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(30) 2000 - 140513 2000 05 12 (JP)

(71) 가 가
가 가 398(72) , 가 - 243 - 0036, - , ,398,가 가
, 가 - 243 - 0036, - , ,398,가 가

(74)

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(54)

EL

가

1	.	
2	.	
3	.	
4	.	
5	.	
6a	.	
6b	.	
7a	.	
7b	.	
8	.	
9	.	
10	.	
11a	11e	.
12a	12d	.
13a	13d	.
14a	14c	.
15	.	
16	.	
17	.	
18	.	
19	.	
20	TFT Id - Vg	.
21a	.	

21b	.	
22	.	
23	(cross talk)	.
24	.	
25a	25e	.
26a	26e	.
27a	27d	.
28a	28d	.
29a	29c	.
30a	30e	.
31a	31d	.
32a	32d	.
33a	33d	.
34	.	
35	.	
36	.	
37	.	
38	.	
39	.	
40	.	
41	.	
42	.	
43	.	
44	.	
45	-	.

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4011 : 4012a, 4012b :

4016 : 4027 :

4026 : 4030 :

EL() () , EL
 () ,
 , TFT (, TFT) , TFT
 TFT - TFT
 ,) 가 ,
 , 가
 - EL EL EL EL
 EL (OLED) (OLED)
 EL () EL , 가)가 EL
 (Tang) (, , 가
 EL EL
 가 , , 가
 EL EL
 , EL EL 가 ,
 , EL EL EL
 가 , , EL EL
 EL () ()

(18 19) EL . EL

18 EL (1800) .
(G1 Gy) TFT(1801)
TFT(1801)
(,)(S1 Sx) ,
(1808) TFT(1804) .

TFT(1804) (V1 Vx) ,
EL (1806) (V1 Vx) (1808) .
(V1 Vx)
EL (1806) , EL (1806) 가 EL
TFT(1804) , EL (1806) , EL (1806) 가 EL TFT(1804)
, EL (1806) ,
,
, EL 가 . EL

19 18 EL .
1 (F) 1 18 (L) 가 ,
, y , y (L1 Ly) 1 EL
1 가 가 가 ,
가 , (V1 Vx) ,
가 . EL 가
가 1 (L1) G1 ,
(S1 Sx) G1
TFT TFT TFT
TFT
TFT TFT
EL , TFT , TFT
TFT 가
가 , TFT , EL
가 , EL

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(S1 Sx) , 1
 (L1) . (S1 Sx)
 1 가 , 2 (L2) , 가
 G2 . 1 (L1) ,
 (S1 Sx) .

(L1 Ly)가 , (G1 Gy) , (L1 Ly)가 .
 가 . (L1 Ly) , 가 .
 , EL ,
 가 . , ,

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20 TFT . 401 Id - Vg (, Id - Vg) , , I
 d , Vg . ,

EL , Id - Vg (402) Id Vg 가 . (402)

, , TFT

TFT 가 , , TFT 20 Id - V
 g , , 가 TFT ,
 가 EL , EL

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, EL ,
 , 가 .
 , 가 , TFT 가 ,
 TFT , TFT 가 ,
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 가 (,)

- 6 -

가
 ,
 ,
 , 가
 , 가
 , 가
 , 가
 , 가
 ,
 EL
 ,
 가
 ,
 23 가
 ,
 가
 ,
 40 41
 ,
 41 , 40
 ,
 TFT(4402), TFT(4406), (4419) EL (4414)
 ,
 TFT(4402)가 40 41
 ,
 ,
 TFT(4406)
 V1 V2 가 (S1 S2)
 ,
 23 , 가
 ,
 TFT EL
 ,
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 ,
 ,
 24 , EL ,
 ,
 , 가 , 가
 ,
 , 가
 , 20 4 25 가
 ,
 , 가

24 b) (24 a) 가 , 가 . (

(24 b) TFT EL 가

20 가 700mm , 10mm , 0.1 ohm

1A 가 10V 가 가

EL 가 EL

가

EL

가 ;

5 50 ,

EL

EL

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(1)

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가

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가

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(2)

가 4

, 4 (a, b) 35 (a, b)

(3)

가

가

가

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(+)

가

가

(-)

가

가

가
가

가

R

가 i

, Ri

가

IC

가

(4)

2

TFT(4402),
(VX1 VXn VY1

TFT(4406),
VYn)

(4419), EL
(S1 Sn)

(4414)

. EL (4414)

가

TFT(4406)
(S1 Sn)

, .

, . ()

1 4 .

()

(1)

4 , 2

. 가 가 , 가 .

4 , ,

. , .

5 50 .

(2)

3 2 (4) .

2 .

TFT(4402), TFT(4406), (4419), EL (4414) .
 (G1, G2) (VX1, VX2) (G1, G2) (VX1, VX2) (S1, S2)
 (VY1, VY2) .

가 1 .

1 , 40 41
 , 가 .

1 .

(3)

4 가 10 42

44 .

, G1 G4 TFT(4402) (), S1 S3
TFT(4402) (), 4406 TFT, 4414 EL , VY1 VY2
, VX1 VX2 , 4410

10 (VY1, VX1)
(VY1, VX1) 가

42 10 10 ,

43 , X
, 1/n , n 2 , n=3 가

44 43 43 ,

1 2

(4)

, n- TFT p- TFT TFT , EL
, EL TFT p- TFT TFT n-
TFT

1 3

(5)

EL 가

6a EL 6b 6a A - A'

6a , 4010 , 4011 , 4012a 4012b
, 4013a 4013b (4014a, 4014b,
4015, 4016) FPC(4017)

, (4011), , (4012a, 4012b, 4013a, 4013b) (4011)
(6000), ()(7000), (2)(7001)가

, 6b 5 EL TFT(4022)(, n- TFT
p- TFT가 CMOS 가), TFT(4023)(, EL
TFT)가 (4010) (4021) . TFT
((top) (bottom))

TFT(4022) TFT(4023)가 , ()(4026)
(4027) (4027) TFT(4023)

7) (ITO) (4027) (4028) , 가 (402

EL (4029) . EL (4029) EL (, , , ,)
)
 , EL () 가 .
 , ,

, EL
 가 (, ,) 가 가
 (CCM)
 , EL

EL (4029) , EL (4030)가 . (4030) EL (4029)
 가 EL (4029) (4030)
 , EL (4029) 가 (4030)
 가 ()
 가

(4030) LiF() AL() 가 , 1nm
 LiF() EL (4029) , 300nm LiF
 MgAg (4016) 4031
 (4030) (4016) (4030)
 (4032) FPC(4017)

(4030) (4016) 4031 , (4026)
 (4028) (4026) ()
), (4028) (EL) (4028)
 , (4026) (4026) (402
 8)

(6003), (6004), (6003)가 EL
 , EL (7000)가 (6000) (4010) , (2)
 (7001)가 (7000)
 , (6004) (6000) . PVC() ,
 , PVB() , EVA()가 (6004)
 가 (6004)

, 가 (6004) . , BaO .

, (6003) . ,

, FRP(fiberglass - reinforced plastics) , PVF((6000) . PVB EVA가 (6004)) , , , , μm PVF .

, EL () , (6000) 가 가 .

, (4016) (7000), (7001) (4010) FPC(4017) (4016) , (4014a, 4014b, 4015) (7000), (7001) (4010) FPC(4017) .

, (6004)가 (6000)가 , (6004) () (7000)가 , (6000) (7000)가 (6004)가 . , 가 (4010), (6000) (7000) (10⁻² Torr) , 가 .

1 4 .

(6)

5 , EL 가 7a 7b 6a 6b , .

7a 6 EL , 7b 7a A - A' .

5 , (6003) EL .

, EL (6004)가 (6004) (6000) (6004) (PVC), , (PVB) - (EVA)가 , 가 (6004) .

(6004)가 BaO .

가 , (6003) .

(6000) , , , , FRP(fiberglass - reinforced plastics) , (PVF) , , , PVB EVA가 (6004) , μm PVF 가 .

EL () (6000)가 가 가 .

, (6000)가 (6004) . (6004) ()
 (6001)가 (6001) (6002)()
 , 가 (6002) . , EL
 가 (6002) 가
 . 가 (6002) .

, (4016) (6002) (4010) FPC(flexible printed circuit)(4017)
 (4016) , (4014a, 4014b, 4015)
 (6002) (4010) FPC(4017) .

6 , (6004)가 , (6000)가 (6004) ()
 (6001)가 , (6001)가 (6004)가
 , (4010), (6000) (6001) 가
 . (10⁻² Torr) , 가
 가 , .

1 5 .

(7)

, 8 EL .

1 .

8 , (3501) TFT(3502) n- TFT . 2
 , TFT(3502) (39a, 39b) .
 TFT , , 3 , 3 가
 가 , , p- TFT가 .

(37) , TFT(3503) n- TFT . TFT(3503)
 (36) TFT(3502) (35) . 34
 .

TFT EL , 가 TFT
 TFT 가 LDD , 가
 , TFT(3503) 가 , TFT
 , TFT
 , .

, (40) (37, 39) (38) , ()
 40) 가 , (40) (34)
 , .

1 (41) TFT(3502) TFT(3503) ,
 (42) 1 (41) (42) TFT , 가 , 가
 EL ,
 , 43 (EL) ,
 TFT(3503) , 가
 , () (44a, 44b) ()
 (45) 1 R(), G(), B()
 . π 가 EL (PPV),
 (PVK),
 PPV EL , (H. Shenk), (H. Becker), (O. Gelsen), (E. Klu
 ge), (W. Kreuder), (H. Spreitzer) " (Polymers for Light Emit
 ting Diodes)" , 1999 , 33 - 7 , 10 - 92576 가
 , - , 30
 150nm(, 40 100nm) .
 , EL , EL
 , ,
 , 4 , EL 가
 , 가
 EL
 4 PEDOT(polythiophene) PAni(Polyaniline) (46) (45)
 EL , (46) (47)가
 (45) (TFT가 (3501))
 , 가 가 ,
 , 가
 EL (3505) (47)가 , EL (3505) () (43),
 (45), (46), (47) , (43) 가 가
 , 2 (48) (47) 2 (48) , EL
 EL 가 , EL
 가
 EL 8 ,
 TFT TFT . EL 가 , ,
 가 가 EL 가

1 6 .

(8)

, EL (3505) 7 가 9
 . 8 EL (3701) TFT(3553)

9 , TFT(3553) p- TFT TFT
 p- TFT n- TFT .

() (50)

(51a, 51b) (52)
 (52) (acacK) (53)
 (54) (54) , EL
 (3701)가

(52) TFT (3501)

1 6 .

(9)

2, 3, 10 42 44 가 TFT 가

n- TFT가 TFT , LDD

TFT 가

LDD , L
 DD

1 8 .

(10)

, EL CMOS 가 TFT

, 11a , () (501) 10
 100nm 200nm

10 25wt% ,

, 45nm (502) (501) .
 , ()
 .
 .
 11c 10 - 247735 .
 Ni .
 , (503a, 503b) (504) 10 150nm .
 , (Ni) (505)(Ni) (504) . Ni
 .
 , 11b , (502) 570 14 가
 , Ni가 (, Ni 가)(506a, 506b)
 가 , (507)
 .
 , 11c , (504) Ni 가 (506a, 506b)
 15 ()가 가 , 가 (, 가)
 (508a, 508b) .
 , 11c , 600 12 가 가 가 . 가
 (507) , Ni가 , (, 10 Ni) 가 (508a,
 508b) .
 (509) Ni SIMS(secondary ion mass spectroscopy)
 2×10^{17} atoms/cm³ . Ni (killer) , Ni 가
 TFT , SIMS
 (2×10^{17} atoms/cm³) .
 , , TFT (509)
 . (509) (510 513)
 가 (11d).
 11e , 50nm CVD , ,
 가 950 1 가 ,
 가 가 .
 , 15nm
 30nm , 80nm (514) 30nm
 50nm .
 , 12a (515a, 515b) , (514) p -
 (, p -)가 가 ,
 13 가 p - () TFT
 .
 10 (B₂H₆) 가 ,
 . 1×10^{15} 1×10^{18} atoms/cm³(
 (516, 517) , 5×10^{16} 5×10^{17}
 atoms/cm³) .

가, 12b (519a, 519b) , n- 가 (514) 가 . 15 가 n- 1x10¹
⁸ atoms/cm³ 10 (PH₃) 가 .
n- 가 2x10¹⁶ 5x10¹⁹ atoms/cm³(, 5x10¹⁷ 5x10¹⁸ atoms/cm³)
n- (520) (dosage) .
, 12c , 가 n- p- 가 .
, (514) 가
, 12a , 가 가 .
가 10 가 , 1 800 가 가
. .
n- (520) , , n- 가 가 n- (520) (12 TFT
a p-) ()가 가 .
가 LDD 가 .
, 200 400nm , (522 525) .
(522 525) TFT .
, 2 3 .
(Cr), (Si) , (Ta), (Ti), (Mo), (W),
; (, Mo - W
, Mo - Ta); (,
) .
10 50nm (WN) 350nm (W)
가 , (peeling) (Xe) (Ne) 가 가 가
, n- (520) (514) (523)
524a, 524b) LDD . 2 (.
, 13a , (522 525) (self-aligning)
n- (10)가 가 . (526) 1/10
1/2(, 1/4 1/3) 가 가 , 1x10¹⁶ 5x10¹⁸ atoms/cm³
(, 3x10¹⁷ 3x10¹⁸ atoms/cm³) 가 .
, 13b , (534a 534d) ,
n- (10)가 가 (535 539)
(PH₃) , 1x10²⁰ 1x10²¹
atoms/cm³(, 2x10²⁰ 5x10²⁰ atoms/cm³) .

n - TFT (528 531) . , 13a TFT LDD n - .

