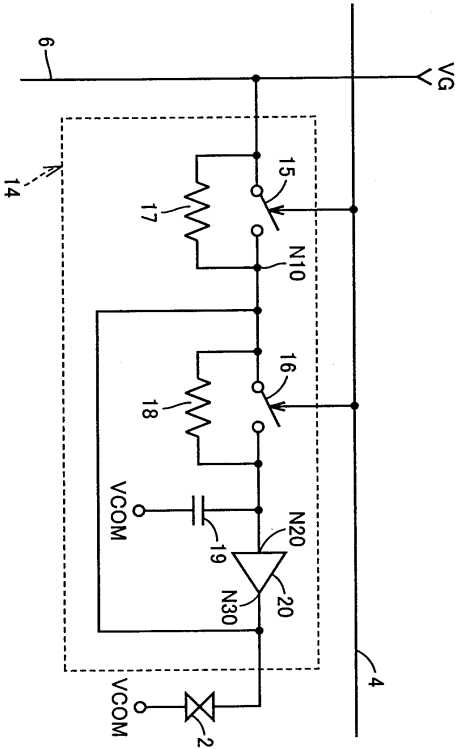
1 2 (222) 1 (GND) (220)



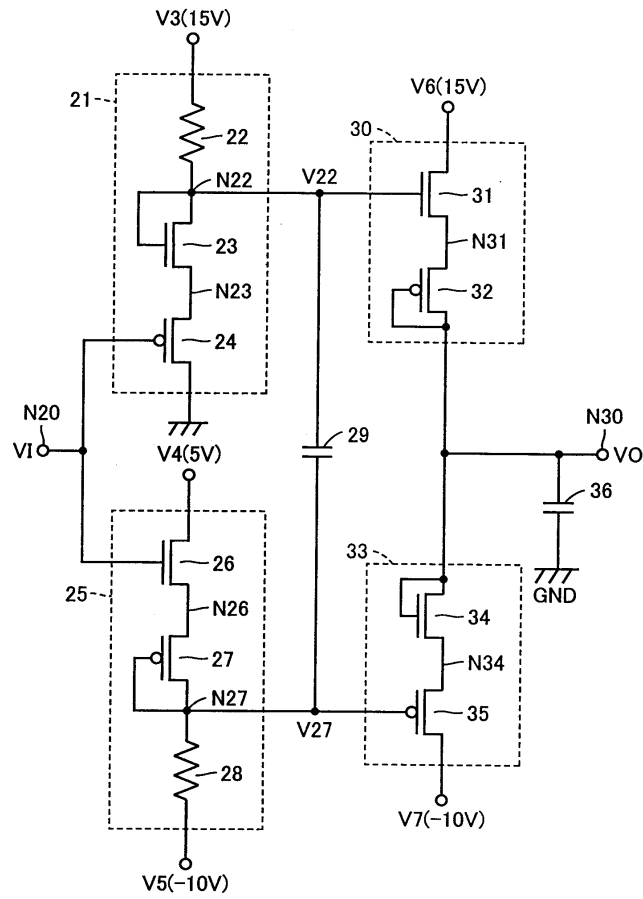
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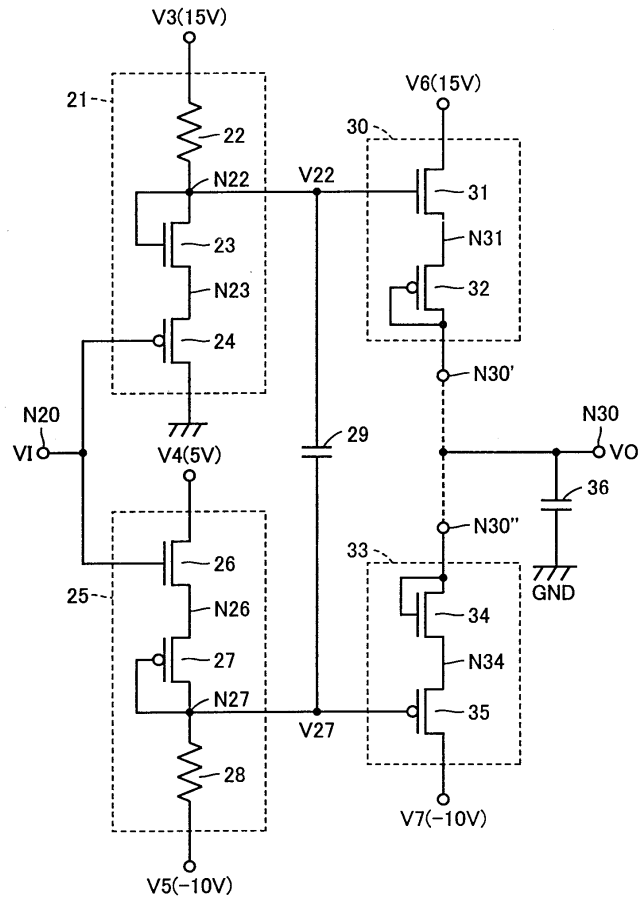


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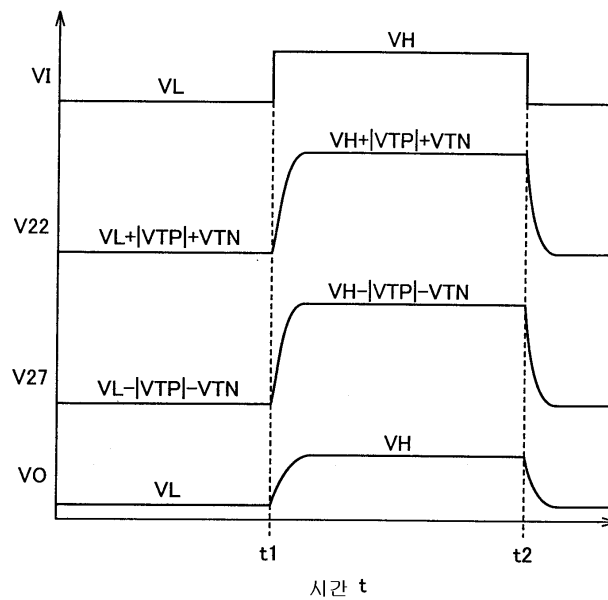
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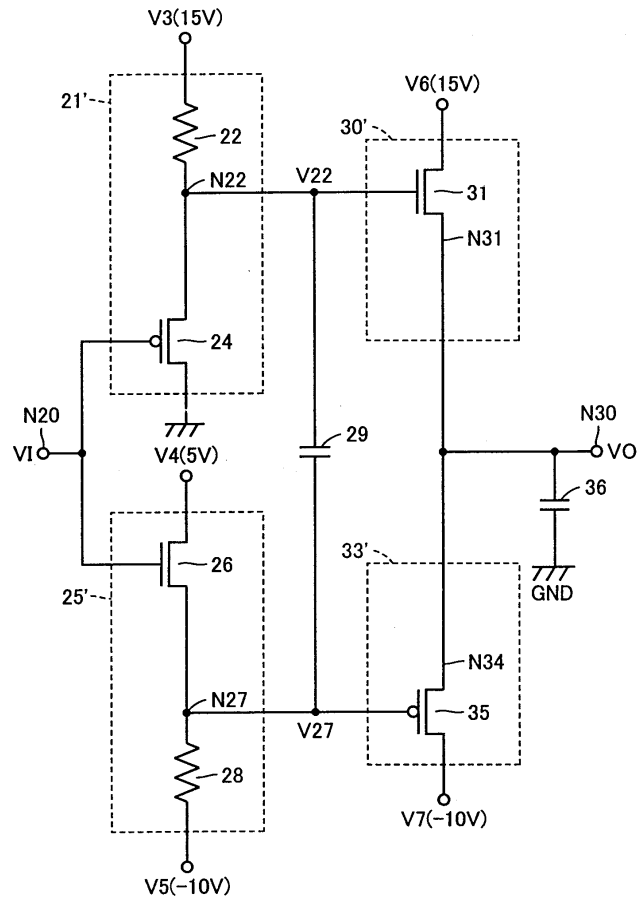
6



The circuit diagram shows a differential amplifier 100. It consists of a differential pair of NMOS transistors 23 and 24. The gates of 23 and 24 are connected to a common-mode feedback circuit. This circuit includes PMOS transistors 26 and 27, and NMOS transistors 34 and 35. The gates of 26 and 27 are connected to a biasing network consisting of PMOS transistors 21 and 22, and NMOS transistors 23 and 24. The gates of 34 and 35 are connected to a biasing network consisting of PMOS transistors 31 and 32, and NMOS transistors 34 and 35. The circuit is powered by V3(15V), V4(5V), V5(-10V), V6(15V), and V7(-10V). The output is taken from the drain of transistor 32, labeled VO.

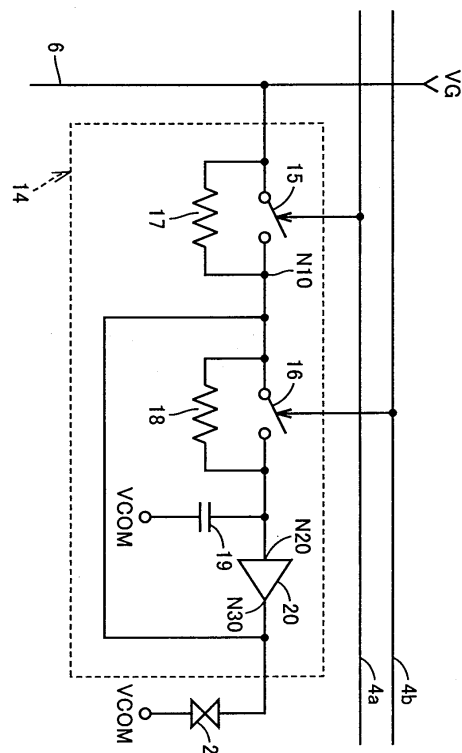
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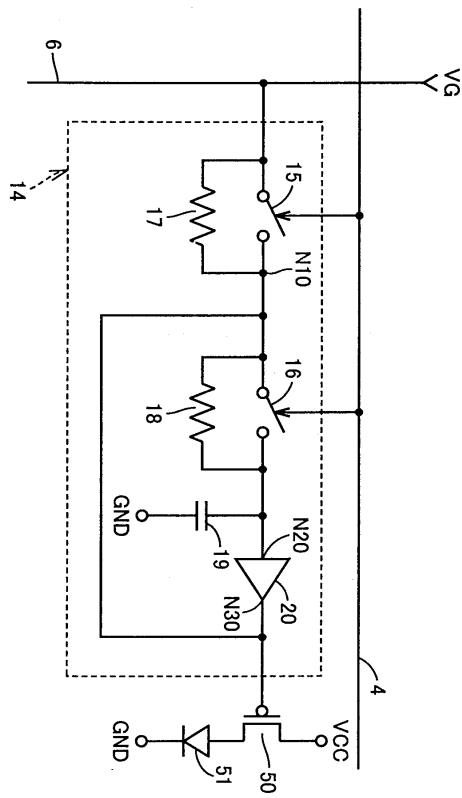