가 , 13c , p - (10 가)가 가 (534a 534d) (542) ,
 5×10^{20} 1×10^{21} atoms/cm³ (B₂H₆) 3×10^{20} 3×10^{21} atoms/cm³ (1×10^{20} 1×10^{21} atoms/cm³ (540, 541, 543, 544) 가 ,
 3 가 가 n - p - , p - .

가 , 13d (546) , (542) , 1 (546) . 1
 400nm 1.5 μ m 10 200nm 800nm
 가 .

가 n - p - . 10 550 4 가 가 .

가 , 3 100% 300 450 12 가 .
 ()가 .

1 (546) 가 , 200nm 가 , 800nm .

14a (547 550) , 1 (546) (514) ,
 300nm (551 553) 10 , 100nm ,
 150nm 3 .

가 , 1 (554) 50 500nm (, 200 300nm) . 10
 1 (554) 300nm .

가 , H₂ NH₃ 가
 1 (554) , 1 (546) 가 , 가 , 가
 (546) 가 가 ,

가 , 14b 2 (555) , (555) TFT ,
 BCB() 가 , 2 10
 2.5 μ m .

2 (555) 1 (554) (553) (ITO)
 , () (556) 10 , 110nm (ZnO)
 2 20%
 EL (203) 가 .

(557) 500nm 가 , (556) (tapered shape) 가 .

, EL 가 .

, EL (558) (MgAg)(559)

. EL (558) 80 200nm(, 100 120nm) , (559)

180 300nm(, 200 250nm) .

가 , . EL , 가 , EL EL

가 , EL 가 , EL 가

, , EL 가 , EL 가

, EL 가 , EL 가

, EL 가 , EL 가

가 EL (558) ,

. , 10 EL (203) MgAg 4 가 EL ,

가 .

, EL (560) . (560)

EL , EL

(560)

, 2 (561) 300nm EL (203) . EL (5

60) . , 2 (561)

, 14c TFT, 202 TFT, 204 n - TFT, 205 가 p - TFT 201

, 14c , () ,

()

(11)

, 가 - -

15

(801), (A)(802), (B)(803) . ,
 (A)(802) (B)(803) 4 (S_a S_d) . ,
 가 ,
 .

(CLK), CLK (CLKB), (SP), (SL/R)가 ((

VD)가 (801) , ,
 (S_LATb)가 (A)(802) (S_LAT) S_LAT
 (B)(803) .

(A)(902) , (S_a) (A)(802) (804) 가
 . (A)(802) (804) 2 2 .

(A)(802) 가 16 . 831a 831b (A)(802)
 1 TFT , 836 1 TFT
 , 832a 832b (A)(802) (804)
 TFT , 837a 837b (832a, 832b)
 . (837a, 837b) .

833a 833b (A) 1 TFT .
 (838a, 838b) (833a) 가 , (838b, 839)
 (833b) , 가 .

(834a, 834b) (A)(802) (804) TFT
 . (839, 840) (834a) 가 , ((

840, 841) (834a) 가 . -
 - 45 .
 - 45 , 64 - .

1 10 .

(12)

EL , EL EL EL EL
 , EL
 TFT가 .

EL 가 , .

1 11 .

(13)

EL () .

Alq₃ (tris - 8 - quinolilyte - alminium) TPD(triphenyl amine derivative)
 가 , π ,
 PPV(), PVK(), .

(), (), , , , EL EL Si EL EL Si_{1-x}C_x , , , , EL , EL ()가 EL 가 D CM1, , , 6, TPB, , 1 12 (14) , 21a 21b EL 가 21a EL EL TFT 6801 , 680 , 2a 6802b , 6803 , 6804 680 6805 1 , 6806 2 , 1 (6805) TFT (6807)가 (21b). 6808 (6801), (6802a) (403) FPC(flexible print circuit)(409) , 21b A - A' 21a 21a 21b , 21b , (6800) (6803) (6801)가 , EL TFT(, TFT)(6851) (6852) TFT(6851) p- TFT (6801) n- TFT(6853) p- TFT(6854)가 CMOS (R)(6855), (G)(6856) (B)() , (R) (G) (B) (R)(6855) , (G) (B) , (B) 가 () , (가 .

, EL 가

EL , EL 가

가 , EL 가

, 가 , EL

(6852) EL (6852)

(6857) (6858) (6859)

가

(6858, 6859)

EL 가 (6860)

(6808) FPC(6809)

1 (6805)가 (6804) ()

TFT (6904) 1 (6805) (6

807)

(6807) 가 가

가 1 (6805) ()

(6805) 가 (6808) FPC(6809) (6863)

2 (6806) 1 (6805) FPC(6809) 2 (6806)가

EL (6807), EL

가 EL

(15)

EL 가 14 EL

가 22 21b

n-TFT가 (6901) TFT(6902) TFT(6902)

(6903) (6903)

(6903) EL

(6904) (6858)

(6859)

, (R)(6905), (G)(6909) (B)()가 (6804)
 가 EL ,
 , 22 가 가 .

(R)(6905), (G)(6906) (B)()가 (6804) , TF
 T , .

(16)

36 38 2 가
 , .

36 , 7 7 , .

38 , 8 9 , .

(4502a) , (49a) ,
 , 가 가 .

37 39 3 , 2 (4502b)
 (49b) .

37 , 7 8 , .

39 , 8 9 , .

37 39 , (49b) (34) , ,
 , .

(17)

, EL 10 () ,
 가 , TFT 10 CMOS ,
 .

m , 25a , (600) 가 . 200 400 n
 (600) , (601) (602)
 .

, 25b 25c , 100 nm
 (603) 200 nm (604) ,
 (603) 10 25 wt% (604) ,
 가 , CMP 가 .

, 25d , 45 nm (605) .
 가 , ()
 , .

26c 10 - 247735 . ,
 Ni .
 25e , (606a,606b) 가 (607) , 150 nm
 , 26a , (Ni) (608)
 (607) . Ni .
 , 26b , (605) 570 14
 가 , Ni가 (609a,609b)(, Ni 가) ,
 가 (610)
 .
 , 26c , 15 (,)가 (607) Ni
 가 (609a,609b) 가 , 가 (611a,611b)(, 가)
 .
 , 26c , 600 12 가 . 가
 , (610) Ni Ni가 가 (611a,6
 11b) (Ni)
 , (612) Ni 가 2×10^{17} atoms/cm³ SIMS(secondary ion mas
 s spectroscopy) . Ni ,
 TFT SIMS ,
 (2×10^{17} atoms/cm³) .
 , TFT (61
 2) , (612) 가 (613a, 613b) , ,
 가 (26d).
 , 26e , 가 50 nm CVD ,
 950 1 가 .
 가 가
 , 가 30 nm , 가 15 nm
 614) 가 50 nm 가 30 nm (, 가 80 nm
 (613a,613b) 30 nm가 .
 , 27a , (615)가 , p (, p
)가 (614) 가 . p , 13 ,
 () TFT .
 , (B₂H₆) 가 가
 3 (, 5×10^{16} 5×10^{17} atoms/cm³) , 1×10^{15} 1×10^{18} atoms/cm³
 (616) .
 , 27b , (619)가 , n (, n
)가 (614) 가 . n , 15
 , 가 (PH₃)
 1×10^{18} atoms/cm³ 가 .

, 5×10^{17} n (62) , n 2×10^{16} 5×10^{19} atoms/cm³ (, 5×10^{18} atoms/cm³) .

, 27b , 가 n p . 27a , (614) , 가 .

, 가 , 800 1 , 가 .

, (622,623,625) (624) (626) 가 200 (400 nm (622,623,625) TFT 27d).)

(Mo), (W), (Cr) (Si) , 2 (Ta), 3 (Ti), (, Mo - W , Mo - Ta) (,)

23a,625a) , 50 nm (WN) (622b,623b,625b) 350 nm (W) (622a,6 (Xe) (N e) 가 가 가 가 , (peeling) .

622a(622b) 623a(623b) .

, 28a , n (,)가 (622,623,625), 9624) (626) 가 . (627) n (620) $\frac{1}{2}$ $\frac{1}{10}$ ($\frac{1}{3}$ $\frac{1}{4}$) 가 . 1×10^{16} 5×10^{18} atoms/cm³ (3×10^{17} 3×10^{18} atoms/cm³) .

, 28b , (634a - 634c) , n (,)가 (635 - 637) 가 . , 1×10^{20} 1×10^{21} atoms/cm³ (2×10^{20} 5×10^{21} atoms/cm³) , (PH₃) .

, n TFT , , 28a n (627 - 631) TFT . TFT LDD .

, 28c , (634a - 634c)가 (642)가 , n (,)가 가 , (634,644) 3×10^{20} 3×10^{21} atoms/cm³ (, 5×10^{20} 1×10^{21} atoms/cm³) (B₂H₆) 가 .

(643, 644) 1×10^{20} 1×10^{21} atoms/cm³ 가 , 가
₃ 가 . n p ,
p .

28d , (642)가 , 1 (646) . 1
(646) , 400nm 1.5 μ m , 800 nm 200 nm
. 가 .

가 n p 가 . , .
, 가 550 4 .

3 100 % , 300 450 1 12 가
가 가 . (dangling)
. 가 가()가 .

1 (646) 가 . , 200 nm
, 800 nm , 가 .

29a , 1 (646) (614) ,
(647,650) (652,653) ,
100 nm Ti , 가 300 nm Ti , 가 150 nm Ti .

1 (654) 50 500 nm(200 300 nm)
, 300nm 가 1 (654) .

1 , N₂ NH₃ 가 가
(654) 가 1 (654) , 가 ,
(654) 가 1 (646) 가 가 ,
가가 .

29b , 2 (655) , ,
, BCB() . , 2 (655) , TFT
가 , , 2.5 μ m .

(653) 2 (655) 1 (654)
() (656) . , (ITO) 110 nm ,
. EL 가 . (ZnO) 2 20 %

(661a,661b)가 500 nm , (656) 가 .

EL (658) (MgAg)(659)가
. EL (658) 80 nm 200 nm (100 nm 120 nm) ,
(659) 180 nm 300 nm (200 nm 250 nm) .

, EL 가 ,
EL
EL

가 ,
EL 가
가 ,
EL 가
가 ,
EL 가

가 EL (658) ,
4 가 EL
17 , MgAg EL
가

(660) (66
0) EL
(660) EL
29c 가 EL 가
가 (,)
() , 29c

(18)
18 , EL 1
CMOS 가 TFT 10
nm 30a , (702) (701) 18 , 가 100
10 25 wt%
가
45 nm (703) (702)

30c 10 - 247735
Ni

(704a,704b,704c) 가 (705) , 150 nm 가
(Ni) (706)(Ni) (705)
Ni .

30b (703) 570 14
가 가 , (708)
Ni (707a,707b,707c)(, Ni 가)

30c 15 ()가 (705) Ni
가 (707a,707b,707c) 가 , 가 (709a,709b,709c)(, 가
)

30c , 600 12 가 Ni가 가 가
(708) Ni , (, Ni) (709a,7
09b,709c)

(710) Ni 2×10^{17} atoms/cm³ SIMS(secondary ion m
ass spectrometer) Ni ,
TFT SIMS ,
(2×10^{17} atoms/cm³)

TFT (710) 가 (711a,711b) (710)
(710) 가 가 (30d).

30e 가 50nm CVD ,
950 1 가
가 가

30 nm 가
가 15 nm 가 , 80 nm
(712) 가 50 nm 가 30 nm
(711a,711b) 30 nm가

31a (713)가 , p (, p
)가 (712) 가 . p 13
, () TFT

(B₂H₆) 가 가
, 1×10^{15} 1×10^{18} atoms/cm³ (
, 5×10^{16} 5×10^{17} atoms/cm³) (714)

31b (716)가 , n (, n
) (712) 가 . n 15
가 , (PH₃)
 1×10^{18} atoms/cm³ 가 ,

, 5×10^{17} n (715) , n 2×10^{16} 5×10^{19} atoms/cm³ (

, 31c , 가 n p .

31a , (712) .

가 , , 800 1 ,

가 ,

, 200 400 nm (719 724) , TFT (622,719,724) (71

7, 718) . (31d).

, 2 3

(W), (Cr), (Si) , (Ta), (Ti), (Mo),

) , (, Mo - W , Mo - Ta)

(,)

, 50 nm (WN) (722 - 724) 350 nm (W) (719 - 721)

가 가 가 , (Xe) (Ne) 가

719(722) 720(723) ,

, 32a , n (,)가 (719 - 724)

(717,718) 가 . (725 - 729) n (715)

$\frac{1}{2}$ $\frac{1}{10}$ $\frac{1}{3}$ $\frac{1}{4}$ 가 ,

1×10^{16} 5×10^{18} atoms/cm³ (3×10^{17} 3×10^{18} atoms/cm³) .

, 32b , (730a - 730c)가 , n

(,)가 (731 - 733) 가 . ,

1×10^{20} 1×10^{21} atoms/cm³ (2×10^{20} 5×10^{21} atoms/cm³)

, (PH₃) .

, n TFT , 32a n

(725 - 727) TFT . TFT LDD .

, 32c , (730a - 730c)가 (34)가

, p (,)가 가 , (735,736)

, 3×10^{20} 3×10^{21} atoms/cm³ (, 5×10^{20} 1×10^{21} atoms/cm³)

(B₂H₆) 가 .

(735, 736) 1×10^{20} 1×10^{21} atoms/cm³ 가 , 가
₃ 가 . n p ,
p .

32d , (642)가 , 1 (737) . 1
(737) , 400nm 1.5 μ m . 800 nm 200 nm
가 .

가 n p 가 . , .
, 가 550 4 .

3 100% , 300 450 1 12 가 가
가 가 . 가()가 . 가

1 (737) 가 , 200 nm 가
, 800 nm , 가 .

33a , 1 (737) (712) ,
(738,739) (740,741) ,
100 nm Ti , 가 300 nm Ti , 가 150 nm Ti .

1 (742) 50 500 nm(200 300 nm)
, 300nm 가 1 (742) .

1 , N₂ NH₃ 가 가
(742) , 1 (737) , 가 ,
가가 , 1 (737) 가 가 ,

33b , (743) (743) ,
(744) , (739) (743), 1
(742) 1 (737) , (744)

33c , 2 (745) , ,
, BCB() . , 2 (745) , TFT
가 , , 2.5 μ m

33d , (741) 2 (745), (743)
1 (742) , () (746) ,
(ITO) 110 nm ,
(ZnO) 2 20 % . EL 가 .

34 , (747a,747b)가 500 nm , 가 (746)

, EL (658) (MgAg)(749)가
 . EL (748) 80 nm 200 nm (100 nm 120 nm) ,
 (749) 180 nm 300 nm (200 nm 250 nm) .

[illegible]

가

EL 가 , EL 가 .

, EL 가 ,

가 , EL 가 .

. , EL 가 .

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가 EL (748) , 4 가 EL
17 , MgAg EL
가

, (750) . (750)
 EL . , .
 (750) EL .
 , 34 가 EL 가 .
 , 가 (,)
 () , 34

(19)

EL

TV, (17a, 17f).

17a (200), (2002), (2003), (2004) 가 .
EL (2003) .

17b (2101), (2102), (2103), (2104), (2105), (2
106) 가 . EL (2102)

17c (2301), (2302), (2303), (2304), (2305),
 (2306) ()가 . EL
 (2306) .

17d (2401), (, CD, LD DVD) (2402), (2403), (a) (2404),
 (b) (2405), (2403), (1) (2404), (b) (2505) (, DVD
)가 가 . (a) (2404)
 . (b) (2405) EL
 (a) (2404) (b) (2405) . CD

17e (2501), (2502), (2503), (2504), (2505)
 가 . EL (2505) .

17f (2604a), (2604c), (2604d) TV 가 .
 EL TV (2604c) .
 , EL 가 , EL .
 , . ,
 1 18 .

EL , 가 , 가
 가 , .
 , , EL 가 가
 가 .

(57)

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1 , 20 , .

26.

2 , 20 , .

27.

3 , 20 , .

28.

1 , TV , , ,
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29.

2 , TV , , ,
 , .

30.

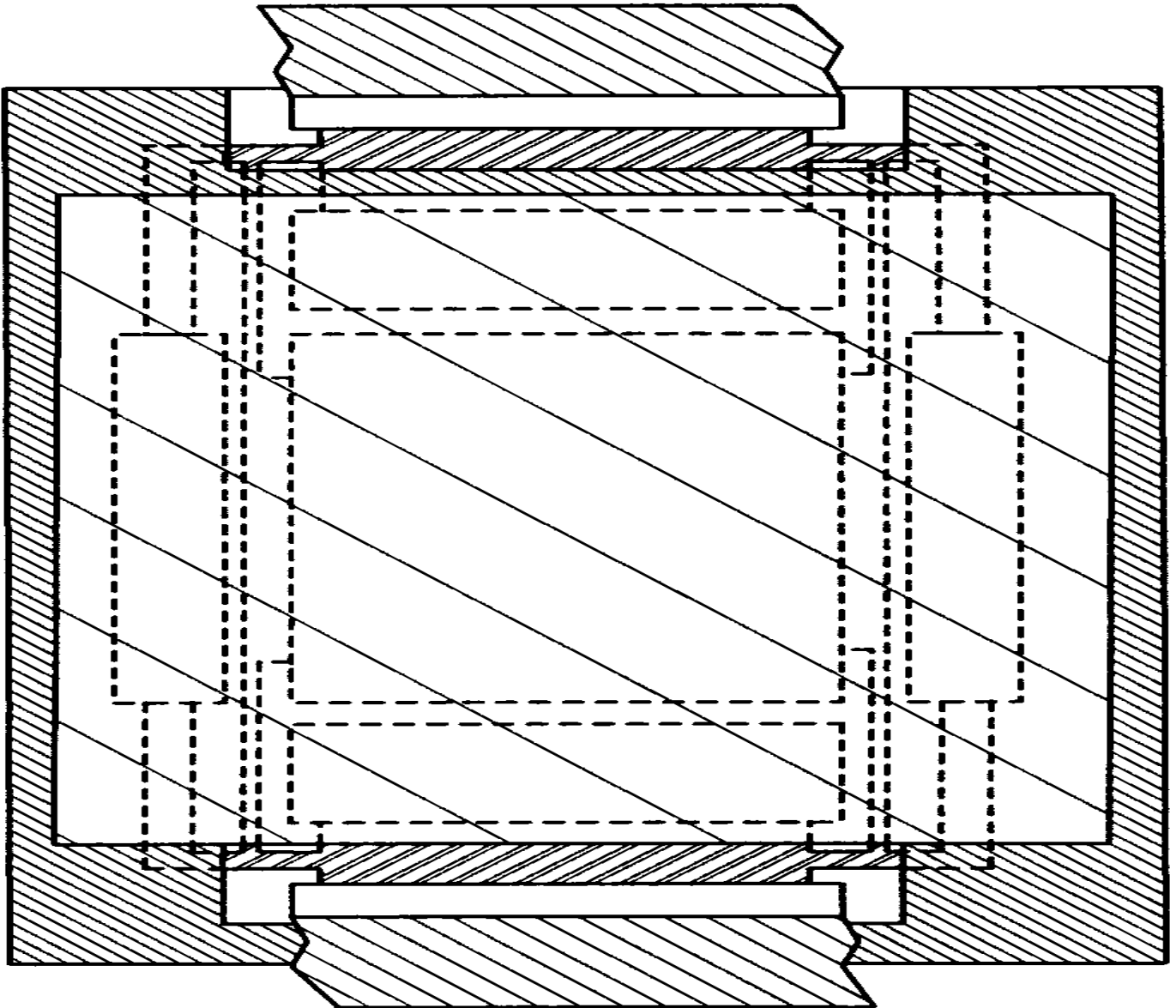
3 , TV , , ,
 , .

31.

2 , 5 50 , .

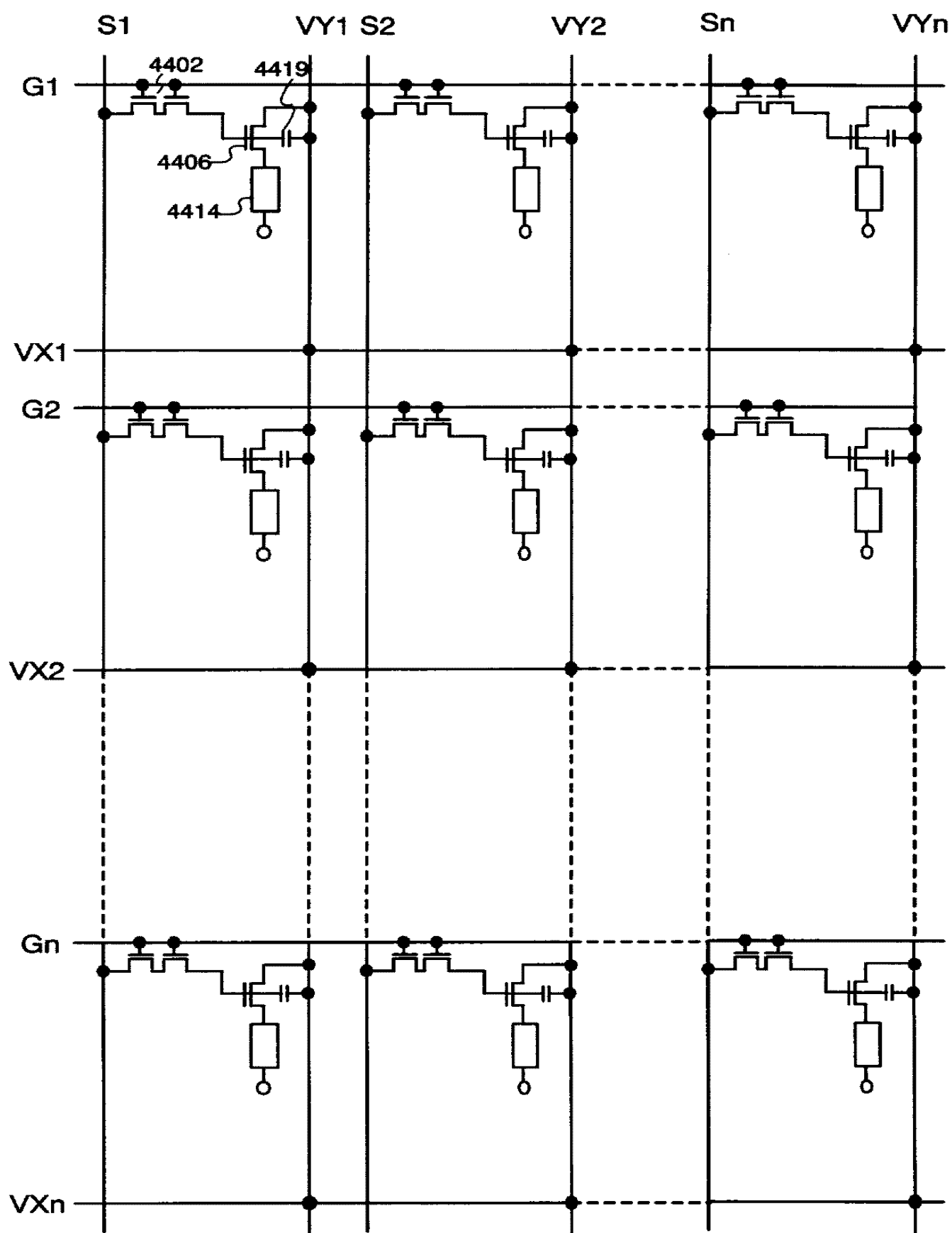
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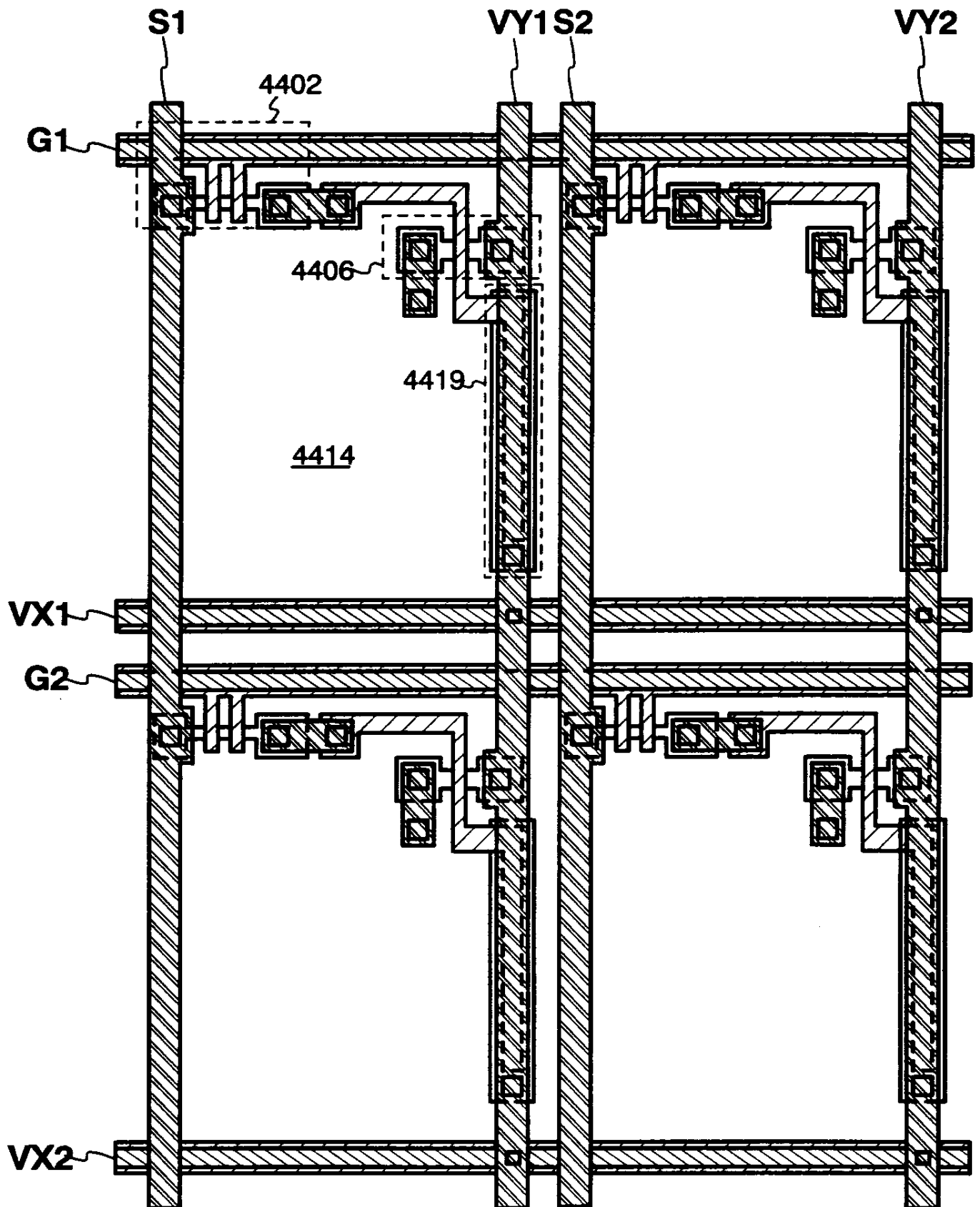