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10

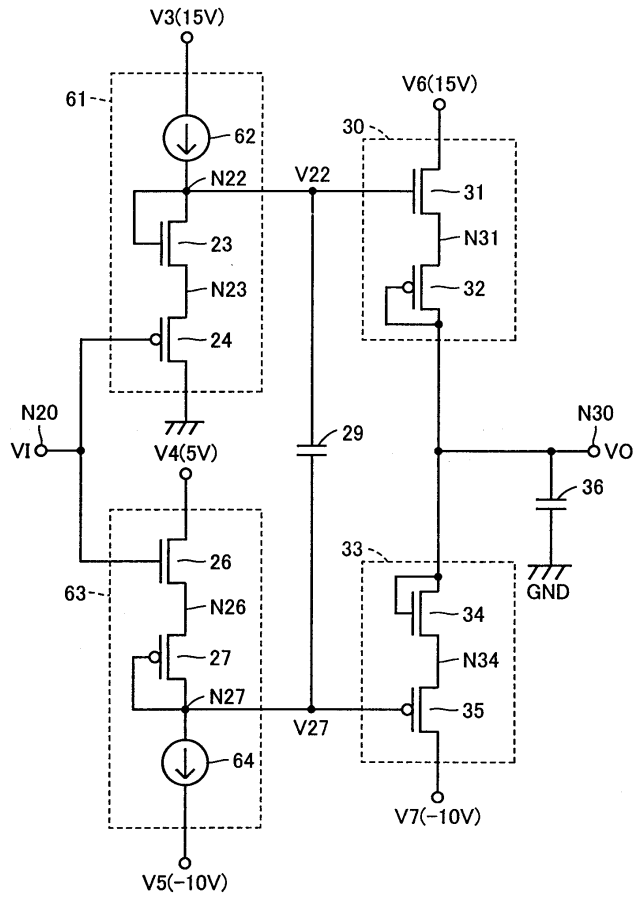


11

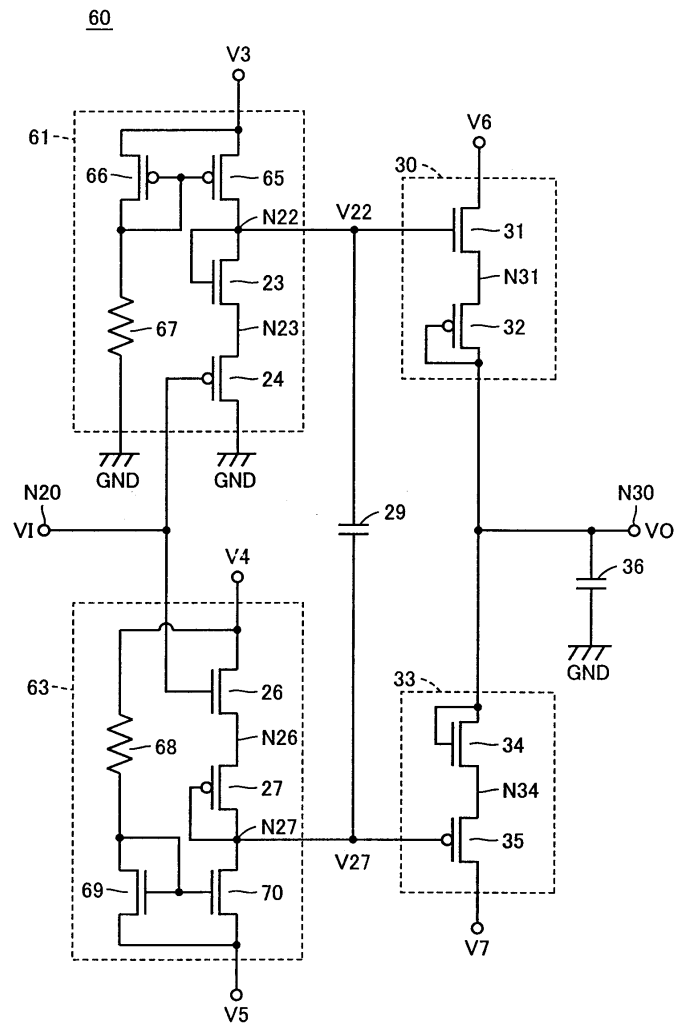


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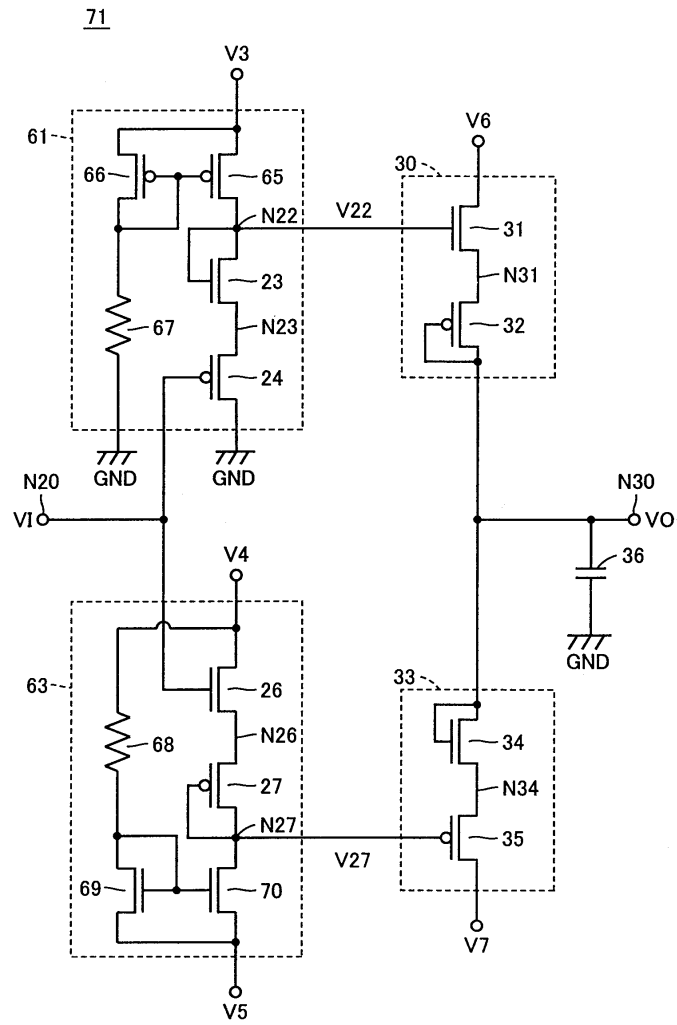
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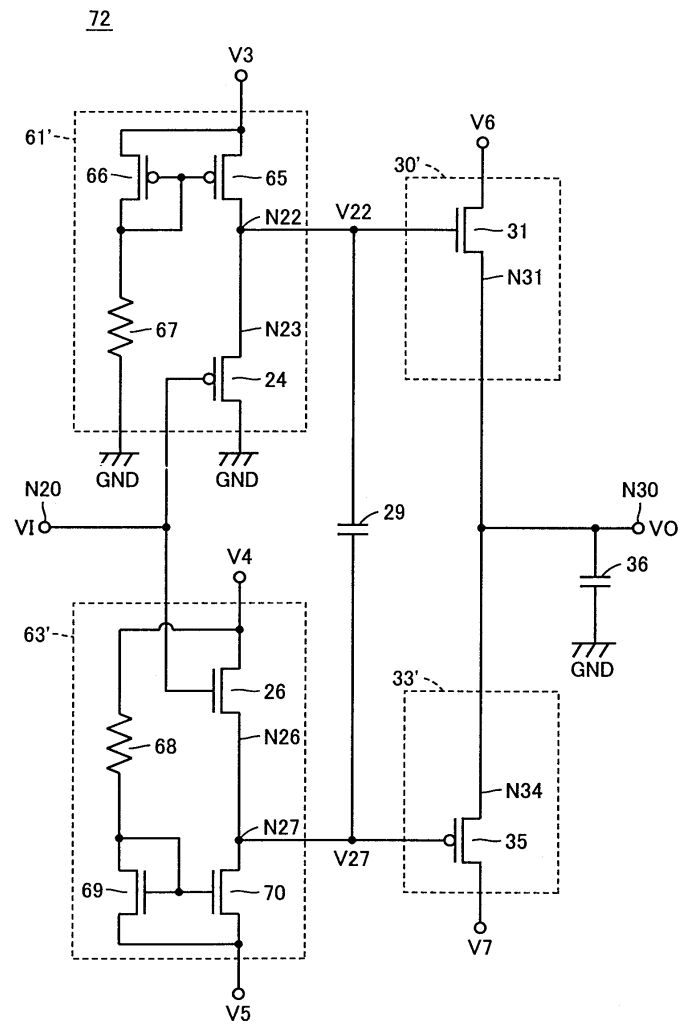
13



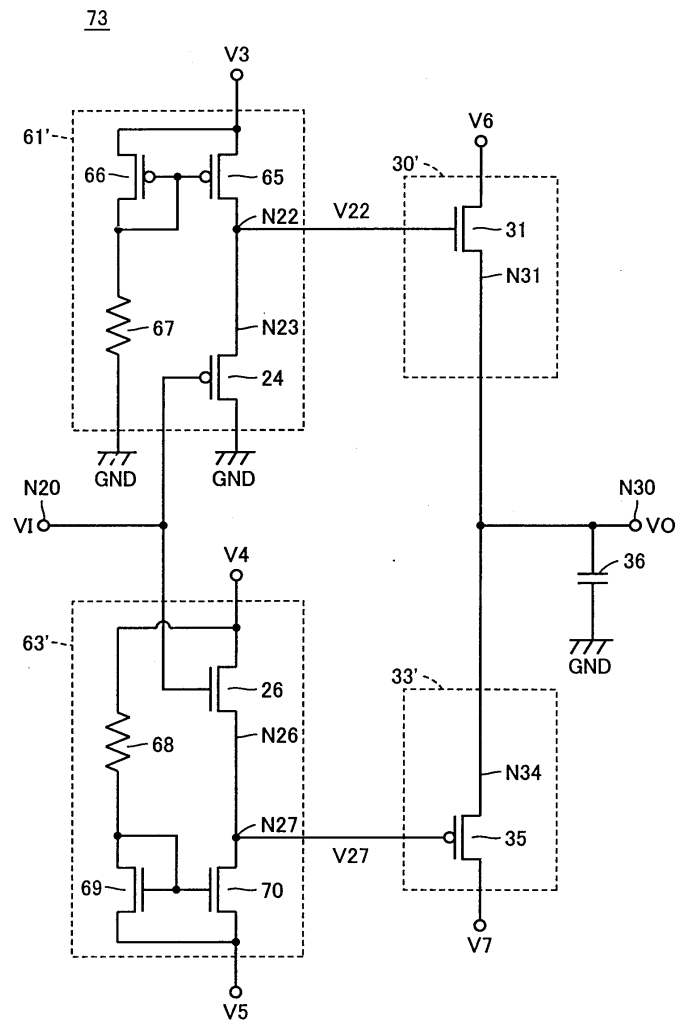
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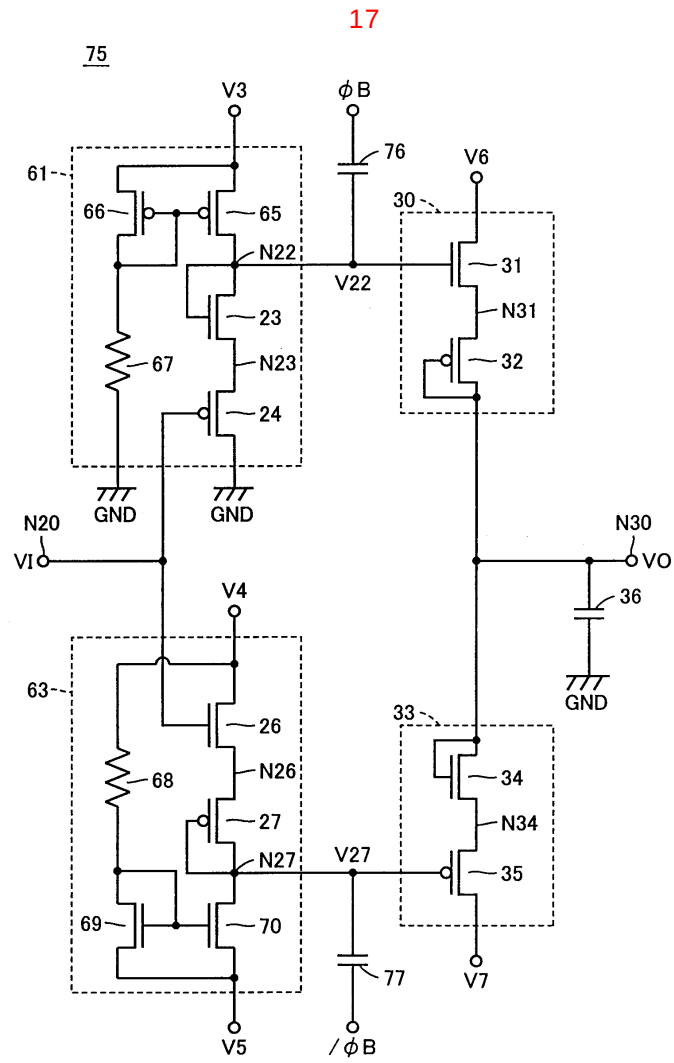


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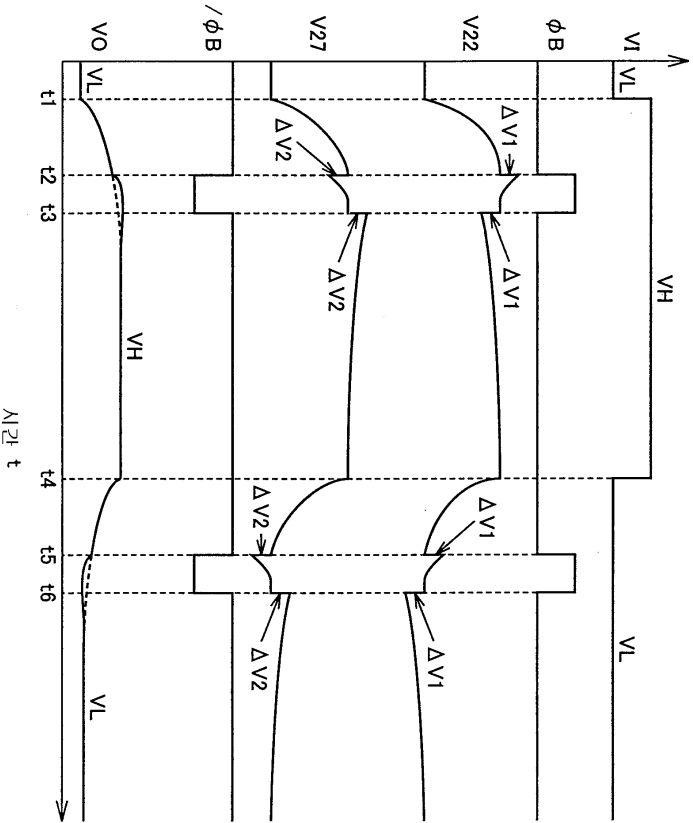


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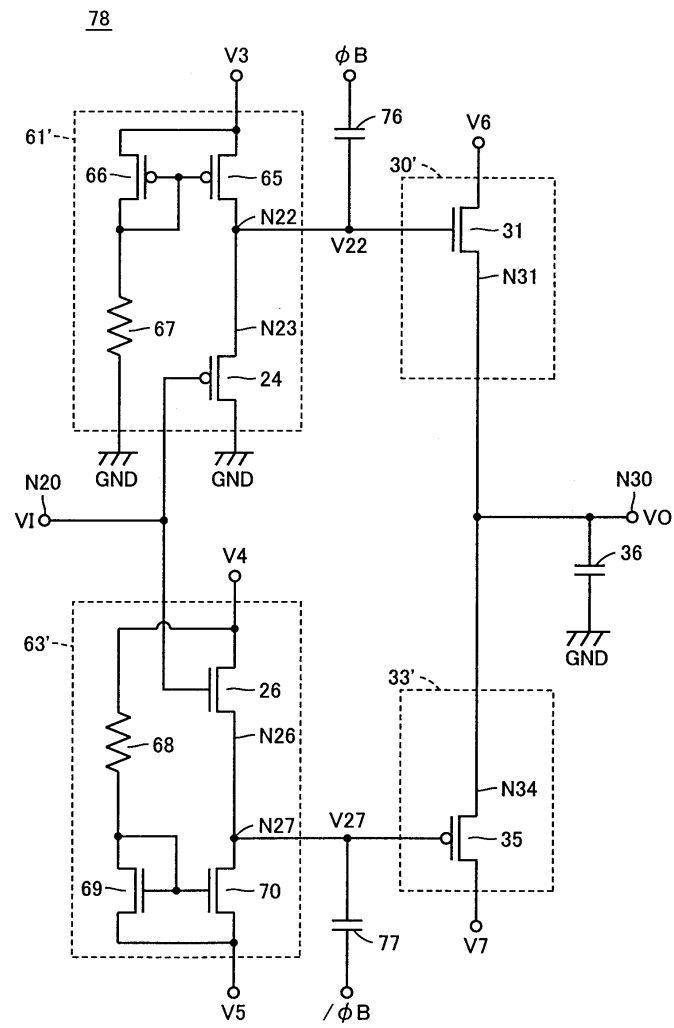




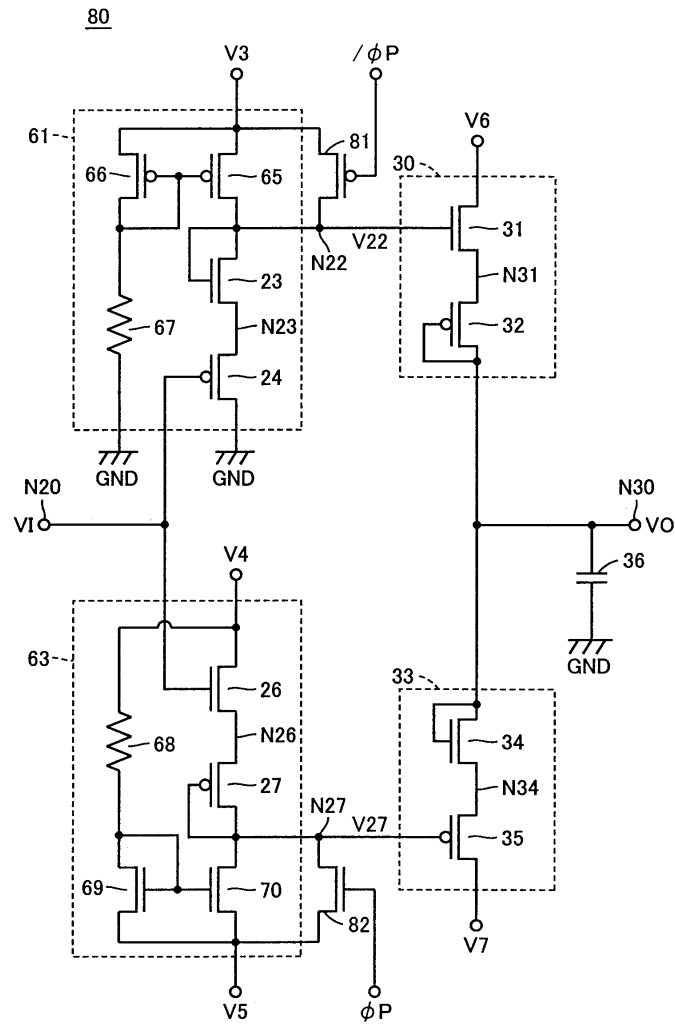
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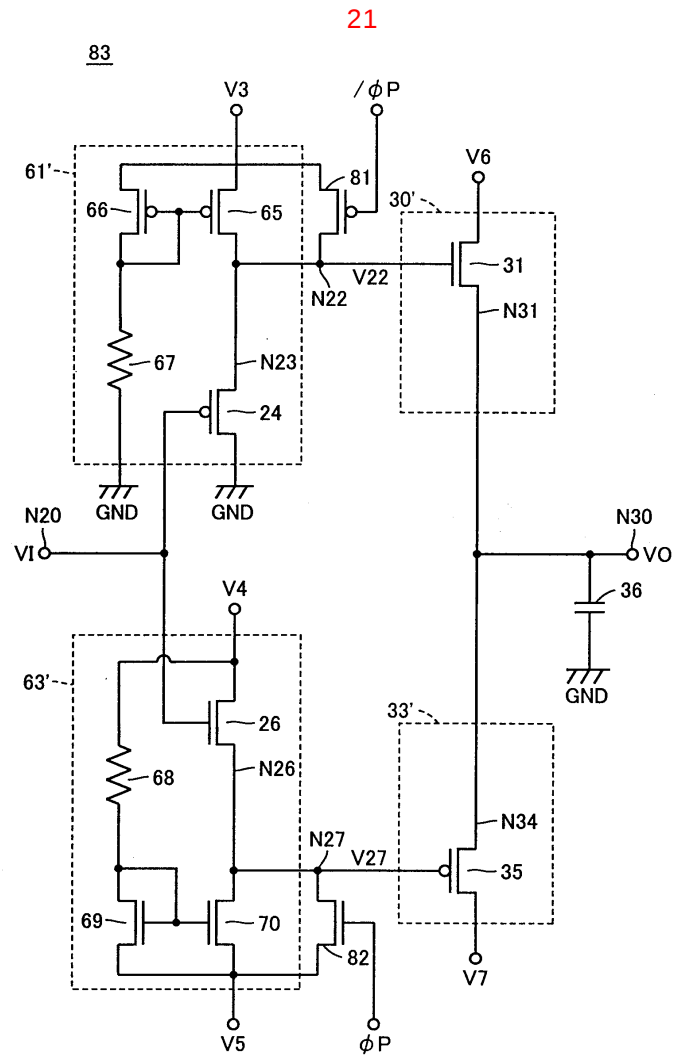