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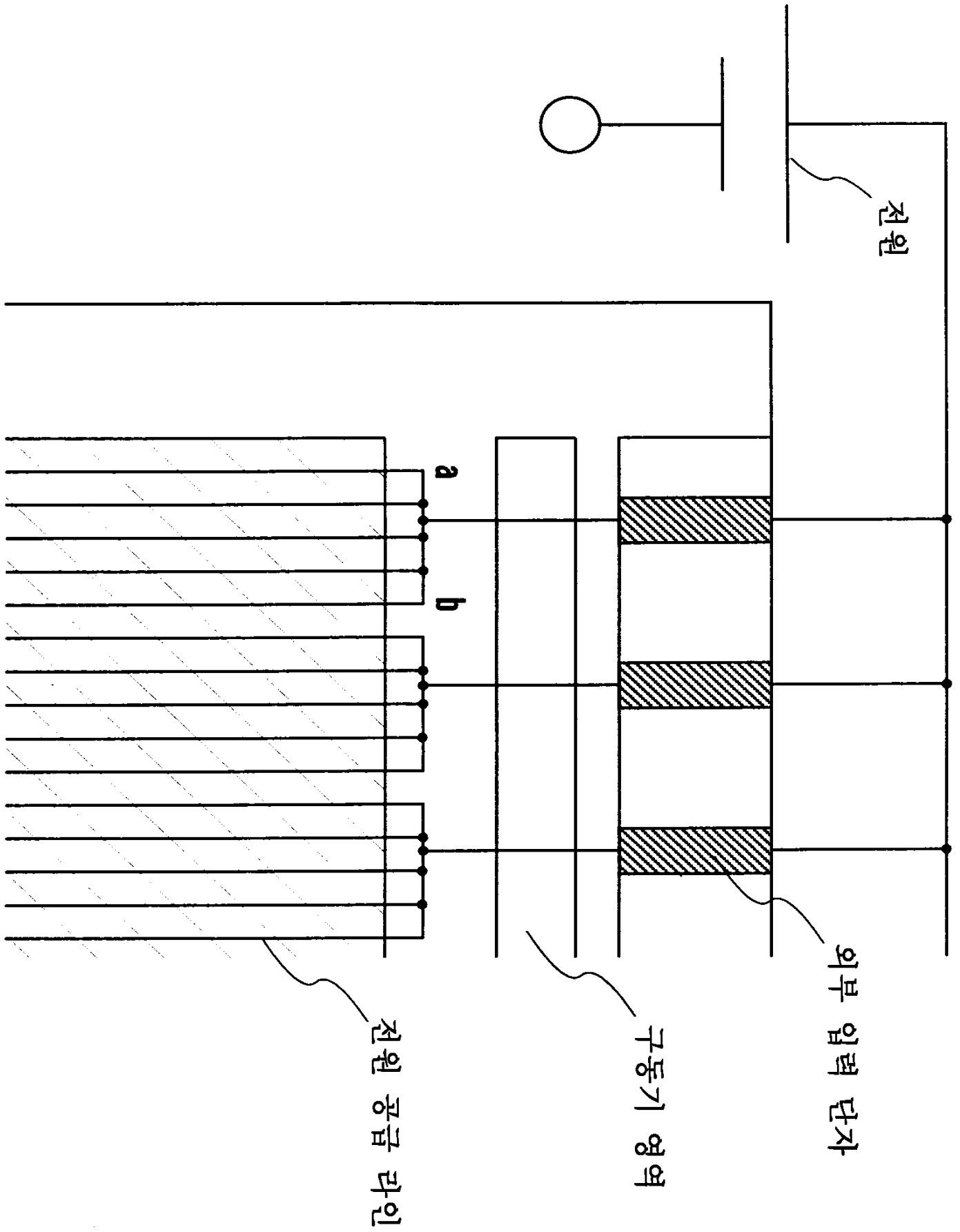
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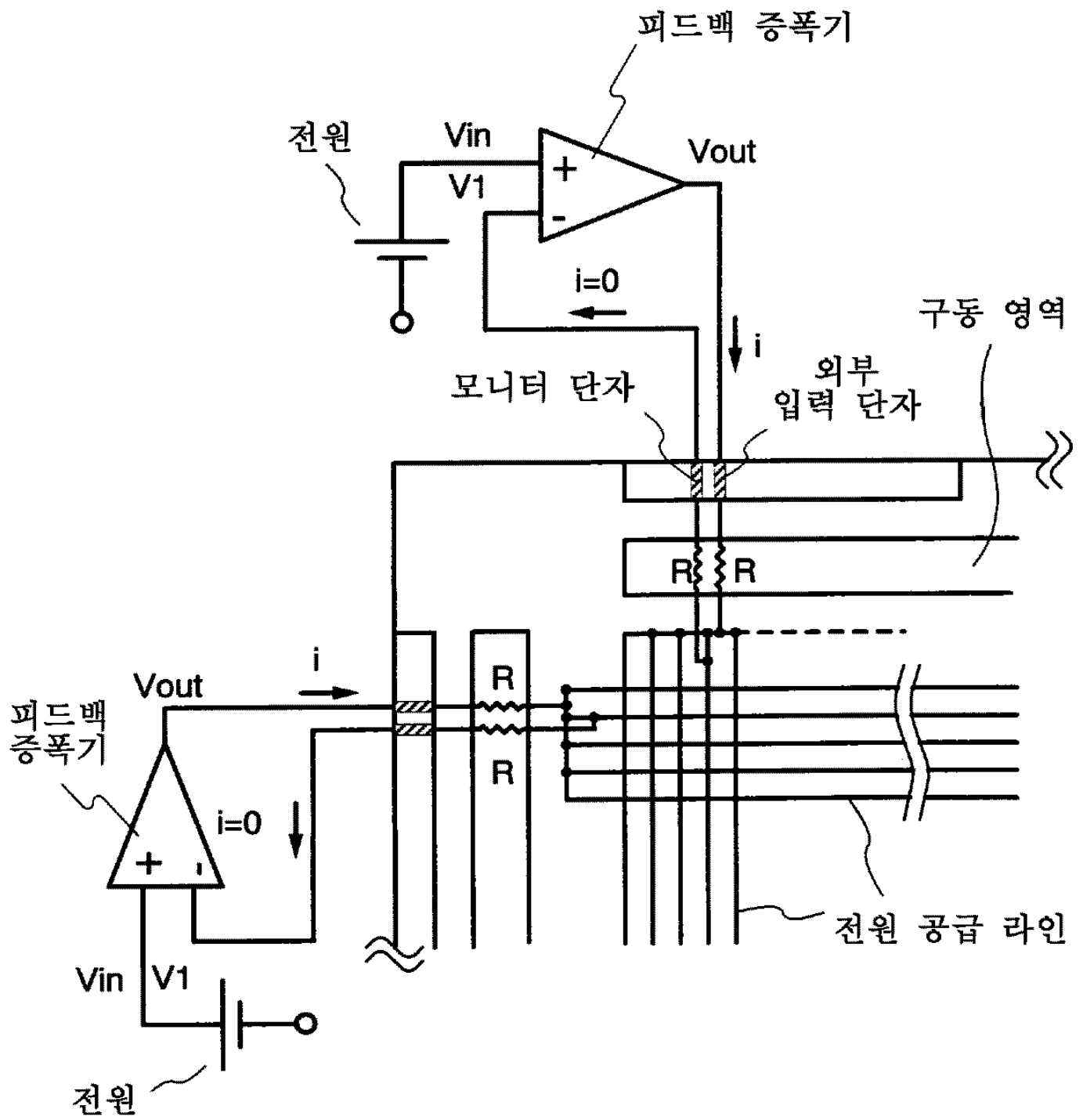
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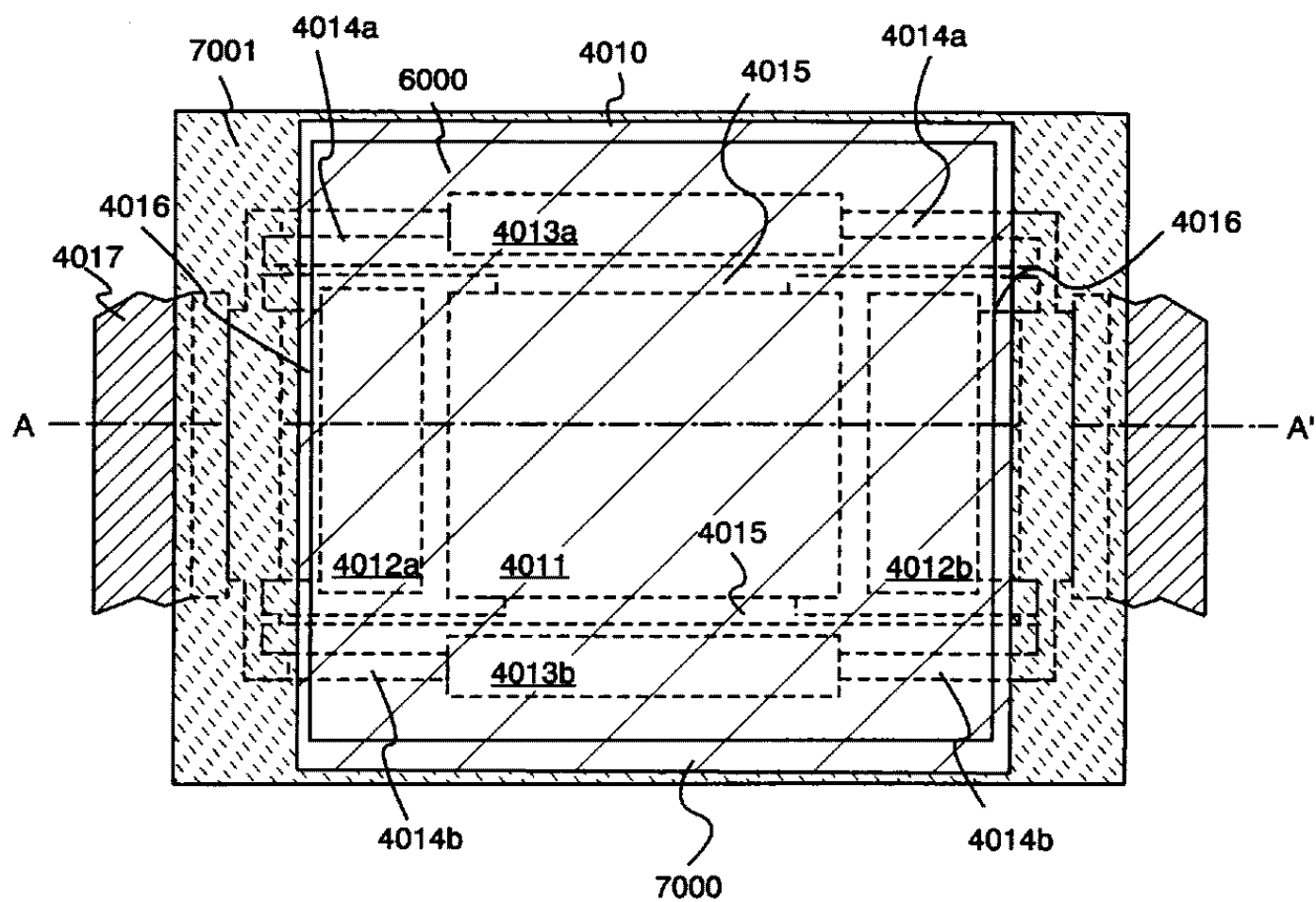
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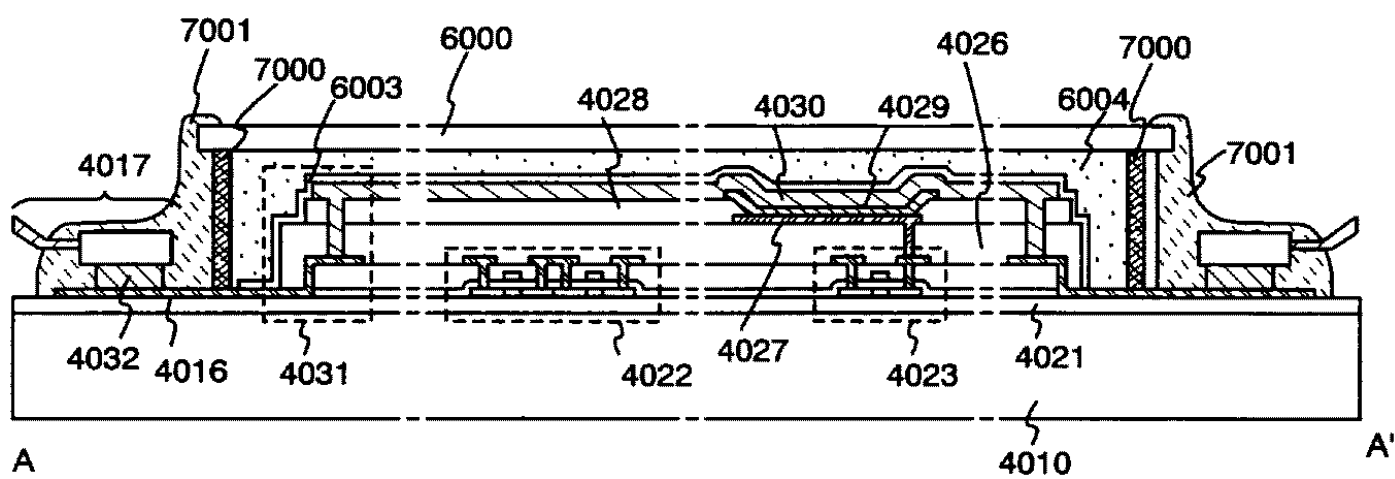
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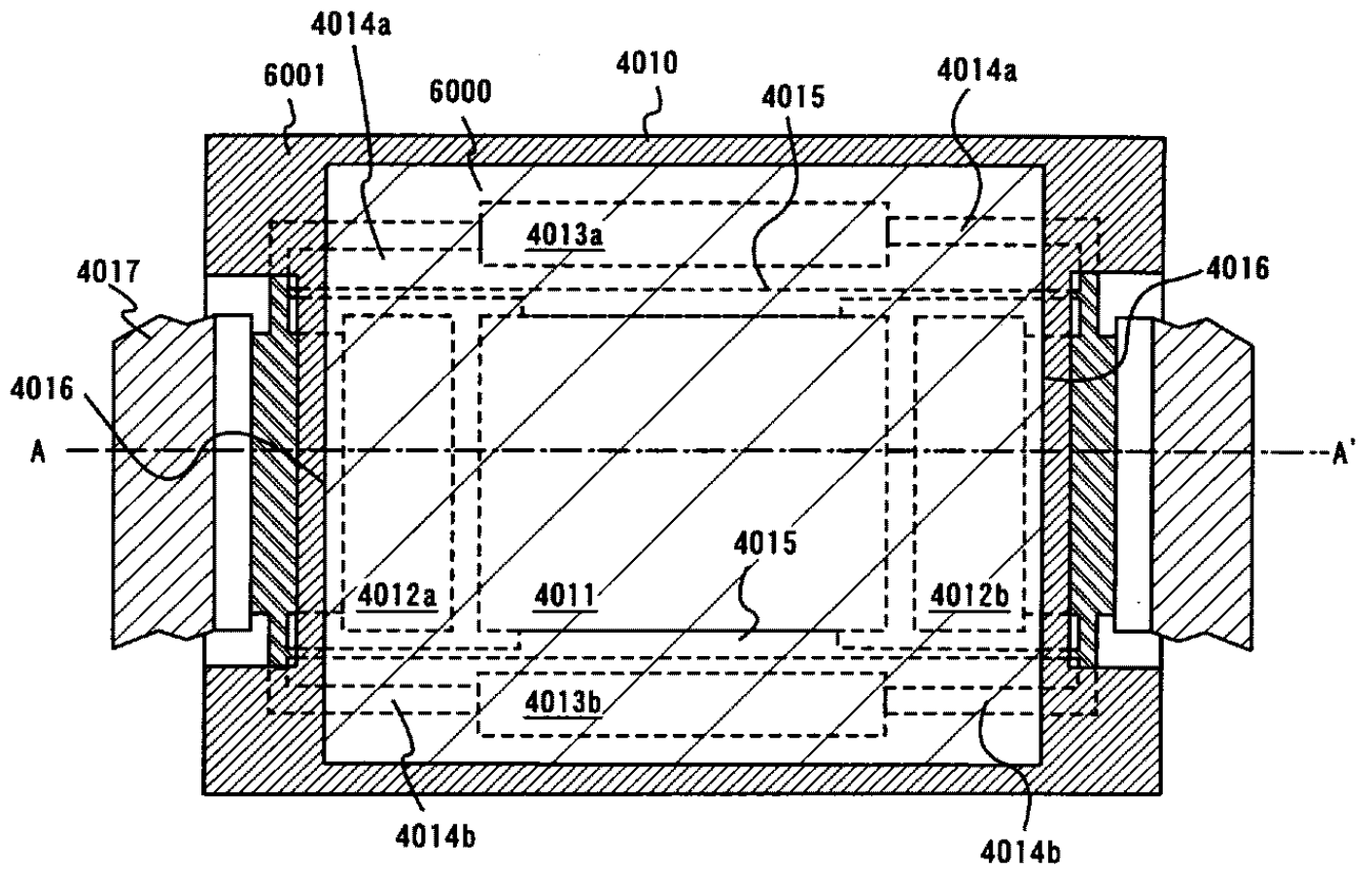
6a