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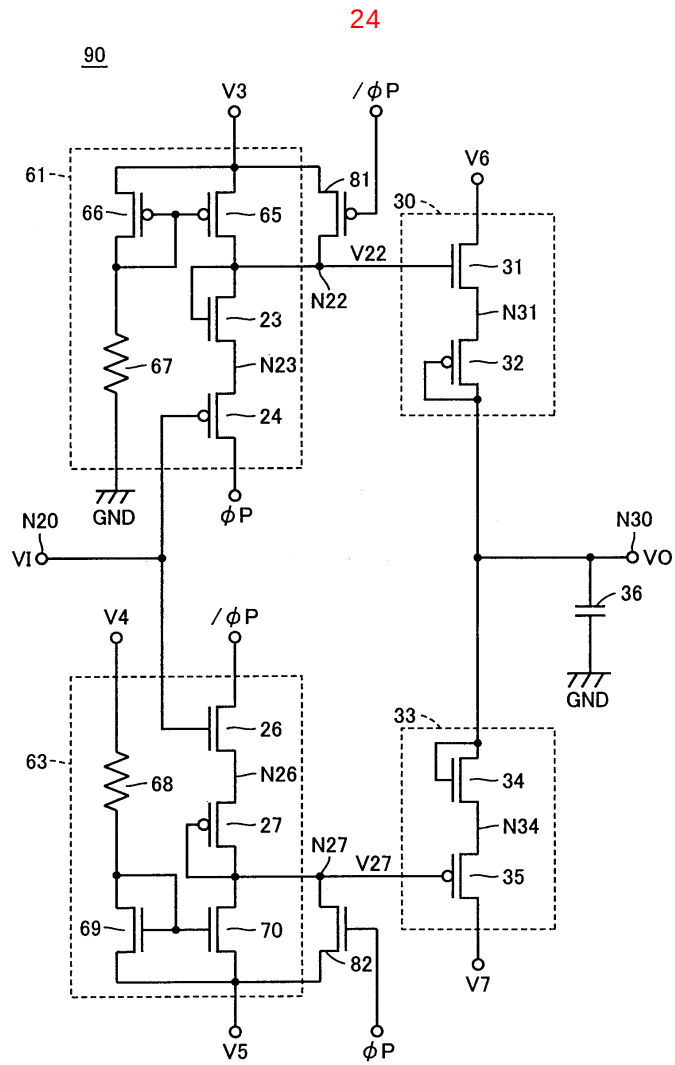
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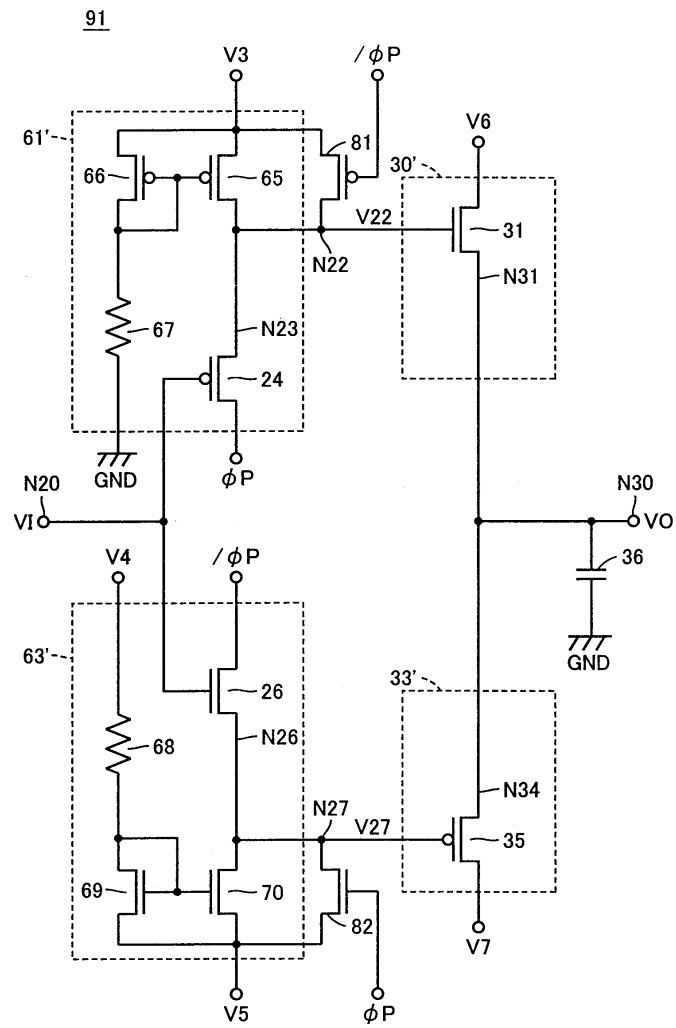




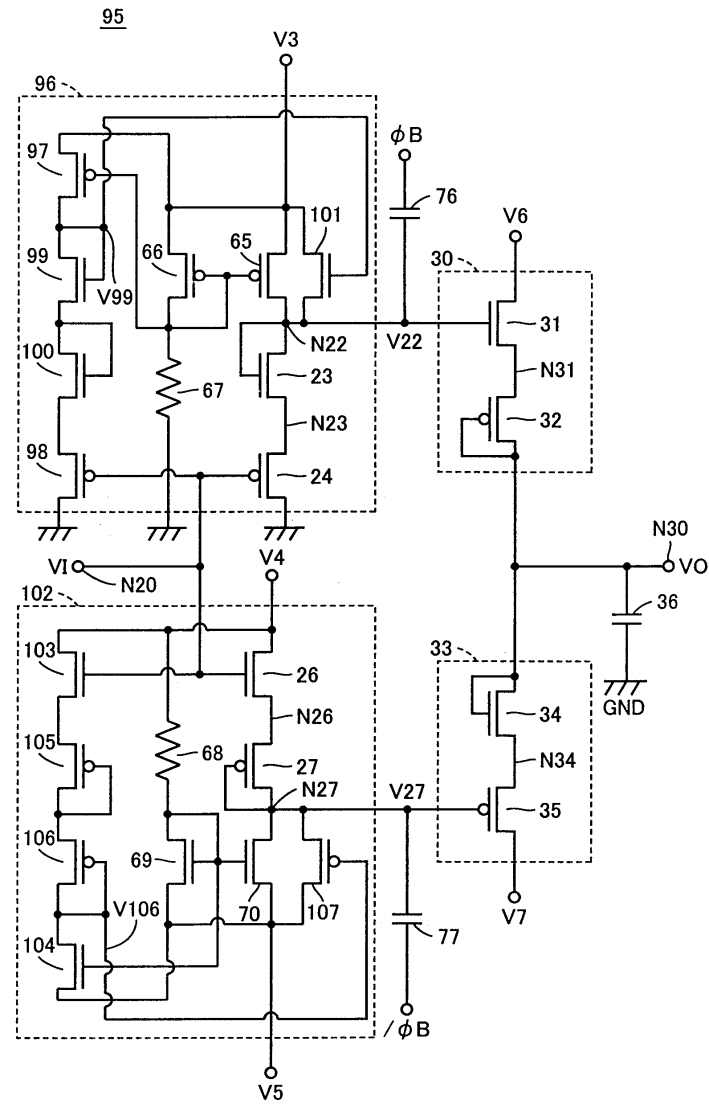
The circuit diagram shows a differential amplifier with two input stages and a common output stage. The top input stage, enclosed in a dashed box labeled 61', consists of a PMOS transistor 65 and an NMOS transistor 66. The PMOS transistor 65 has its source connected to a PMOS load transistor 81, whose gate is controlled by ϕP . The NMOS transistor 66 has its source connected to a resistor 67, which is connected to ground (GND). The gates of transistors 65 and 66 are connected to input V3. The output of this stage is node N22. The bottom input stage, enclosed in a dashed box labeled 63', consists of a PMOS transistor 26 and an NMOS transistor 69. The PMOS transistor 26 has its source connected to a PMOS load transistor 87, whose gate is controlled by ϕP . The NMOS transistor 69 has its source connected to a resistor 68, which is connected to ground (GND). The gates of transistors 26 and 69 are connected to input V5. The output of this stage is node N27. The common output stage consists of a PMOS transistor 31 and an NMOS transistor 35. The gates of both transistors 31 and 35 are controlled by ϕP . The sources of both transistors 31 and 35 are connected to ground (GND). The drains of transistors 31 and 35 are connected to a common output node, which is also connected to a load capacitor 36. The output of the common stage is V7. The input to the common stage is the differential signal from nodes N22 and N27, which are connected to the gates of transistors 31 and 35 respectively. The output of the common stage is V7. The input to the common stage is the differential signal from nodes N22 and N27, which are connected to the gates of transistors 31 and 35 respectively. The output of the common stage is V7.



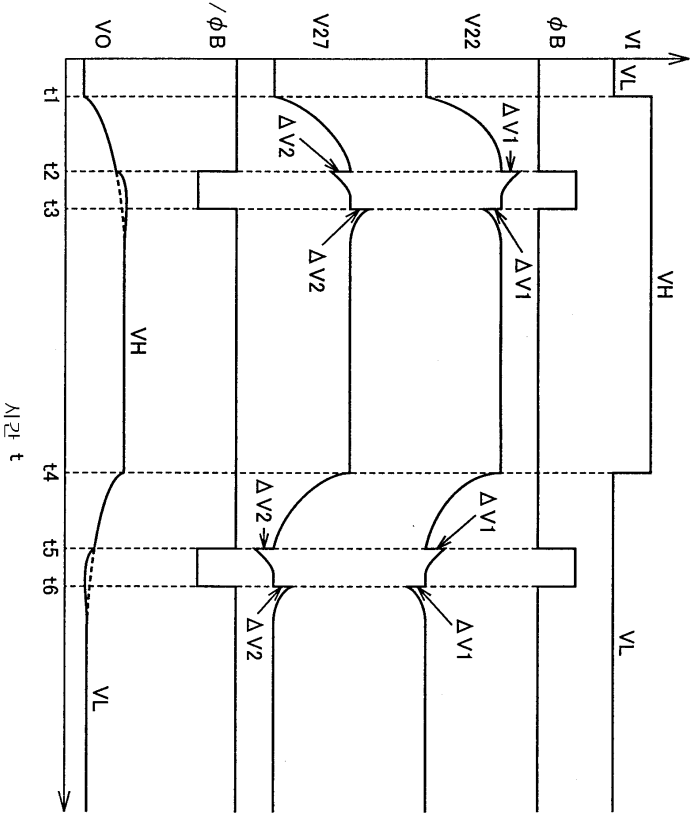
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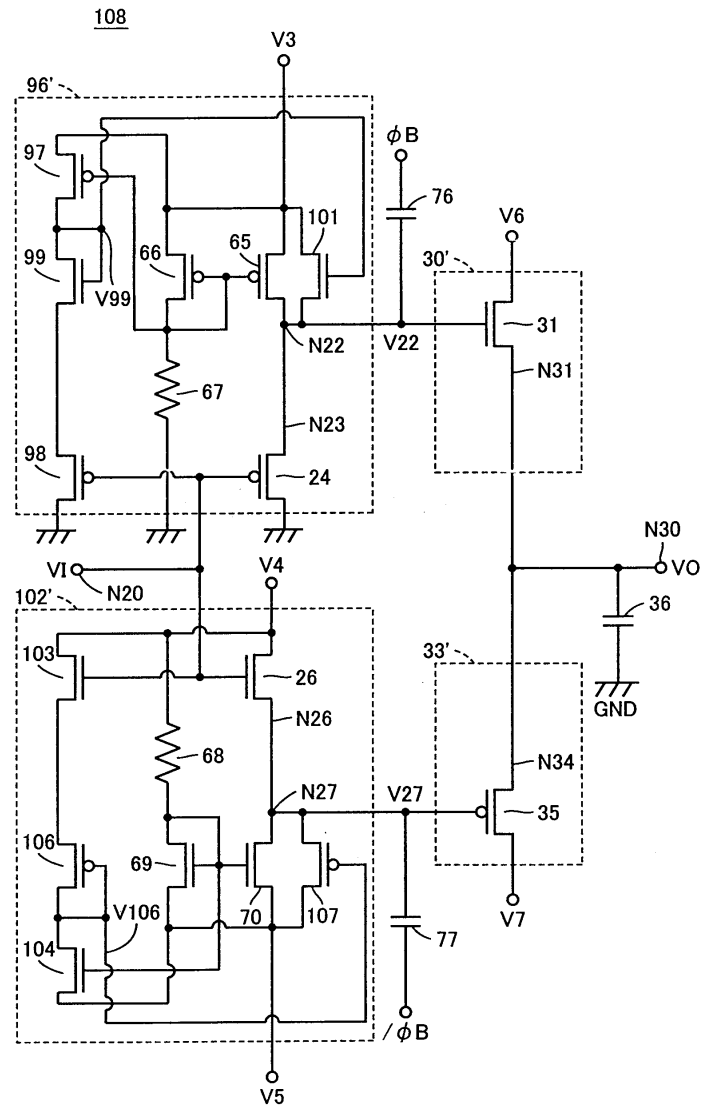
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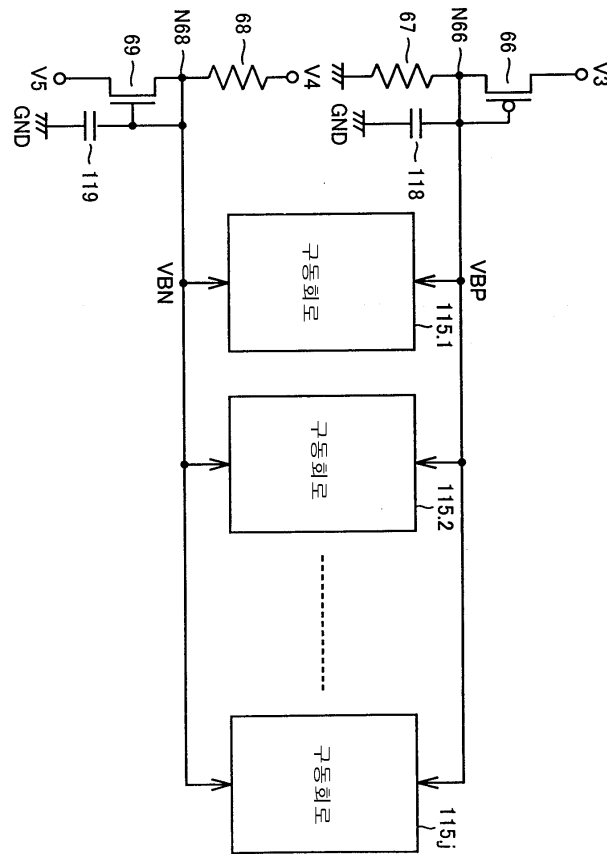


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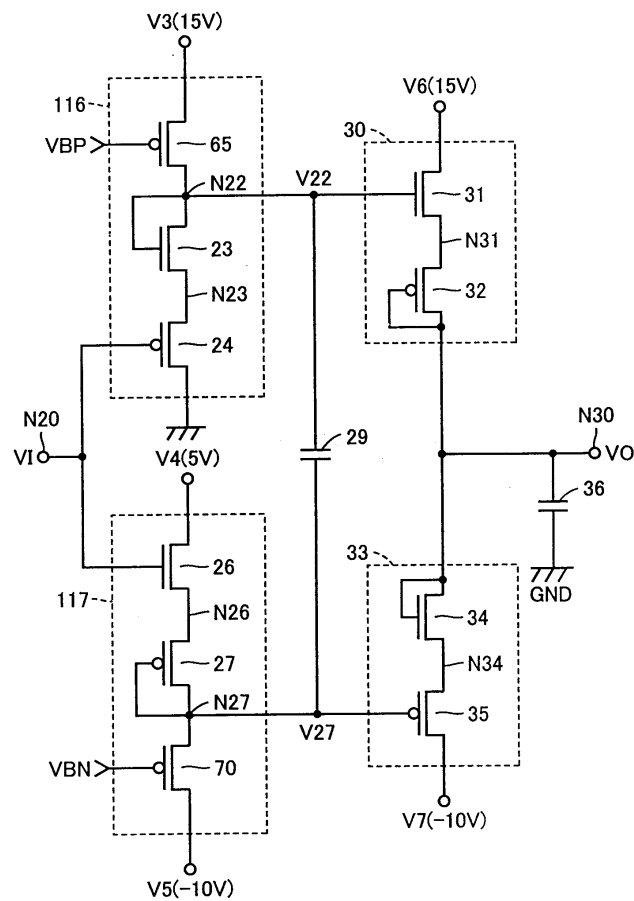


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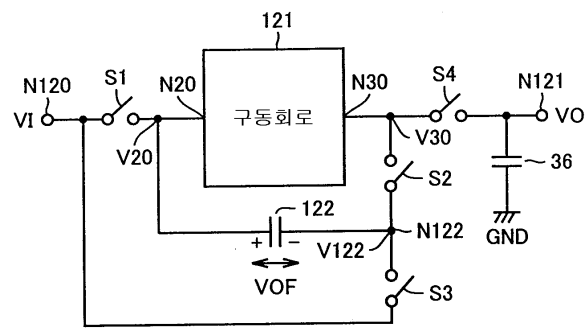
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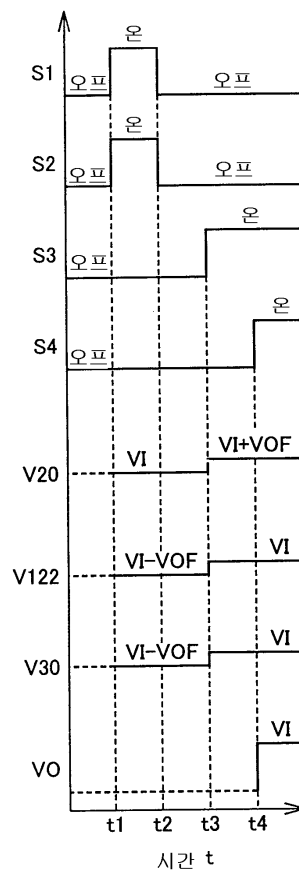


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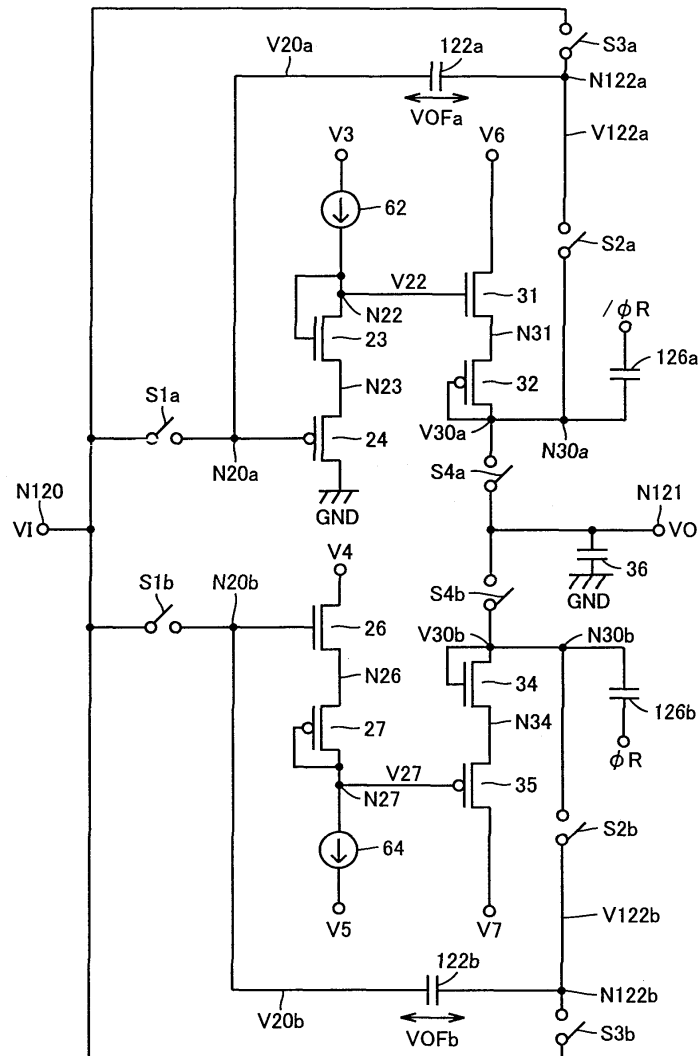
120