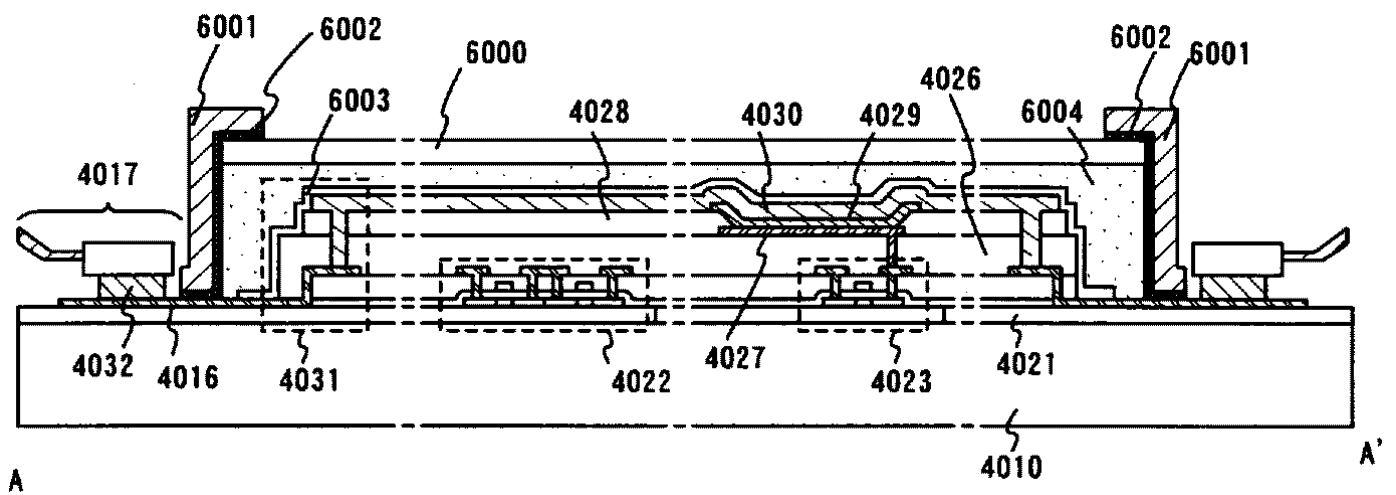
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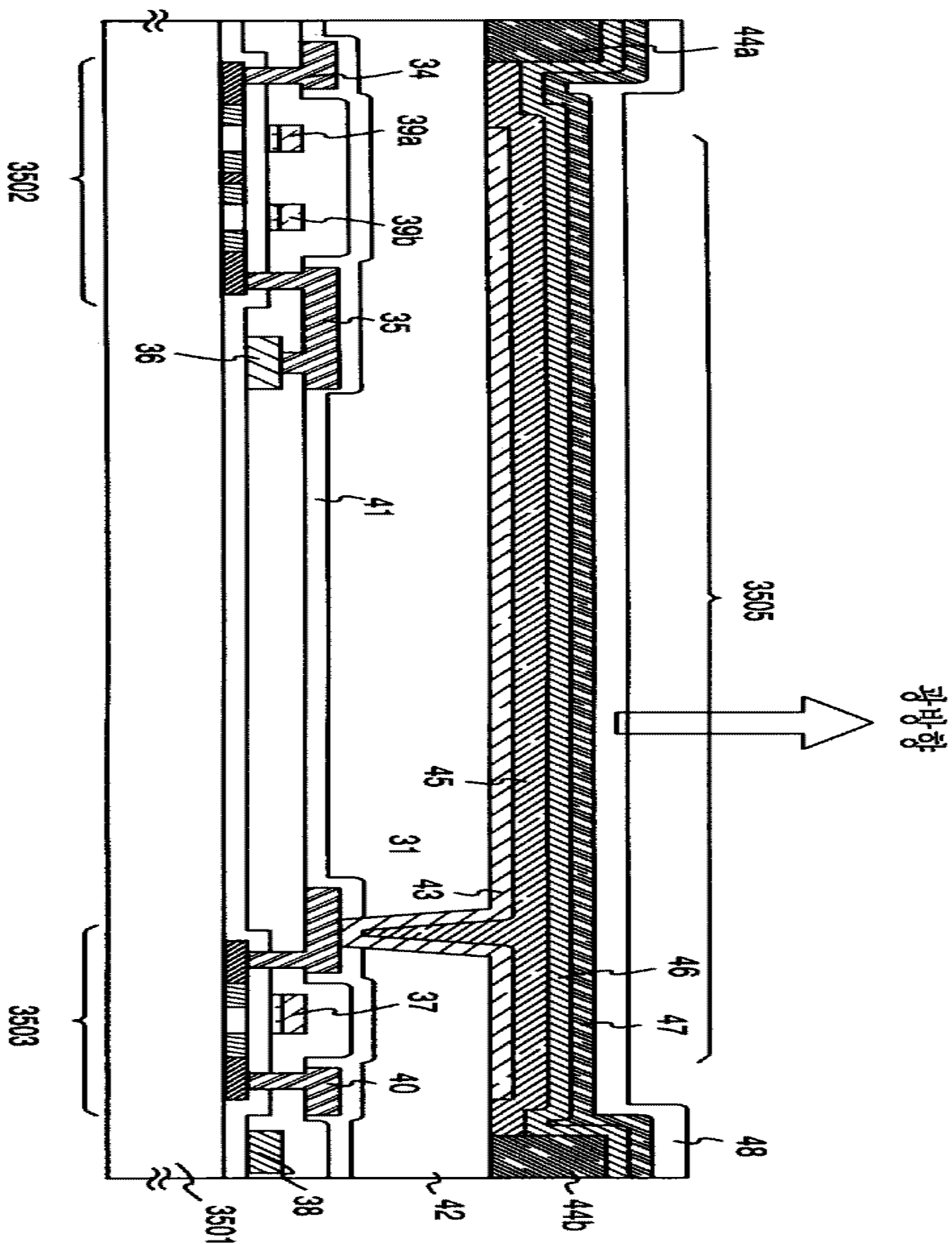


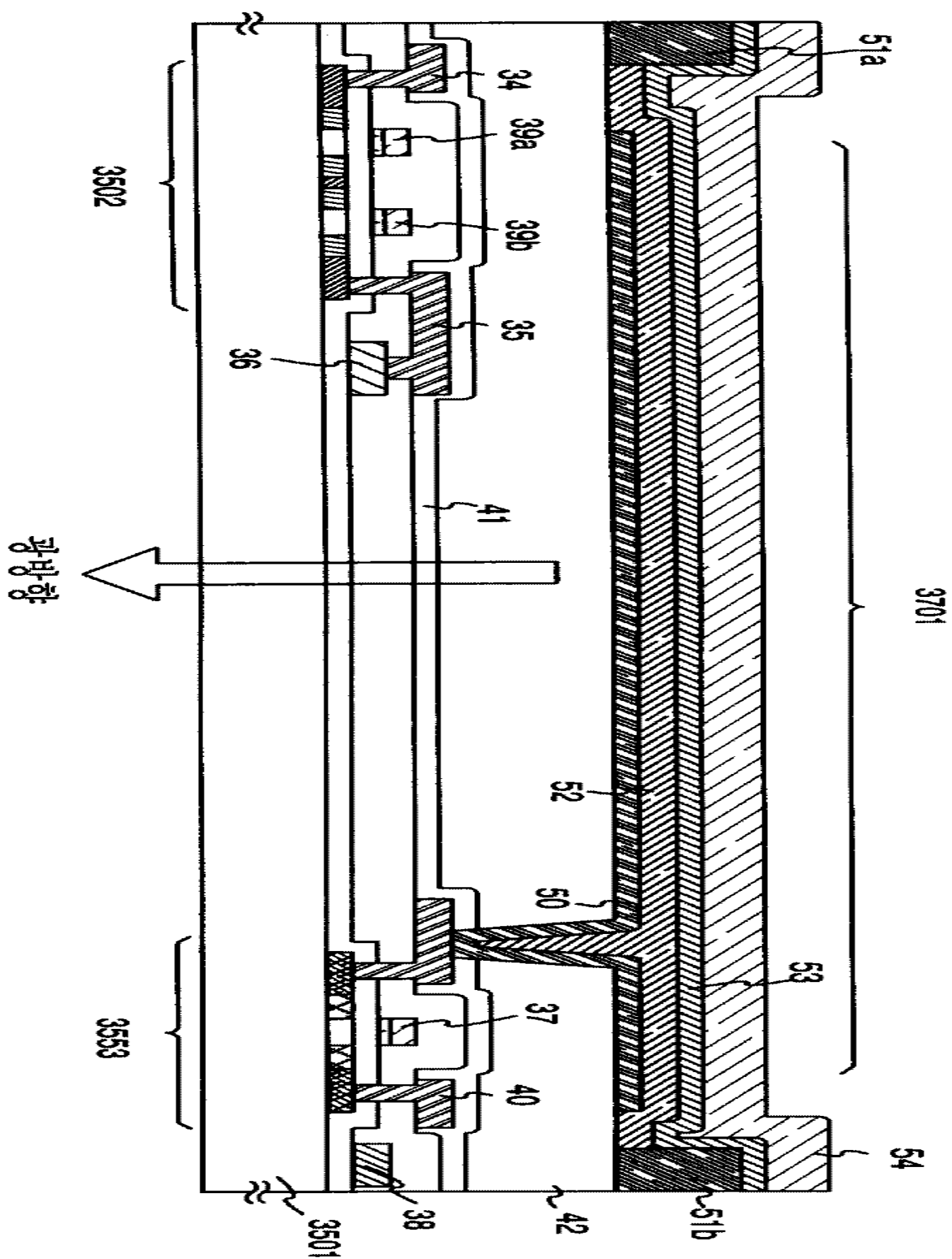
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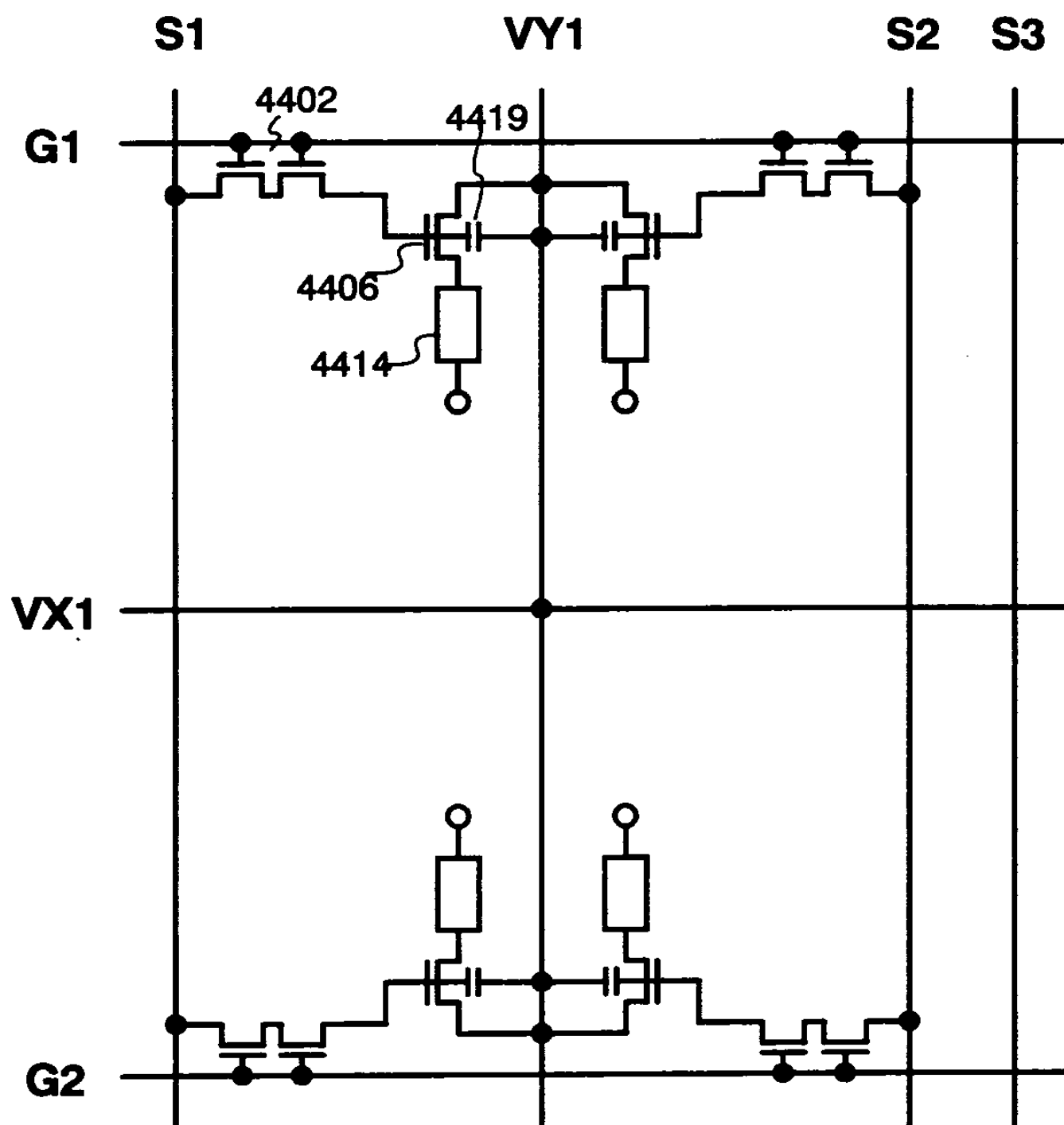
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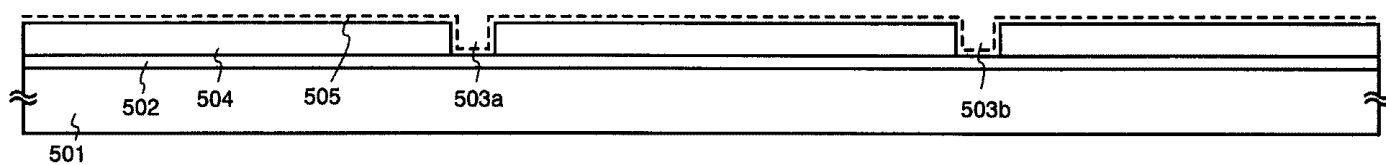




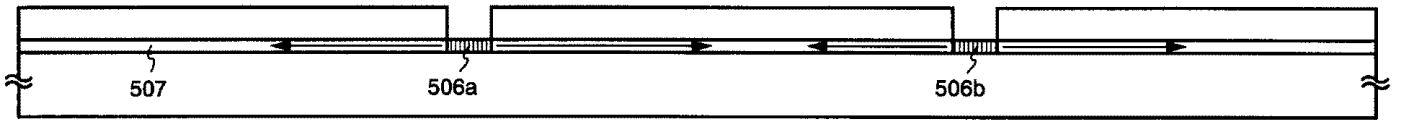
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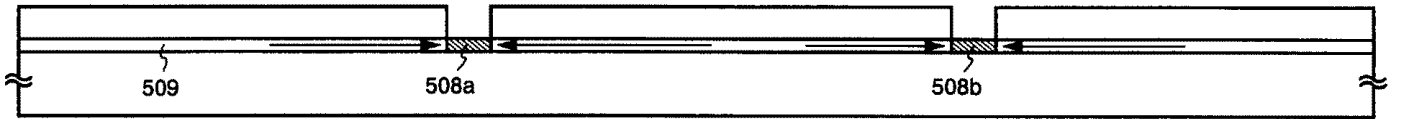
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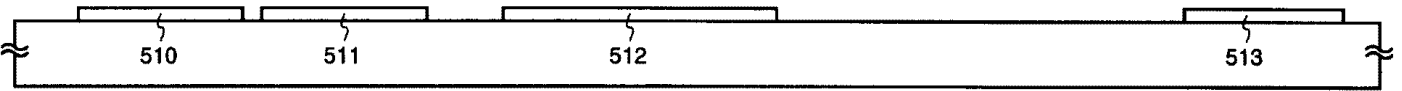
11b



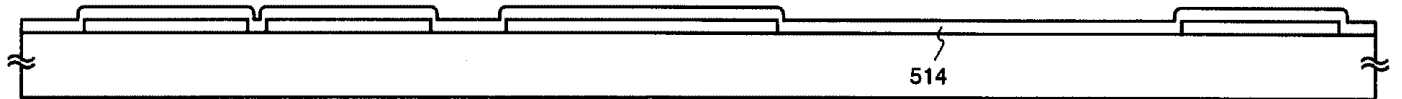
11c



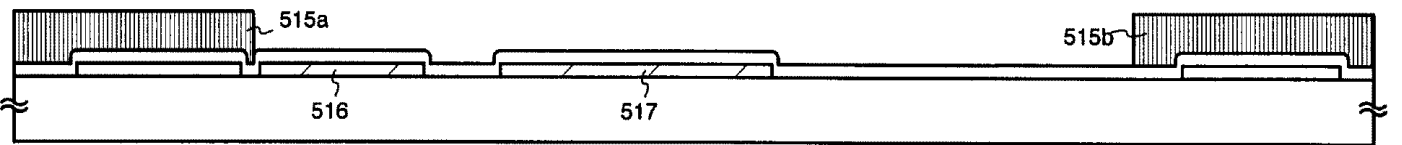
11d



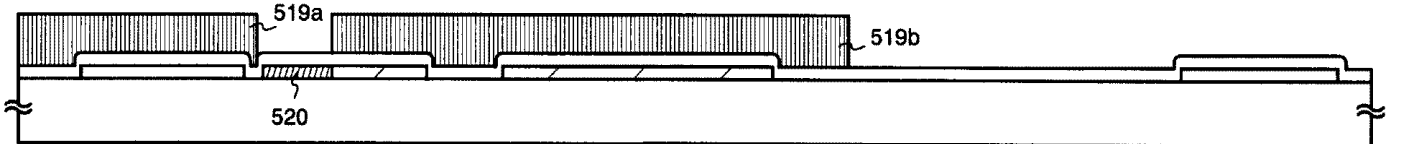
11e



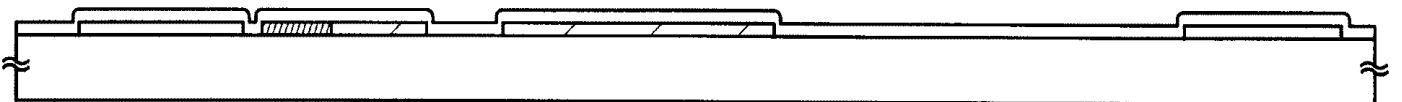
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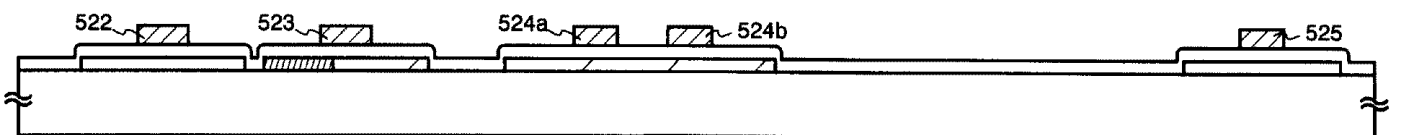
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12c