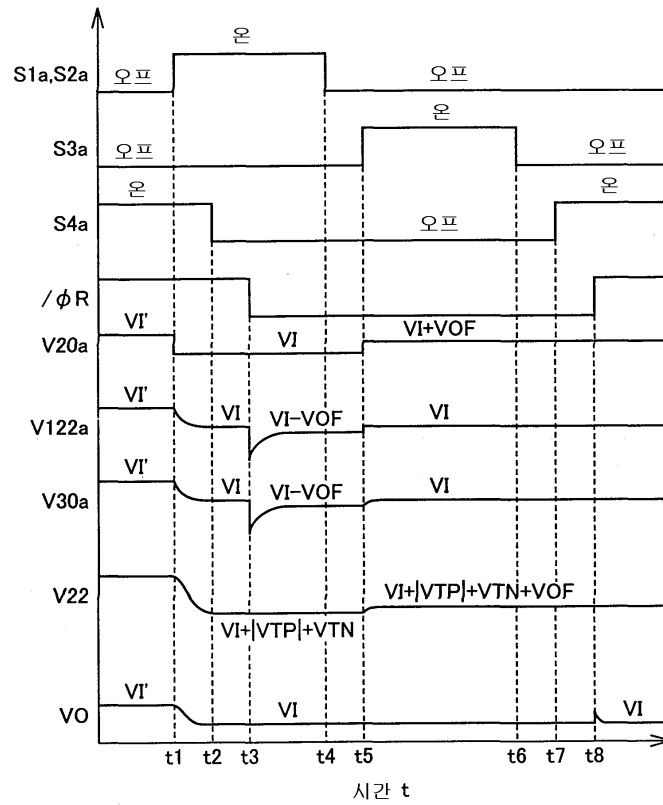
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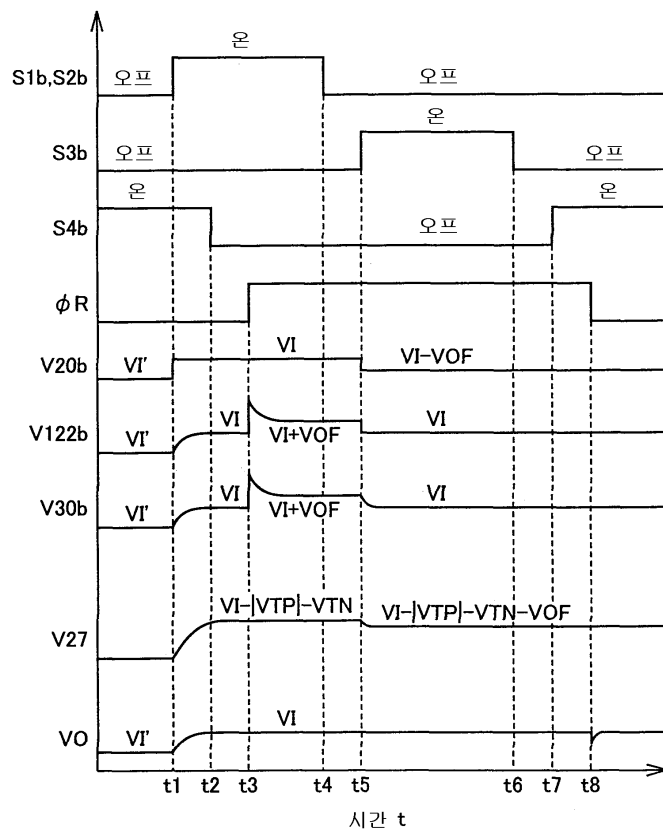
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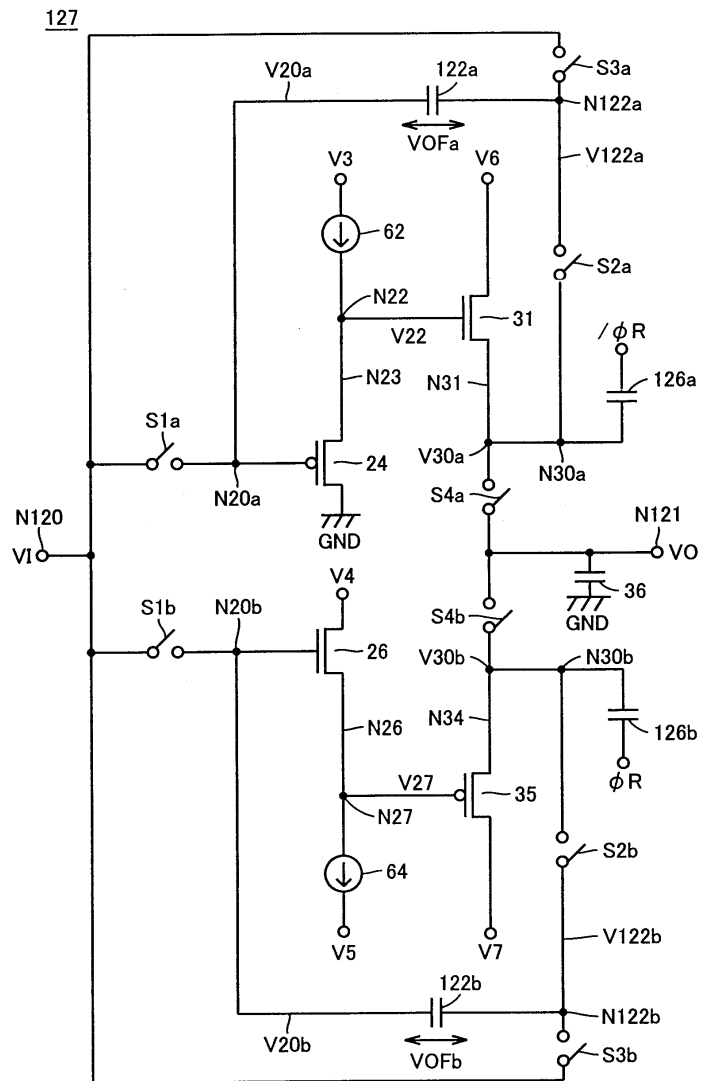
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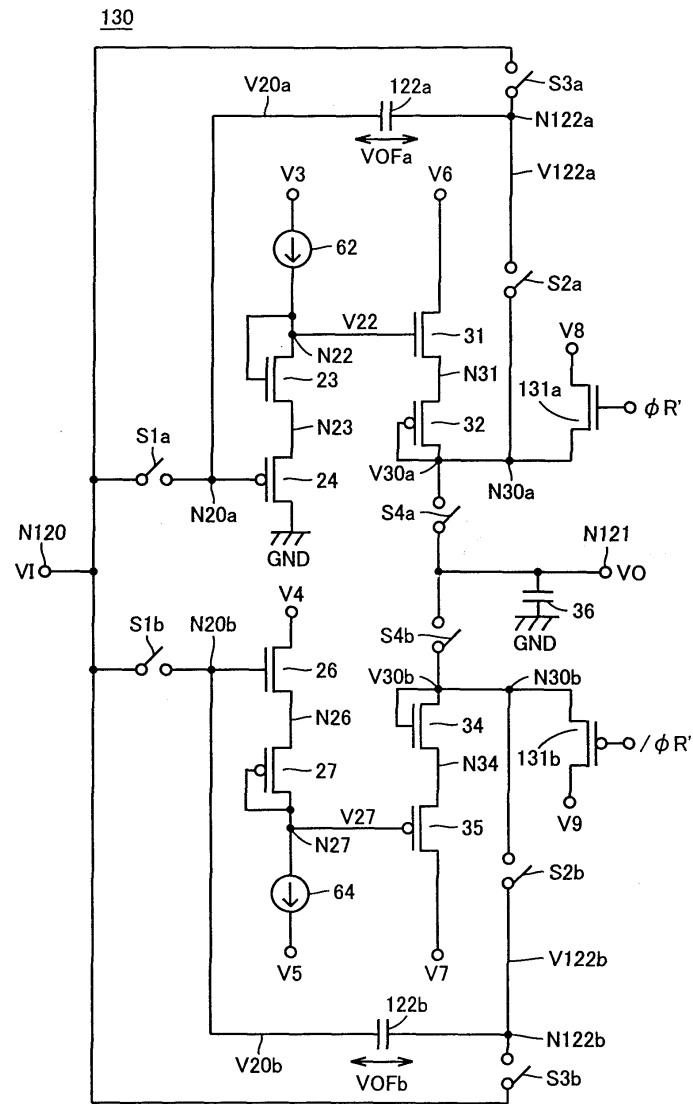
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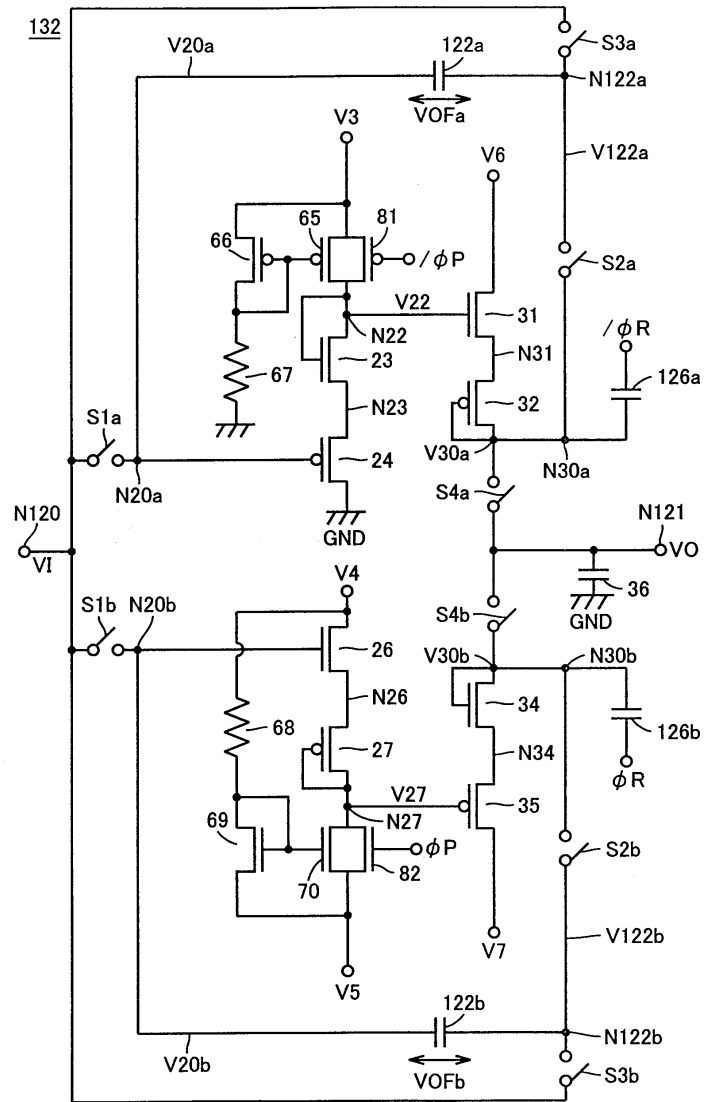
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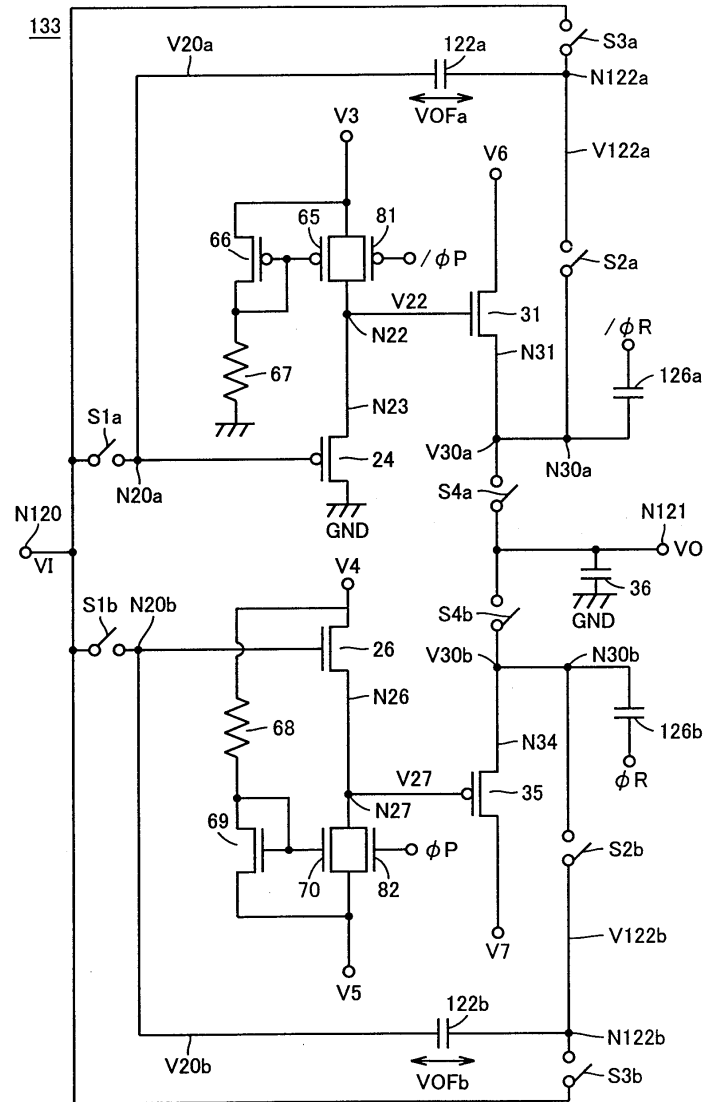
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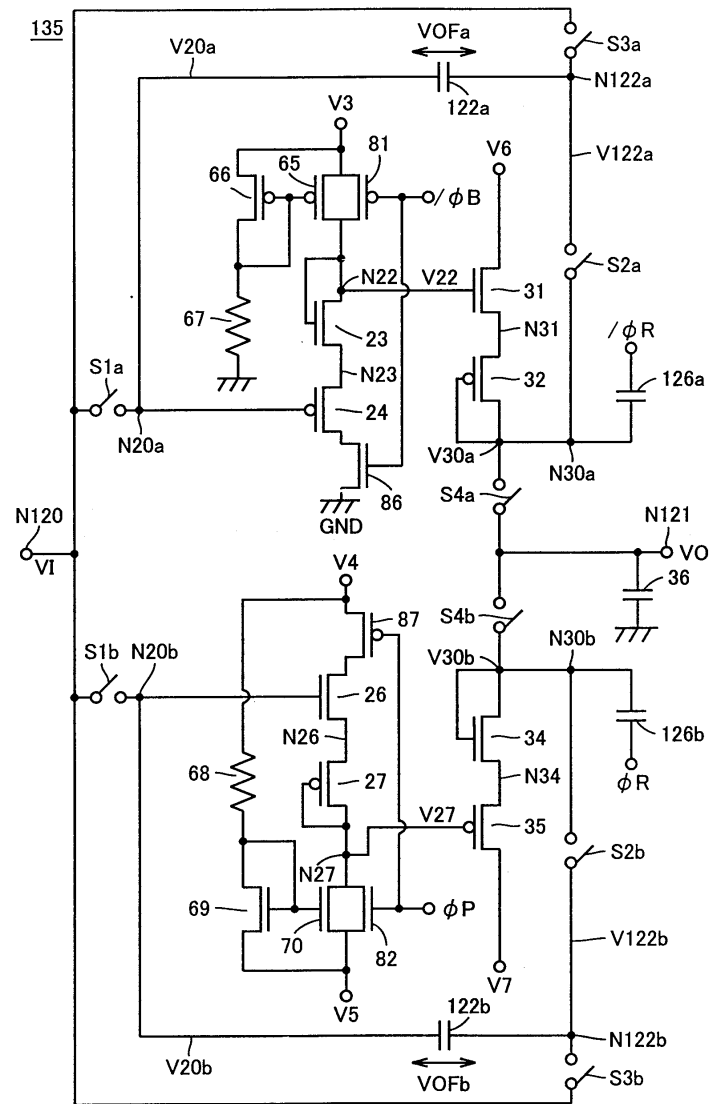
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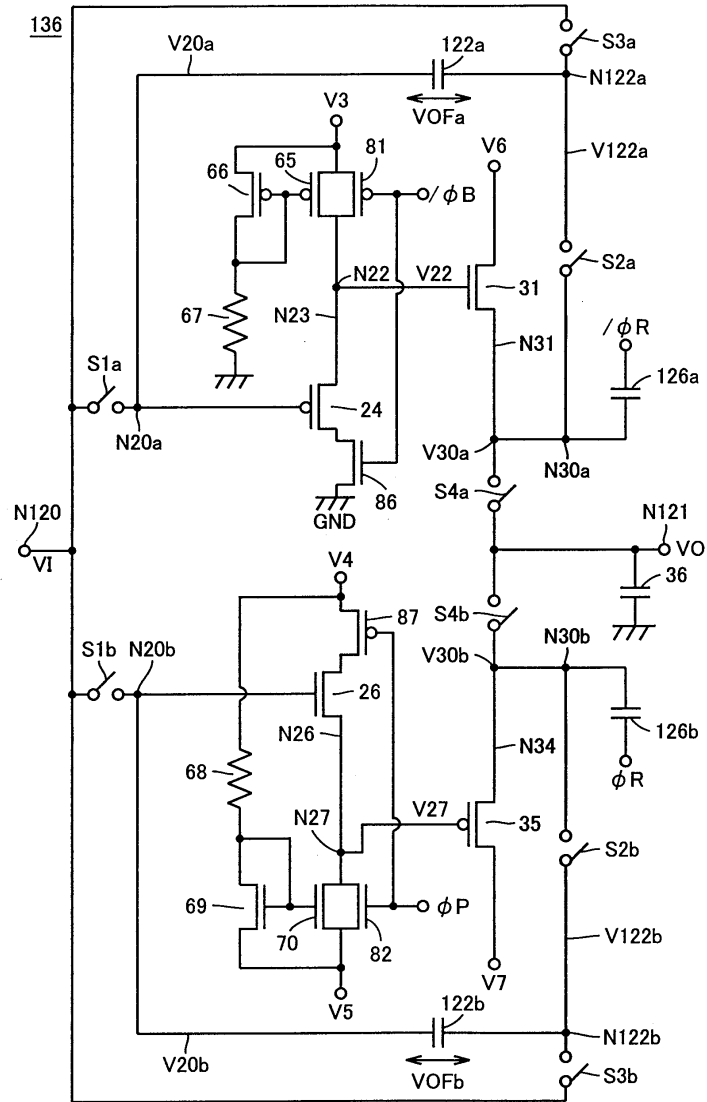
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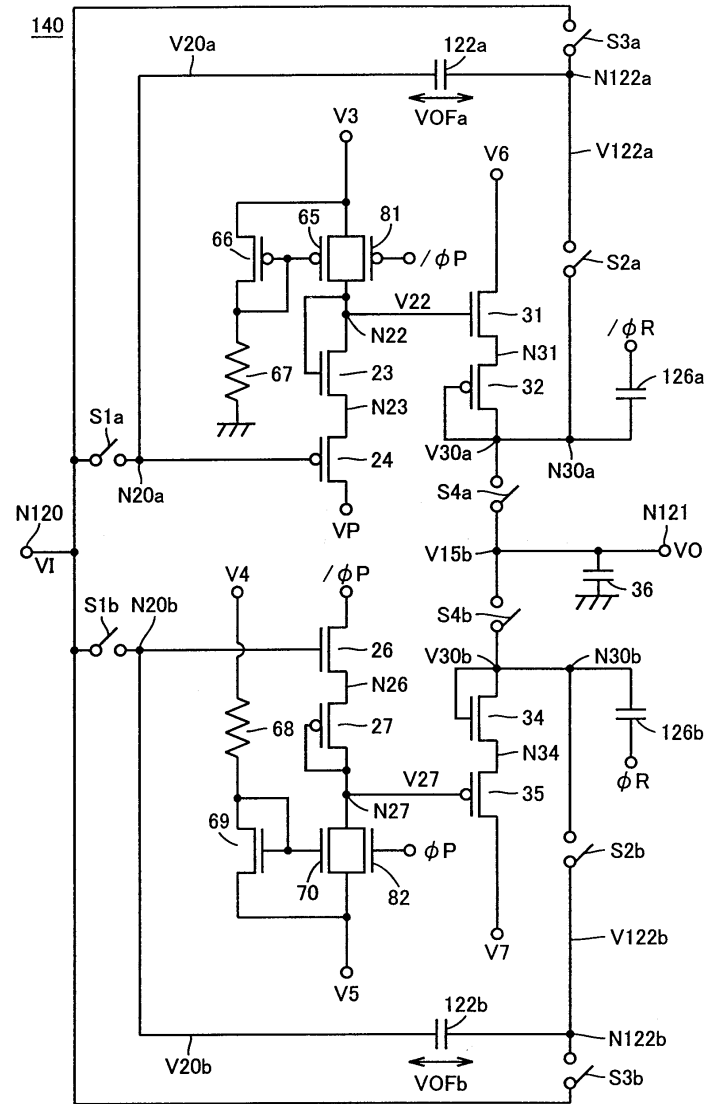
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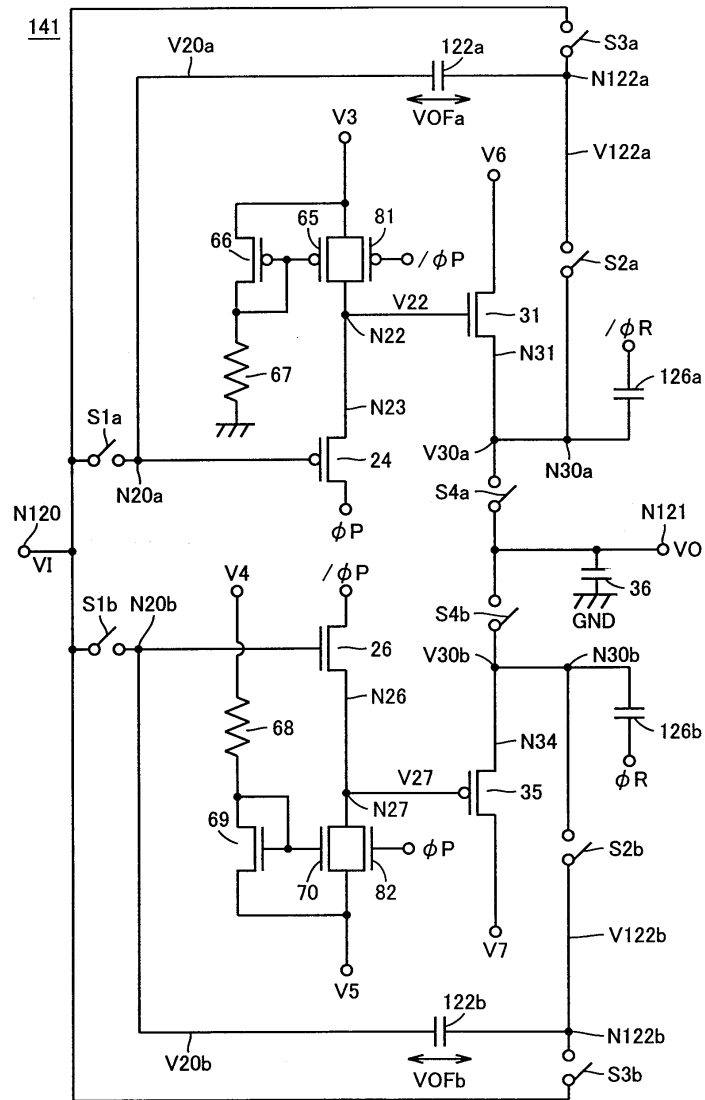
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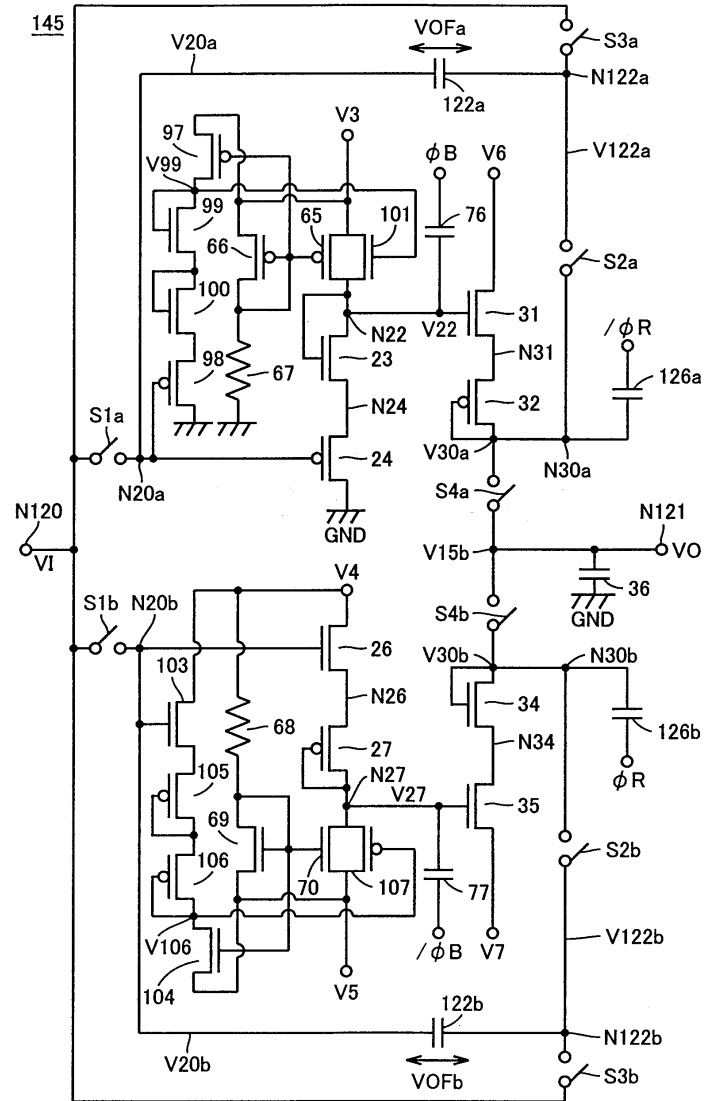
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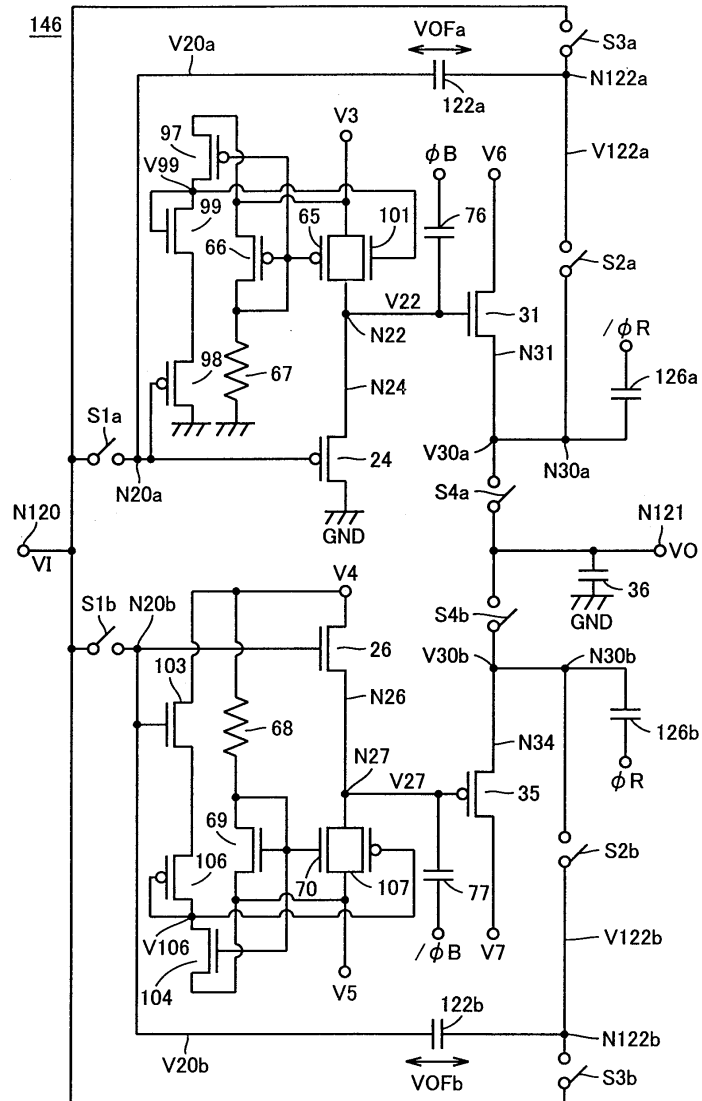