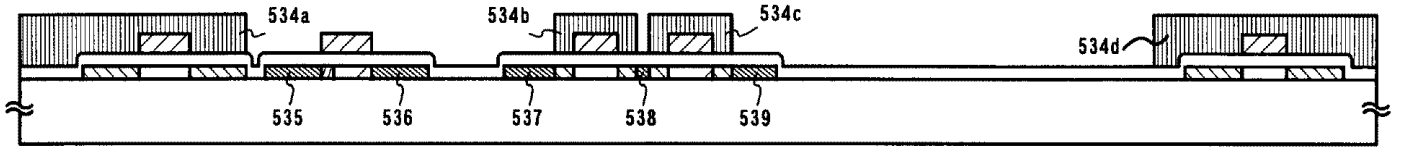


12d

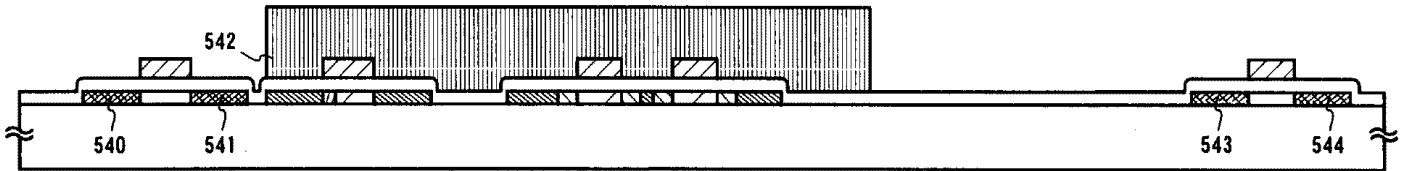


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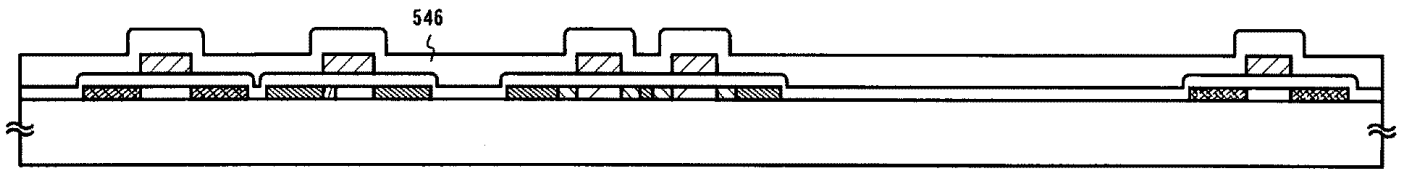
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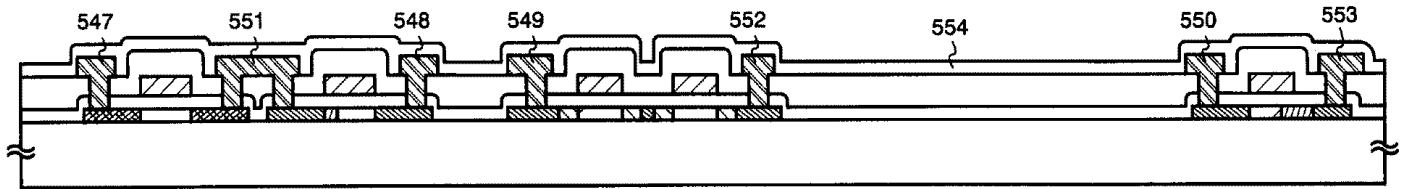
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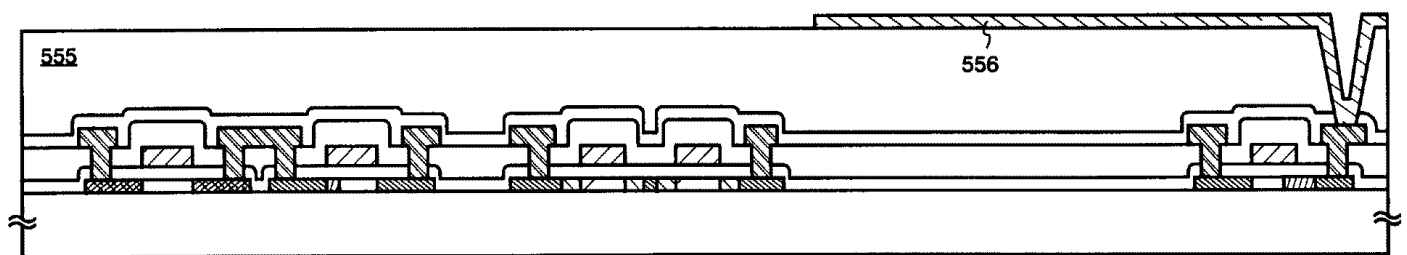
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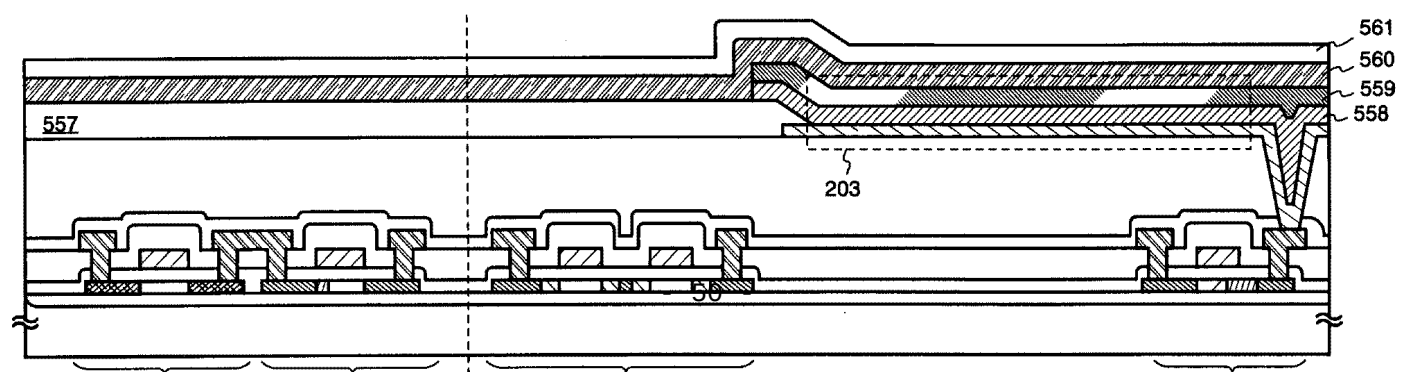
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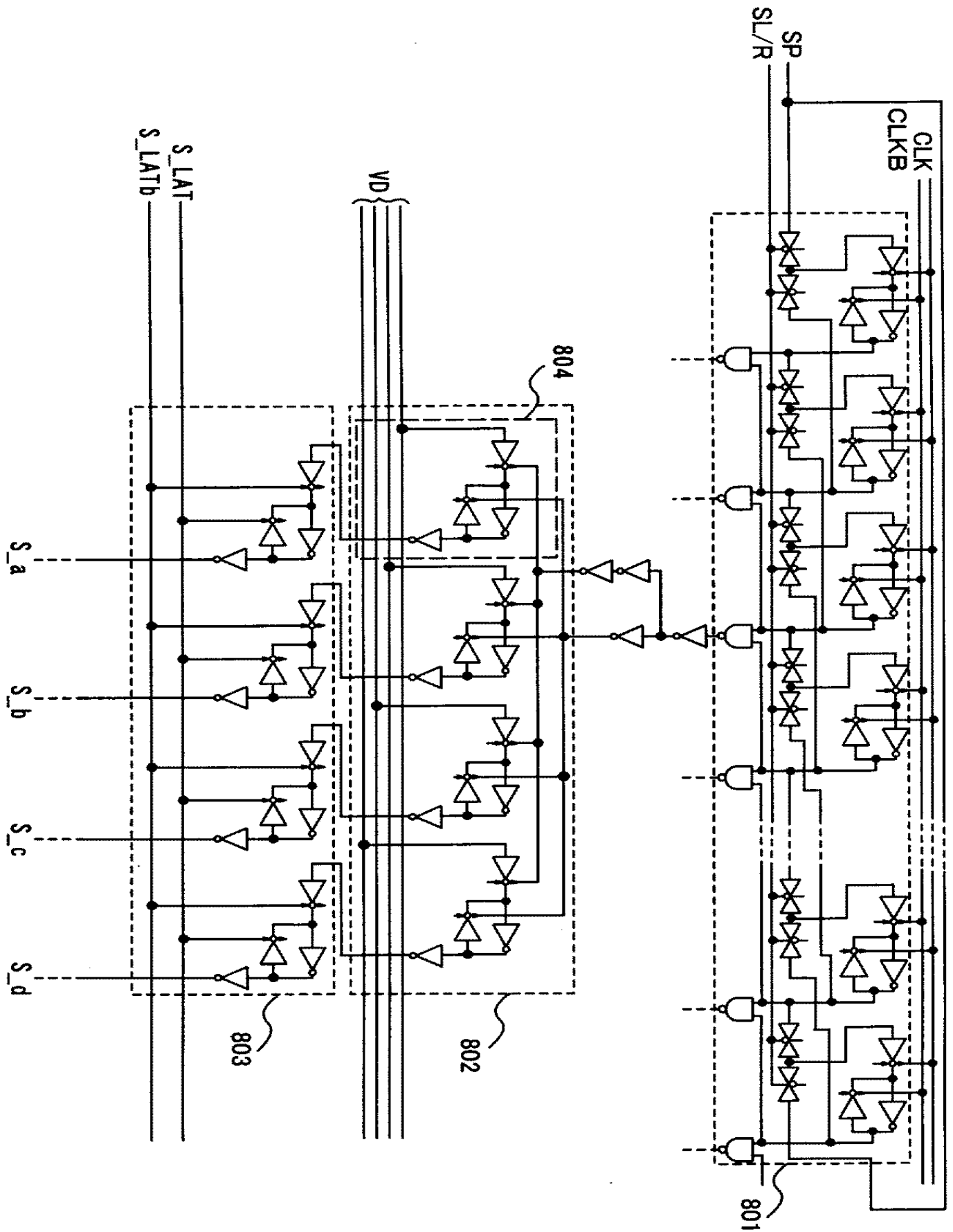
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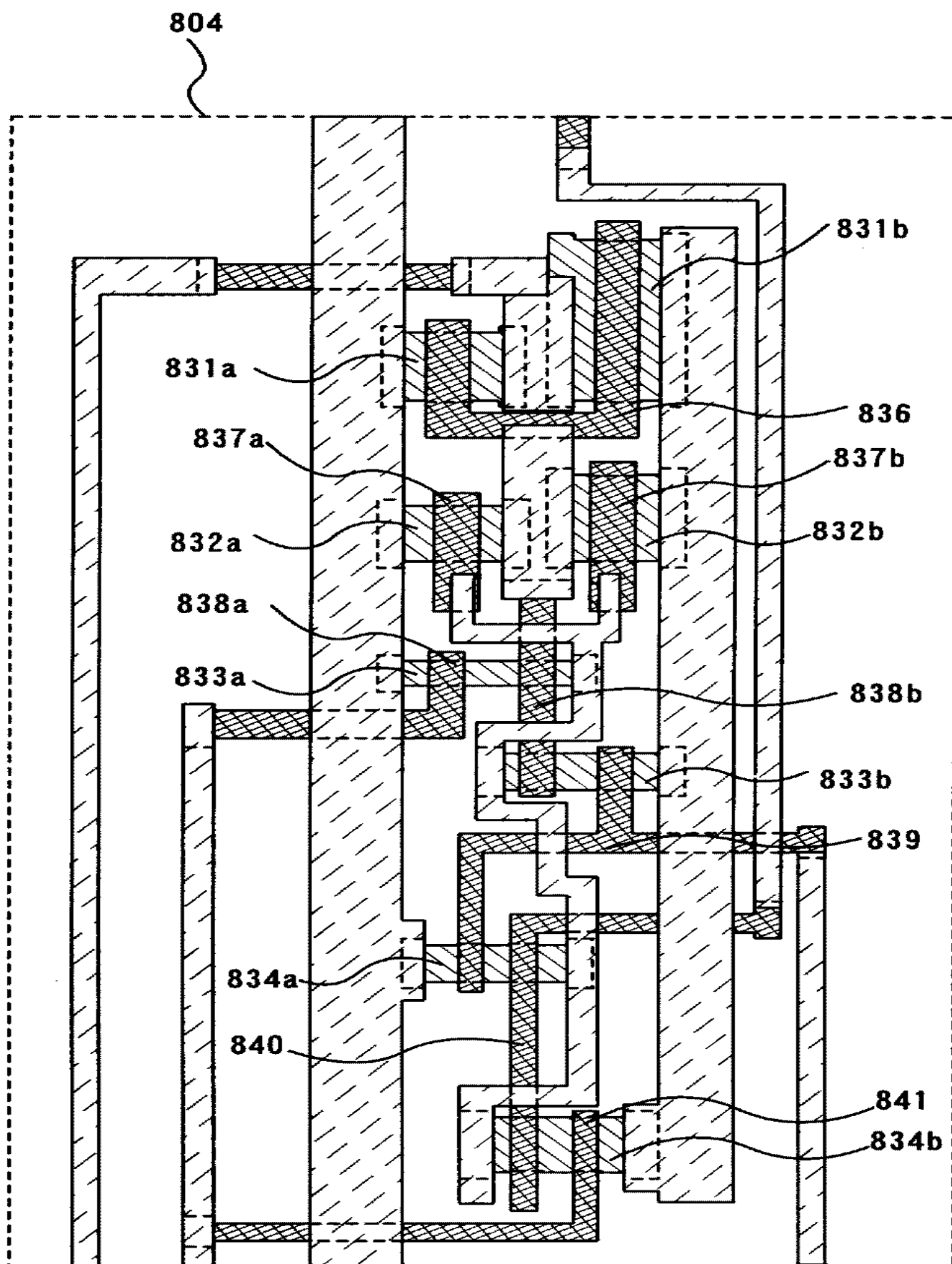
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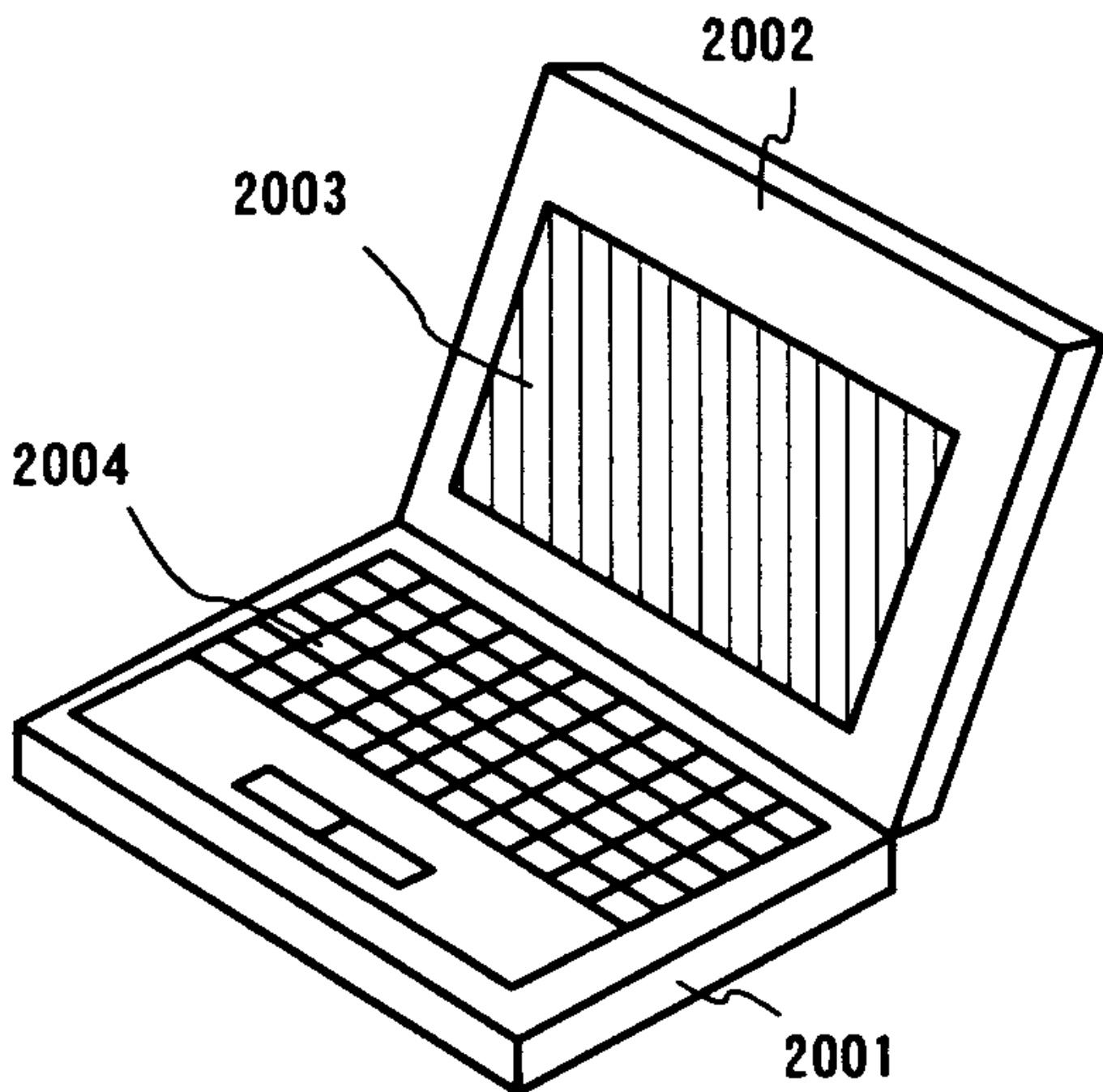
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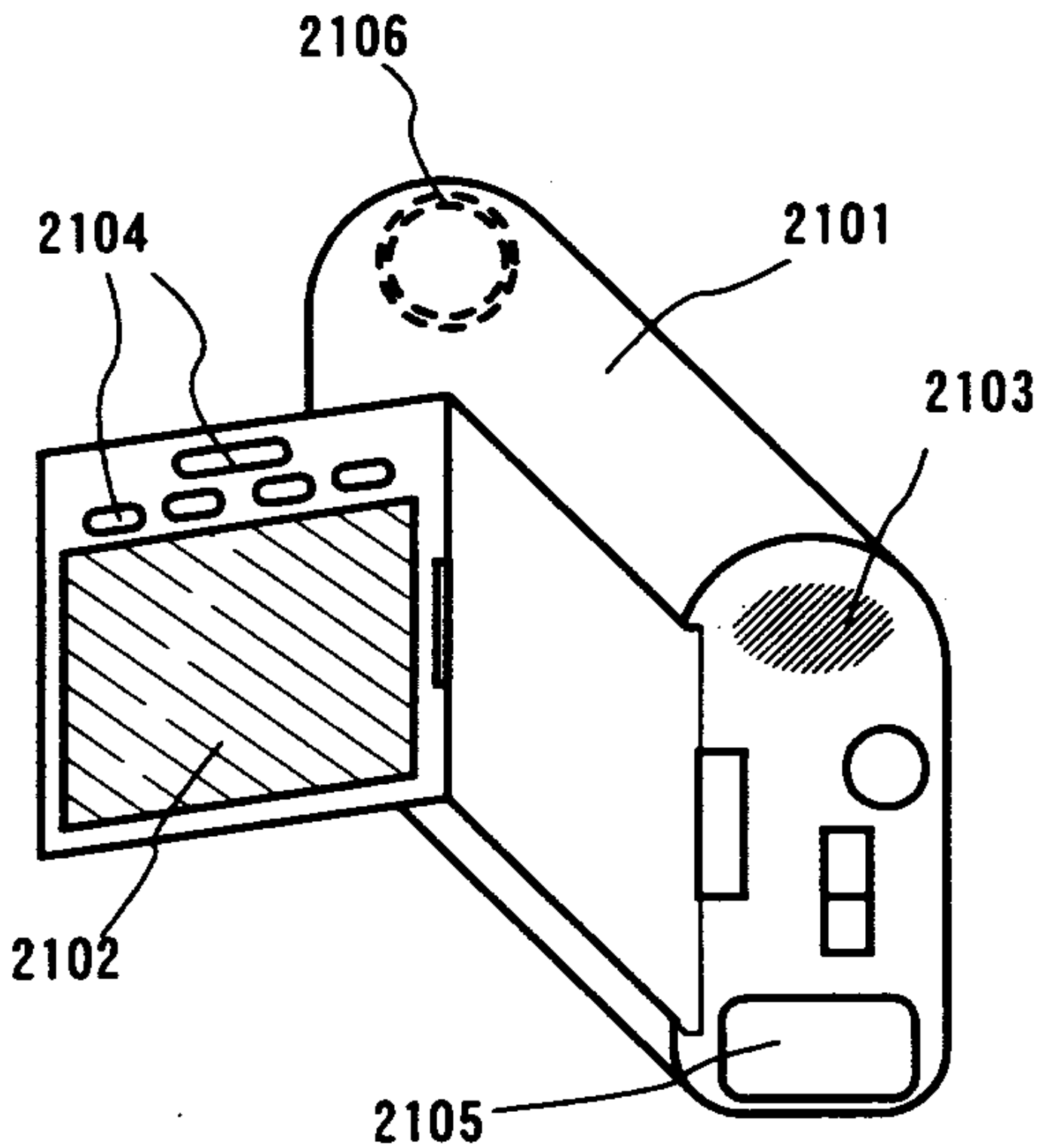
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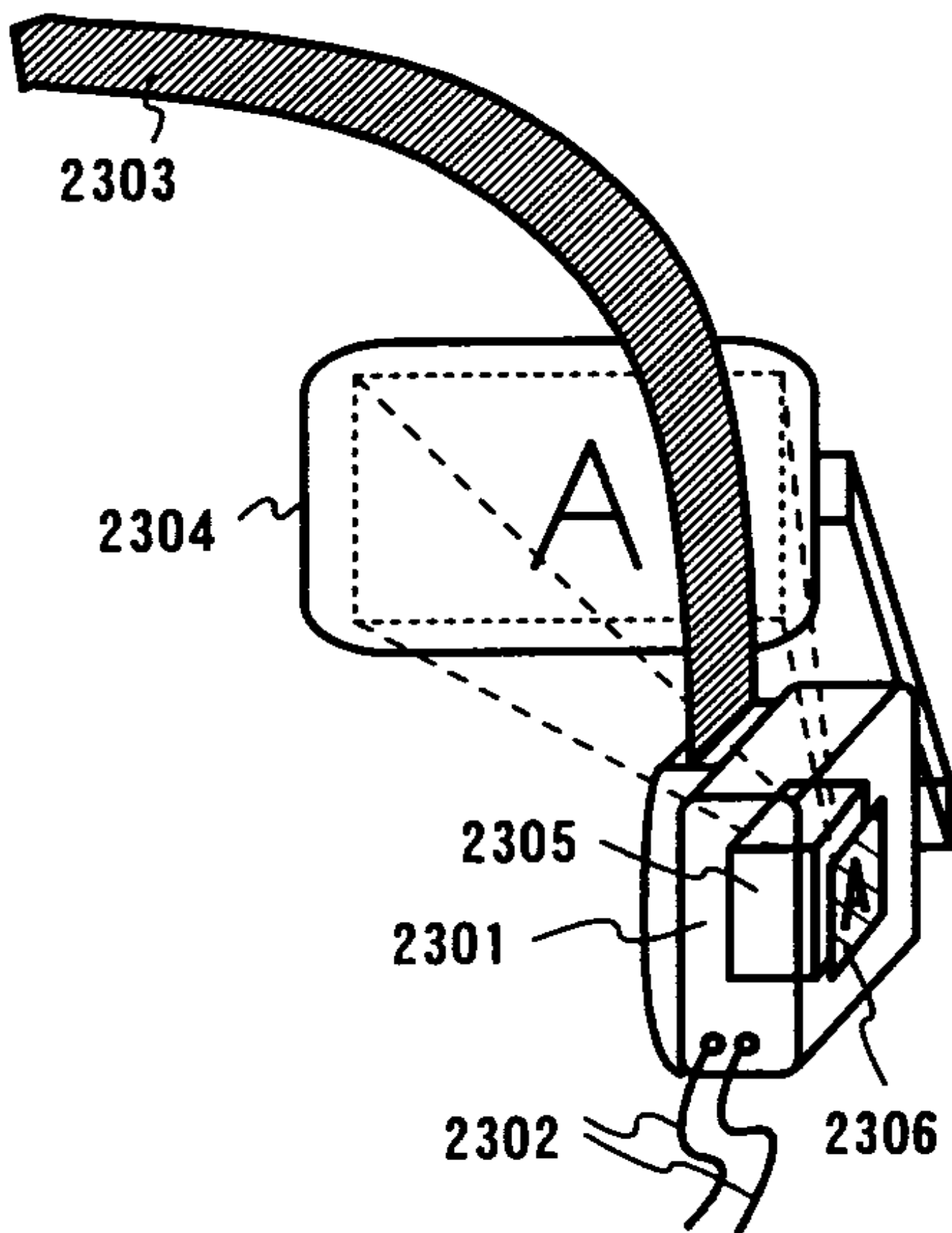
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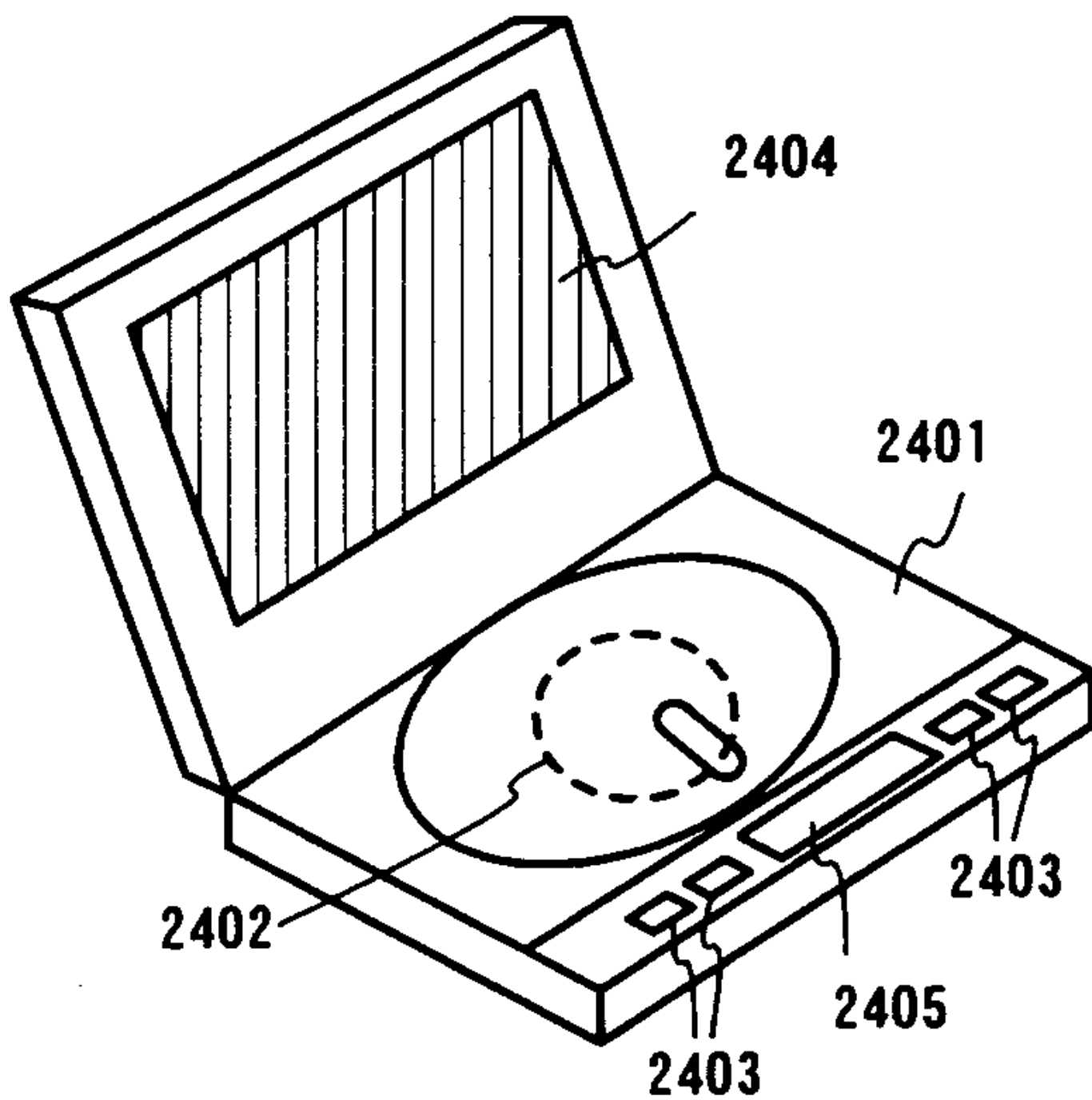
17b