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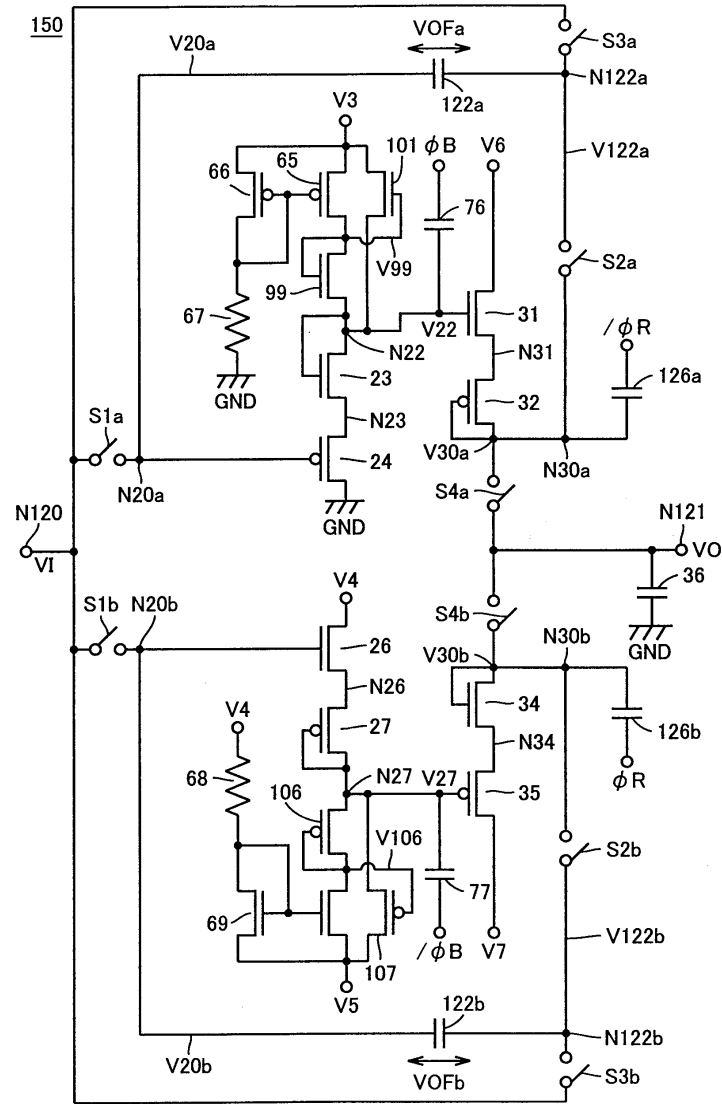
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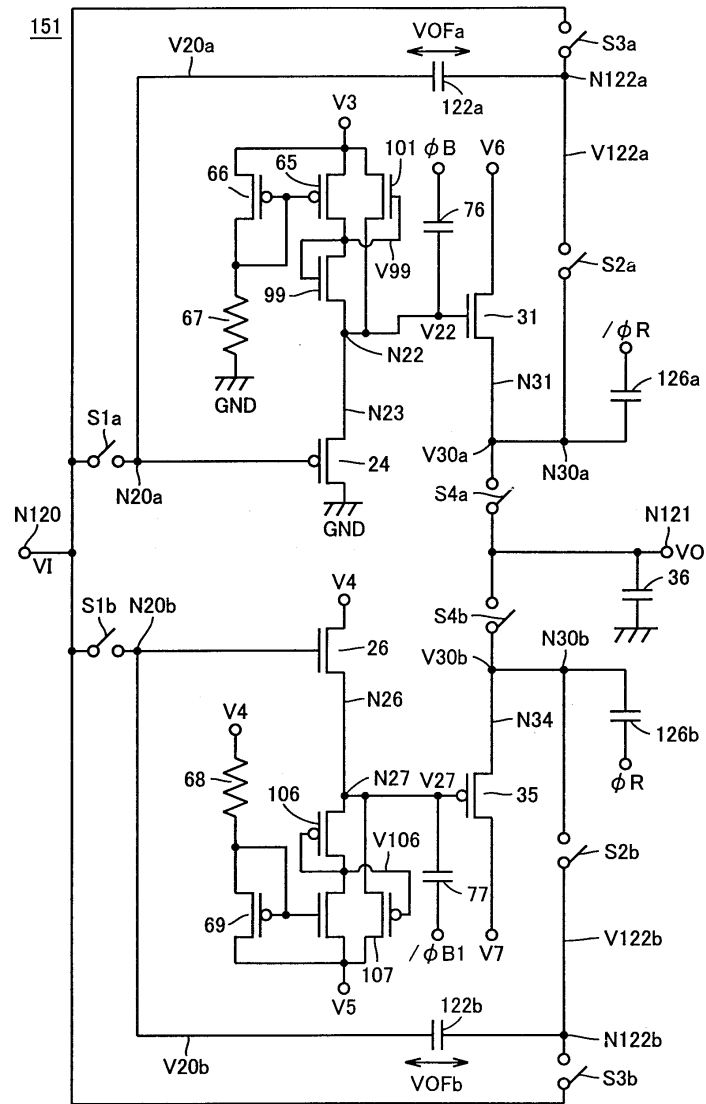
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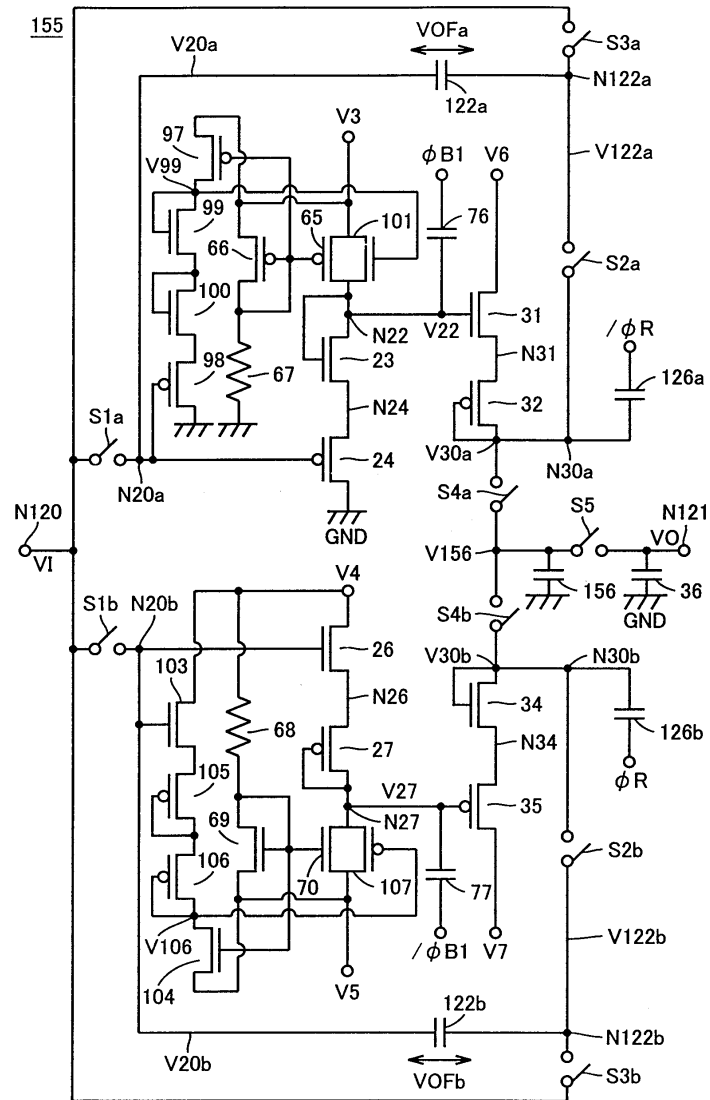
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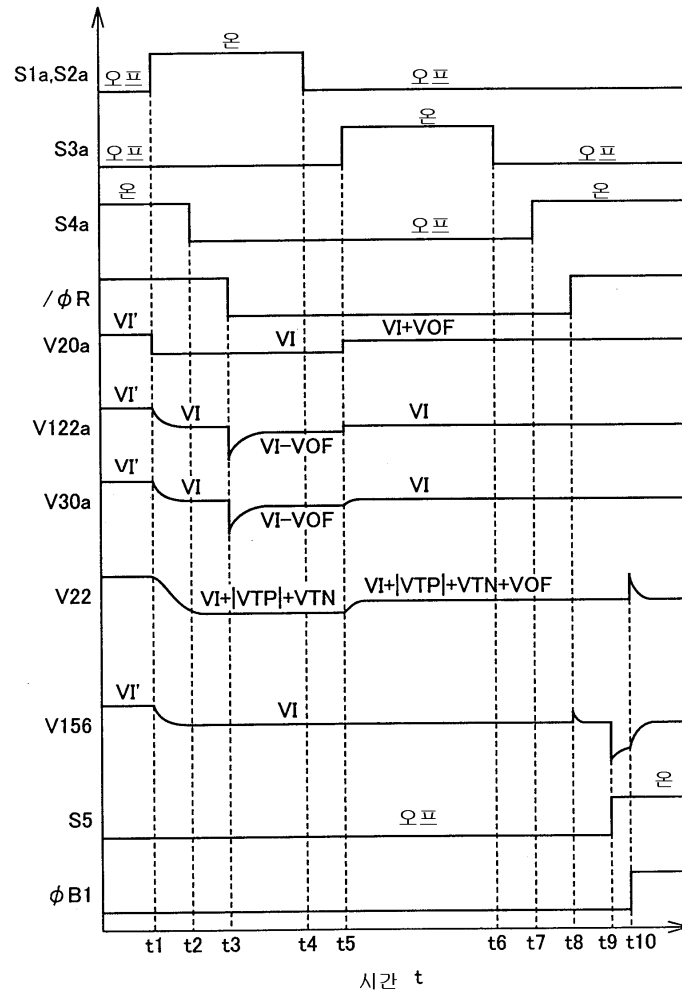
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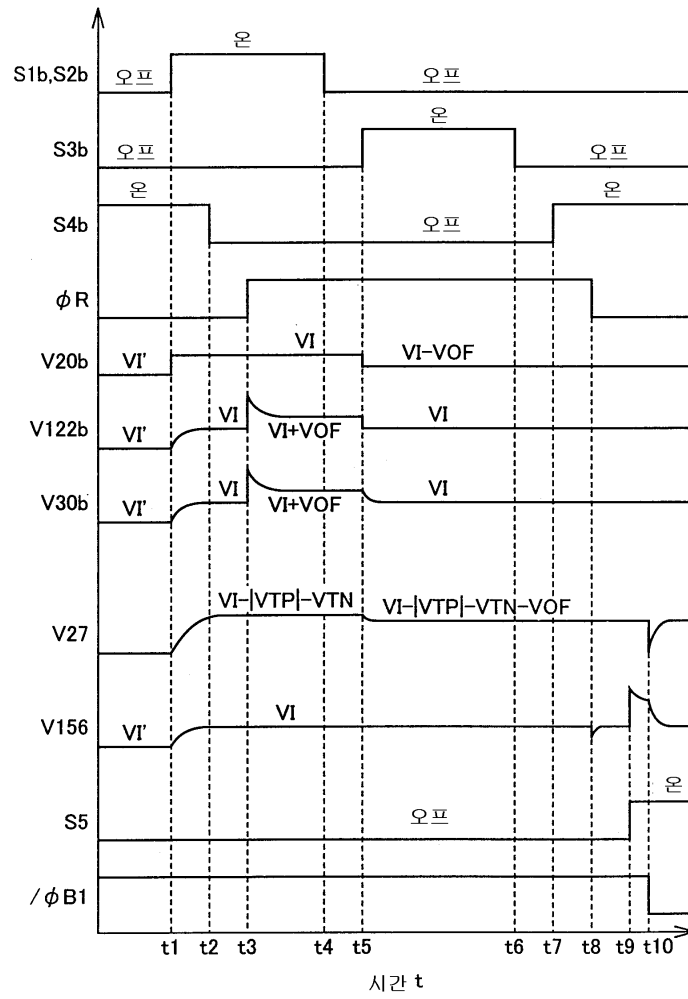
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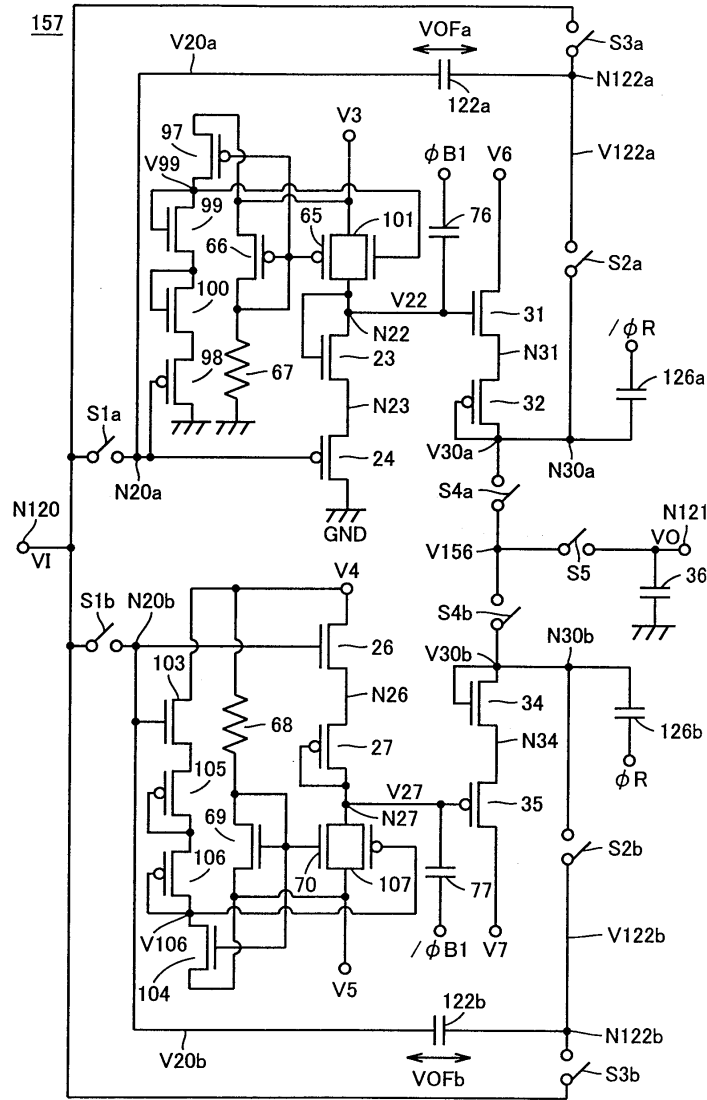
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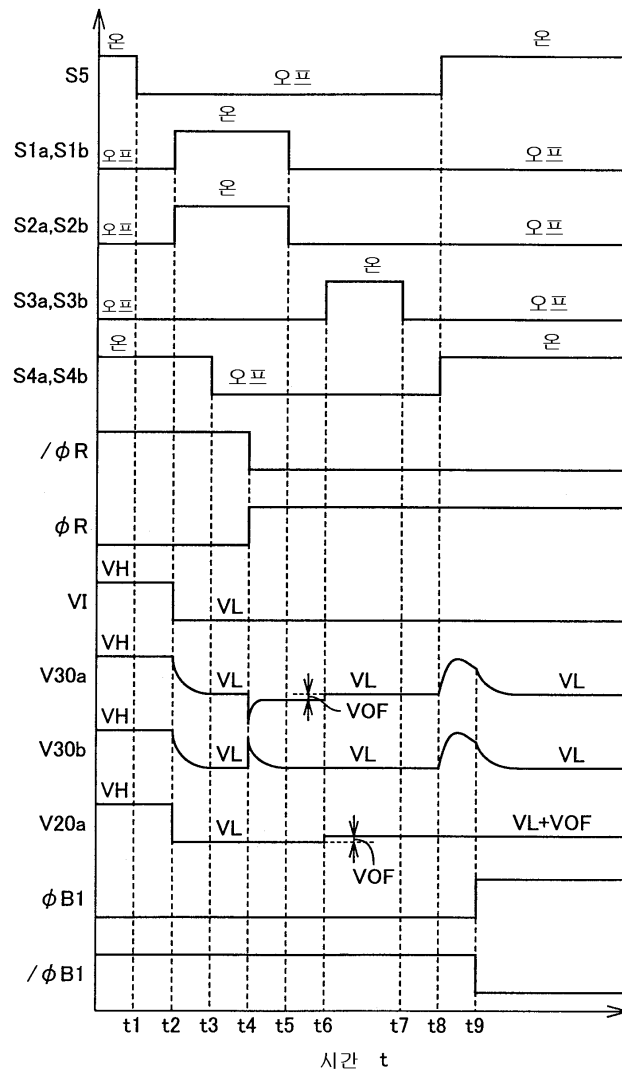
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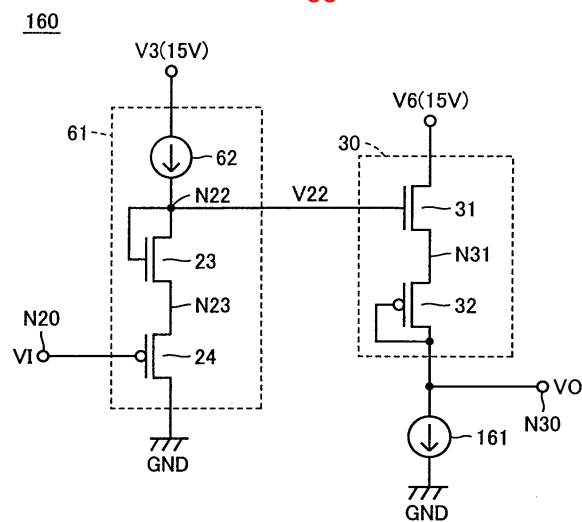
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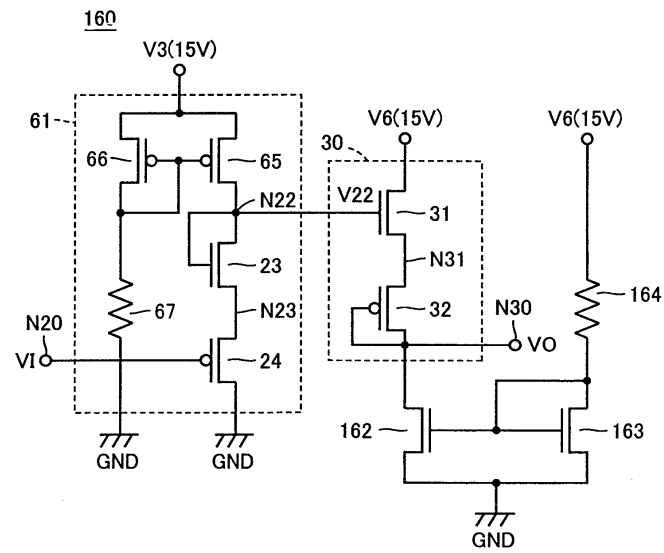
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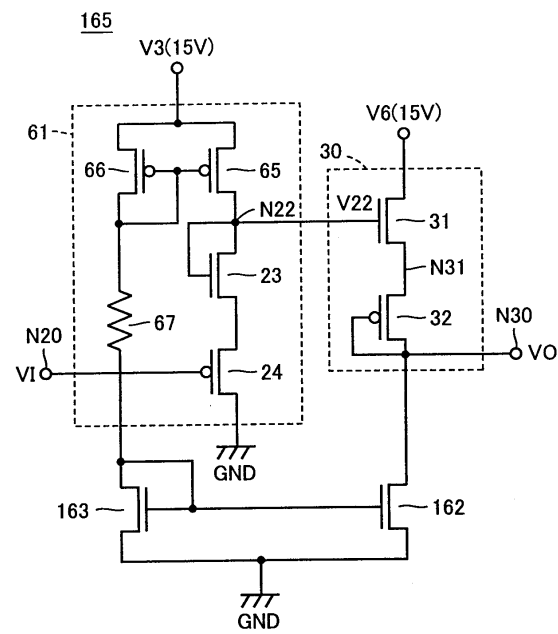
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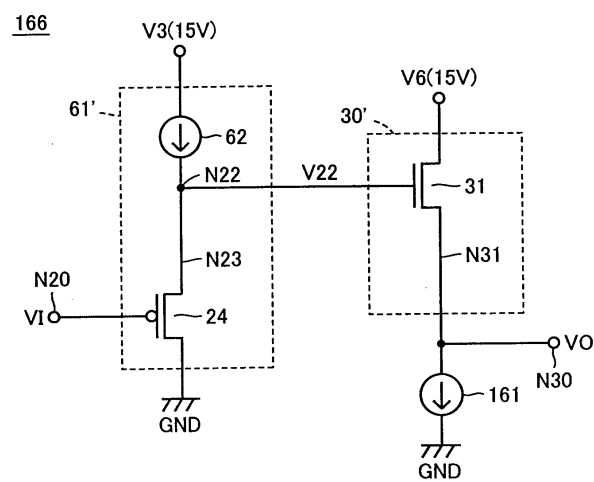
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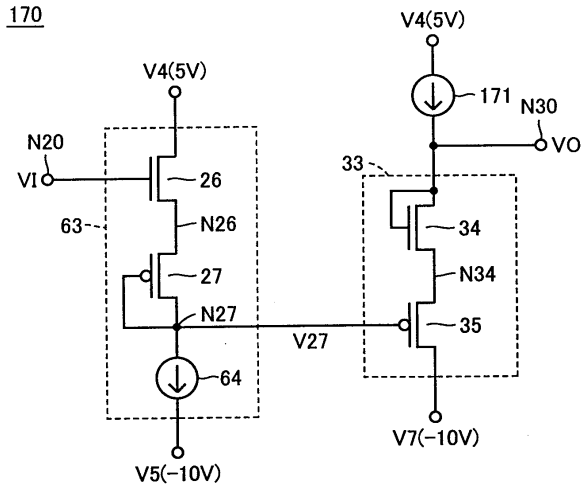


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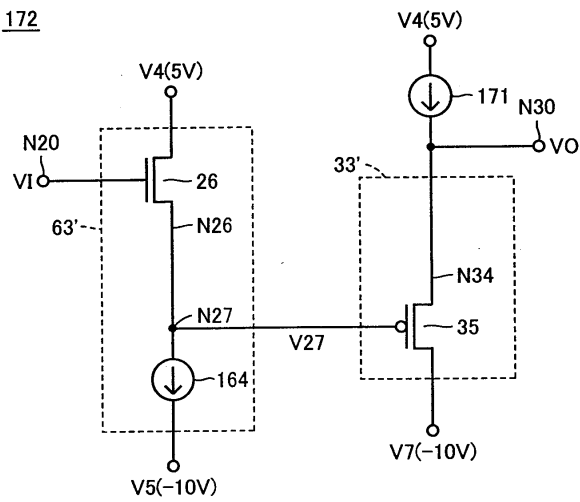
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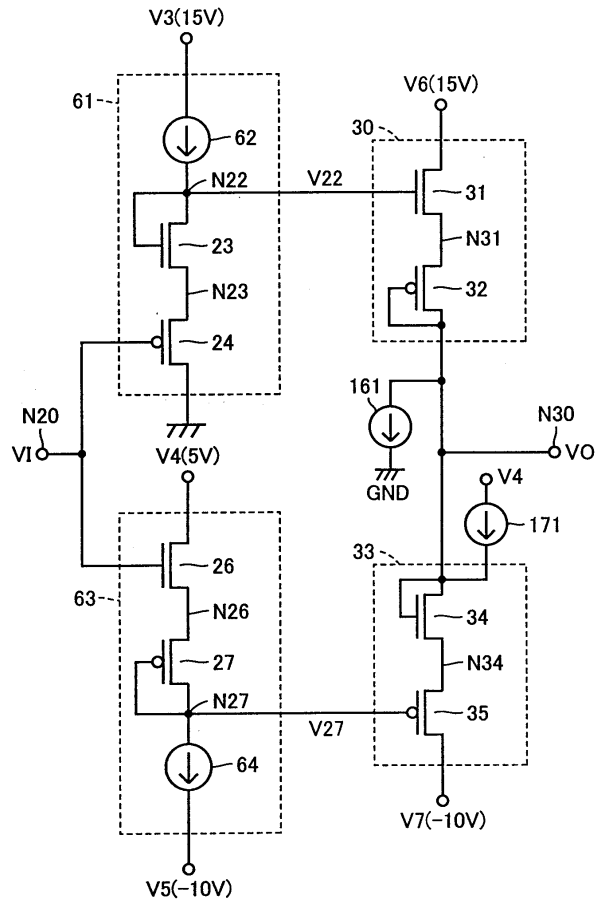
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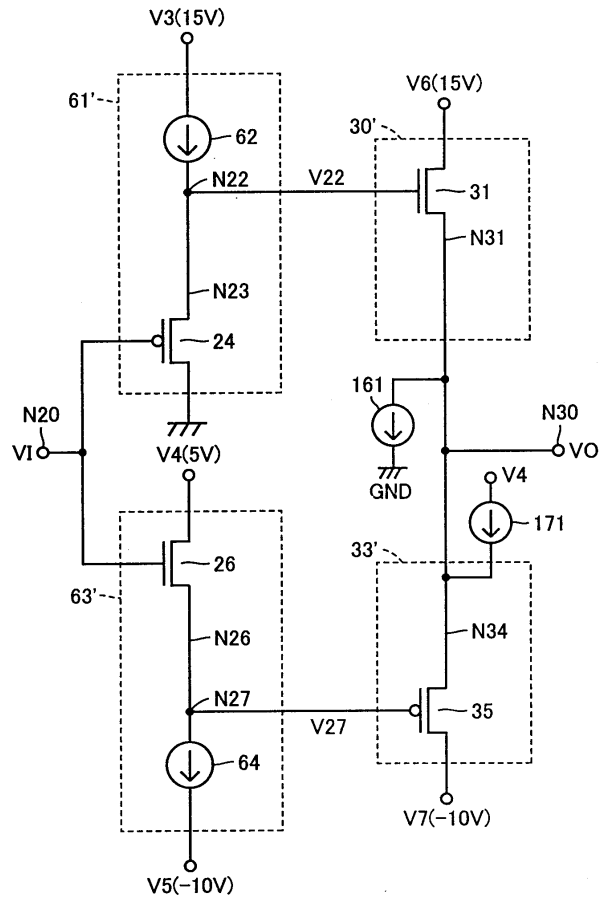
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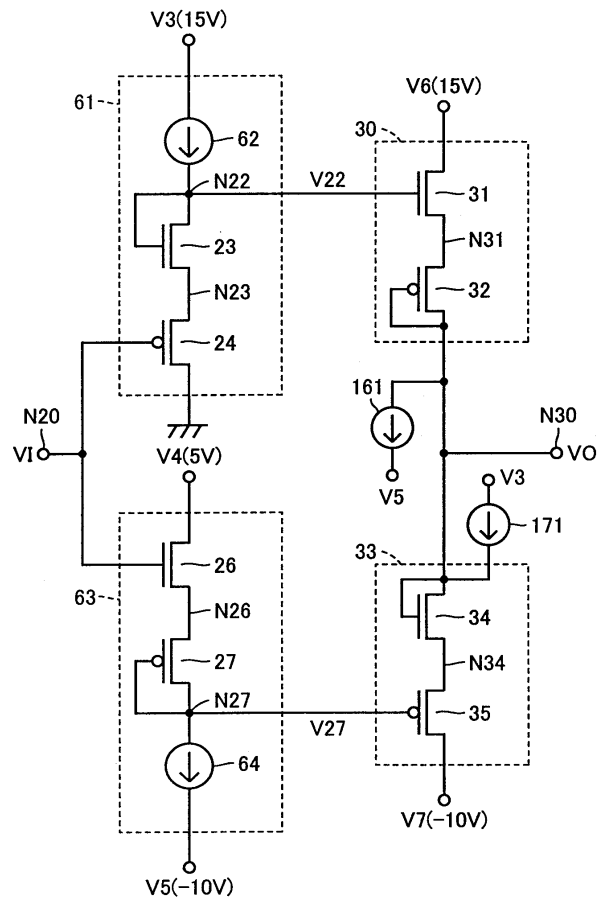
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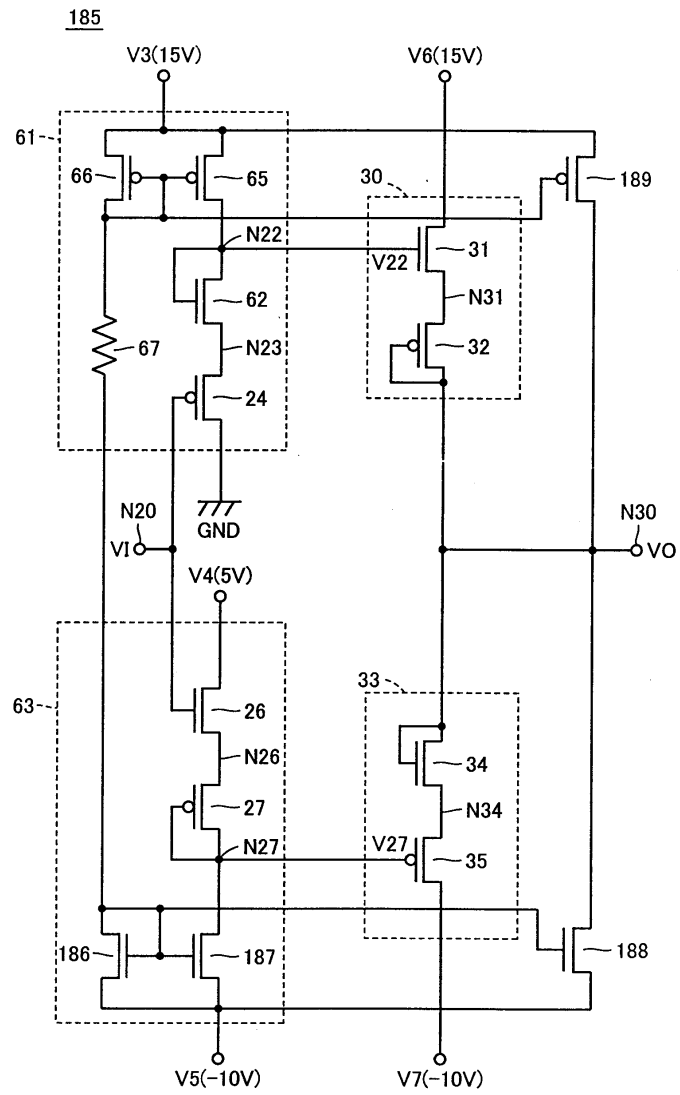
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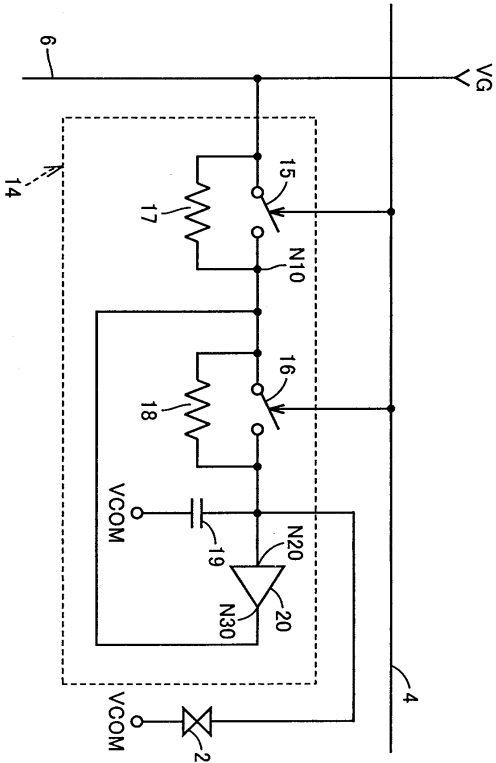
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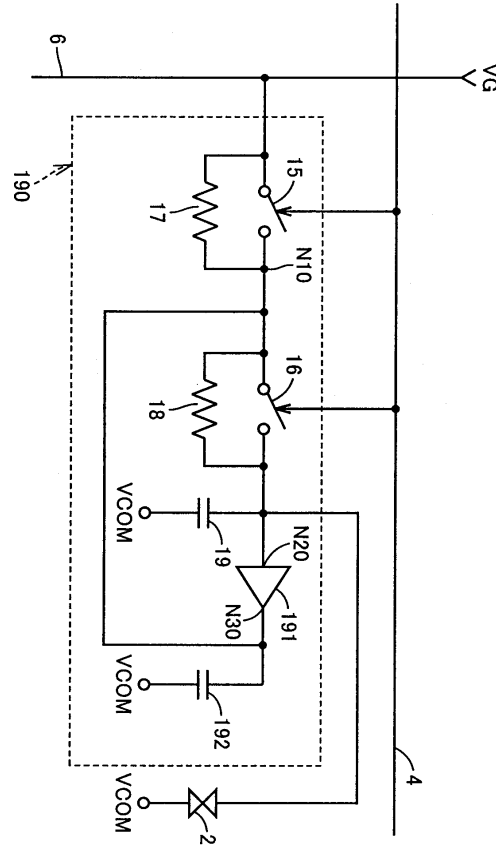
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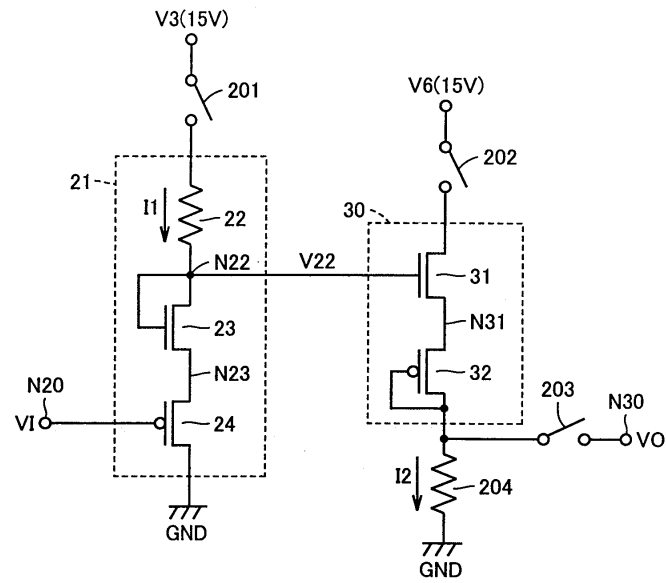


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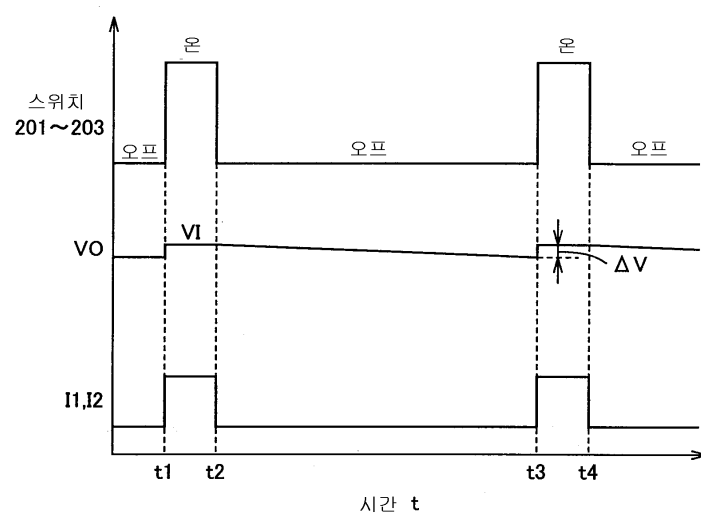


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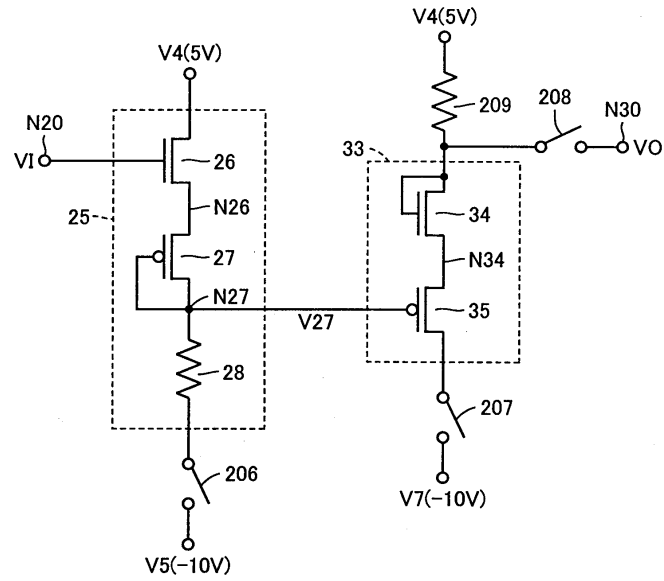
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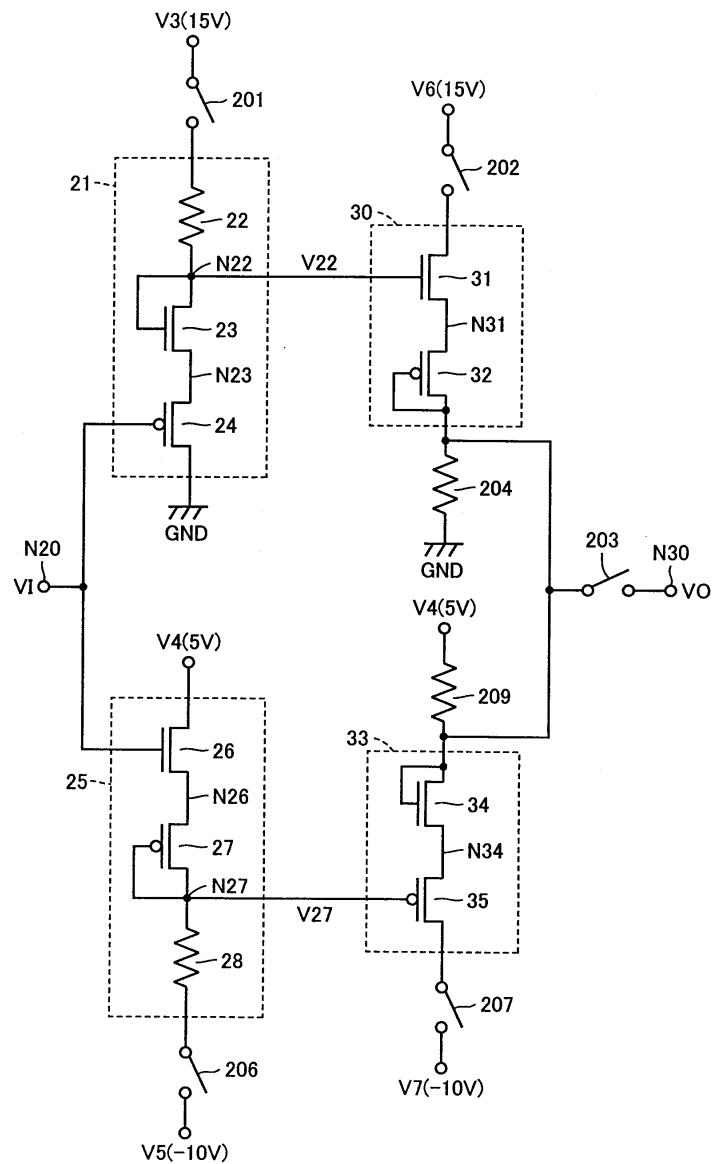
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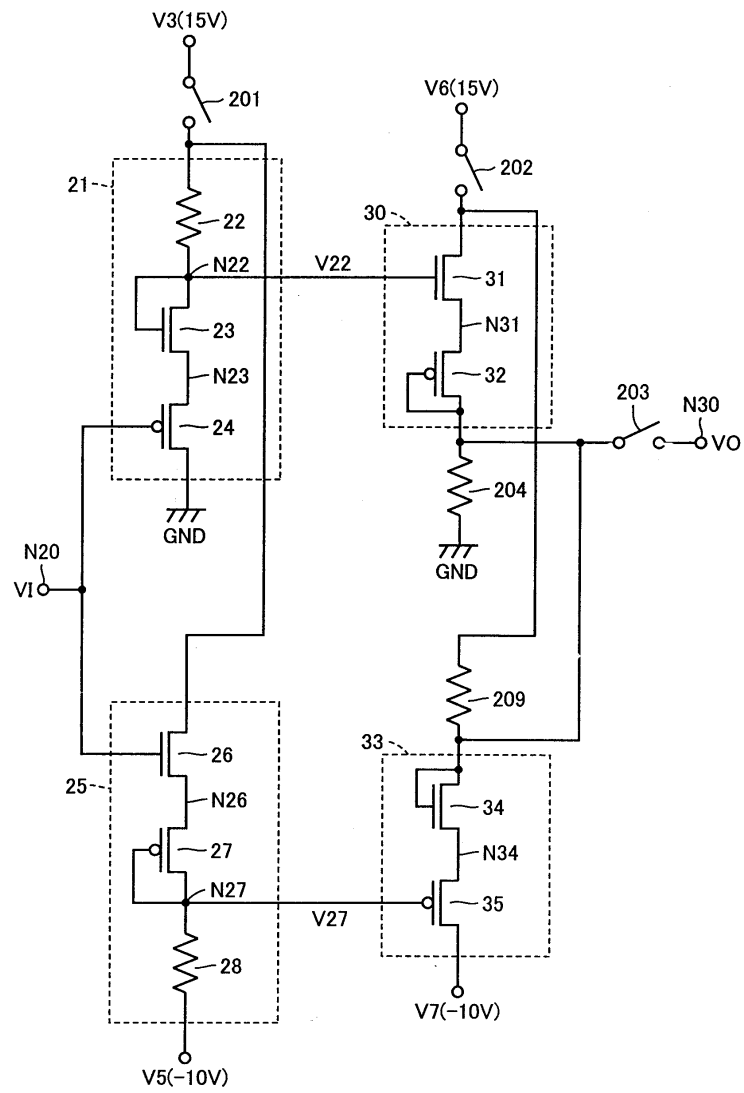
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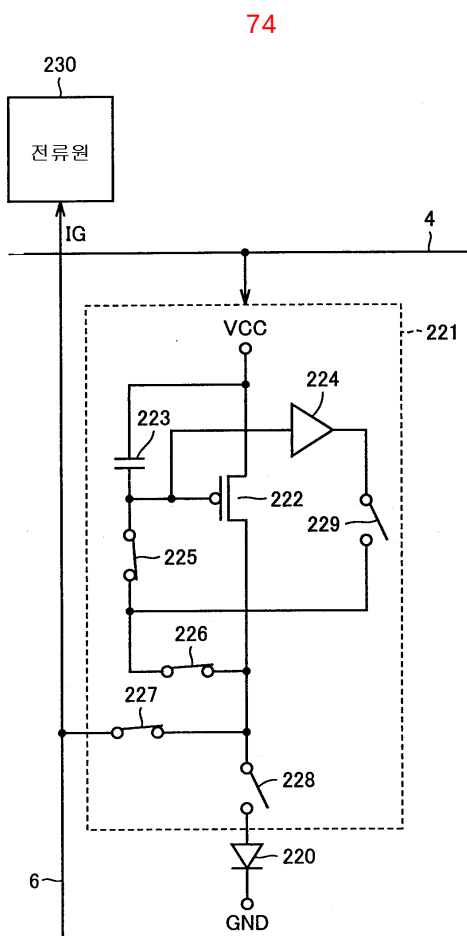
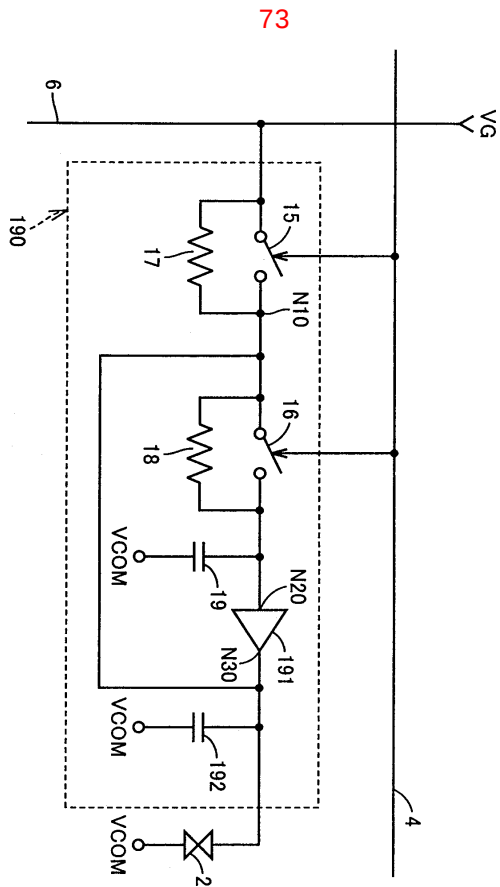
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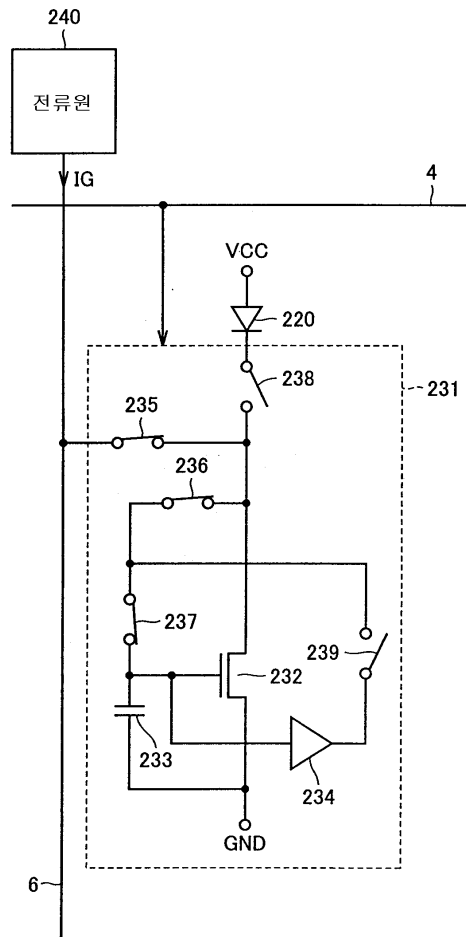
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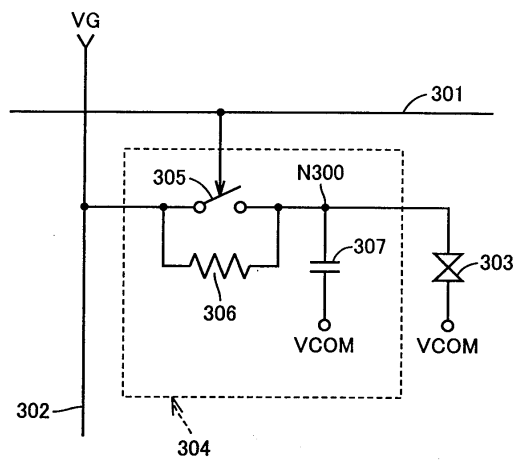




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专利名称(译)	采样保持电路和使用其的图像显示装置		
公开(公告)号	KR1020040081109A	公开(公告)日	2004-09-20
申请号	KR1020047010529	申请日	2003-06-27
[标]申请(专利权)人(译)	三菱电机株式会社		
申请(专利权)人(译)	三菱电机有限公司		
当前申请(专利权)人(译)	三菱电机有限公司		
[标]发明人	TOBITA YOUICHI		
发明人	TOBITA, YOUICHI		
IPC分类号	G09G3/30 G02F1/133 G09G3/36		
CPC分类号	G09G3/3688		
代理人(译)	权泰BOK LEE HWA我		
优先权	PCT/JP2002/011587 2002-11-06 WO PCT/JP2003/002757 2003-03-07 WO		
其他公开文献	KR100698952B1		
外部链接	Espacenet		

摘要(译)

采样和保持电路14包括连接在数据线6和第一节点N10之间的第一开关15和连接在第一节点N10和第二节点N20之间的第二开关16。连接在第二开关16和第二节点N20之间的电容器19和公共电位VCOM的线以及连接到第一节点的第二节点N20 N10和用于将驱动信号提供给液晶单元2的一个电极的驱动电路20。当扫描线4处于“H”电平时，第一开关15和第二开关16导通。3 指数方面 采样保持，采样，电位，图像显示，扫描线，数据线，电容