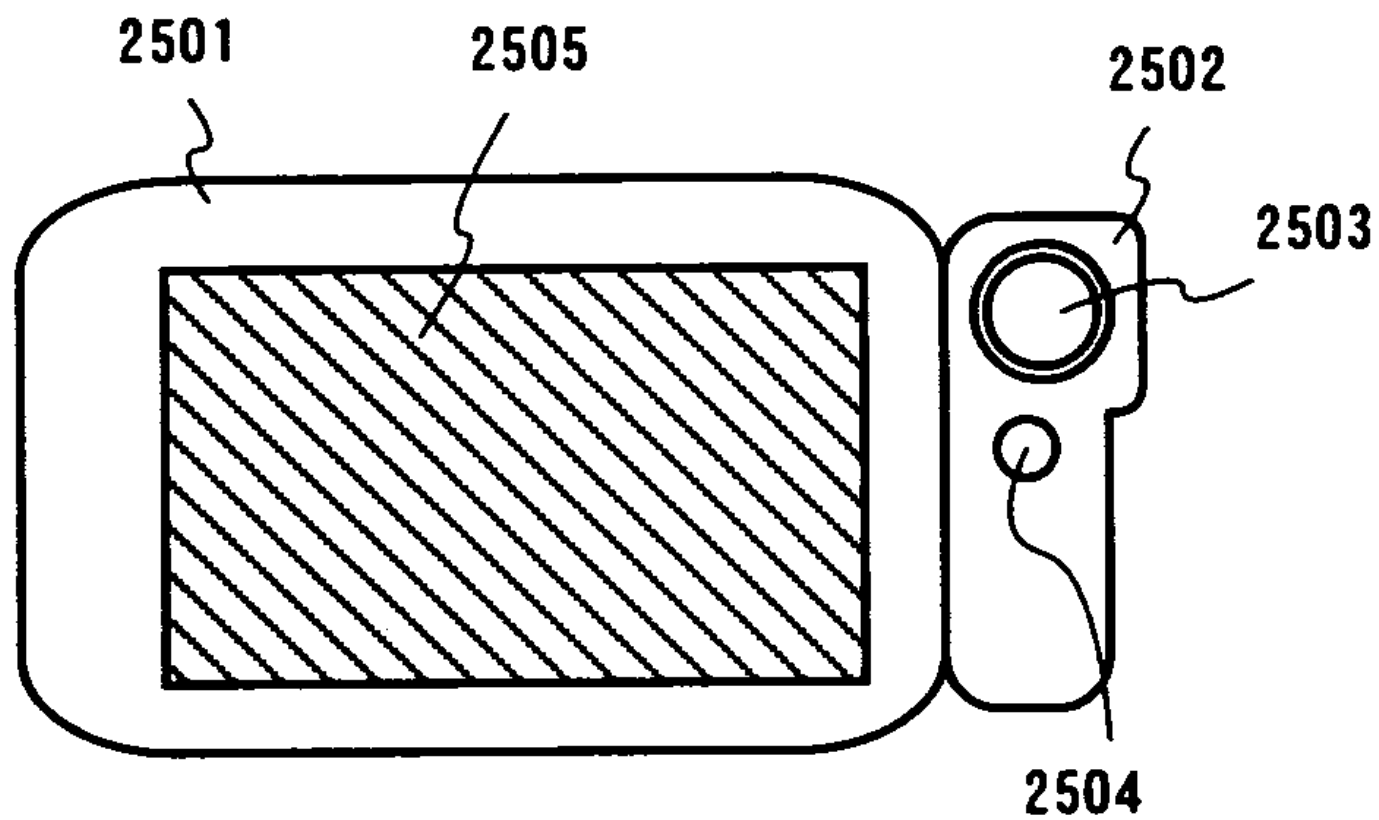
17c



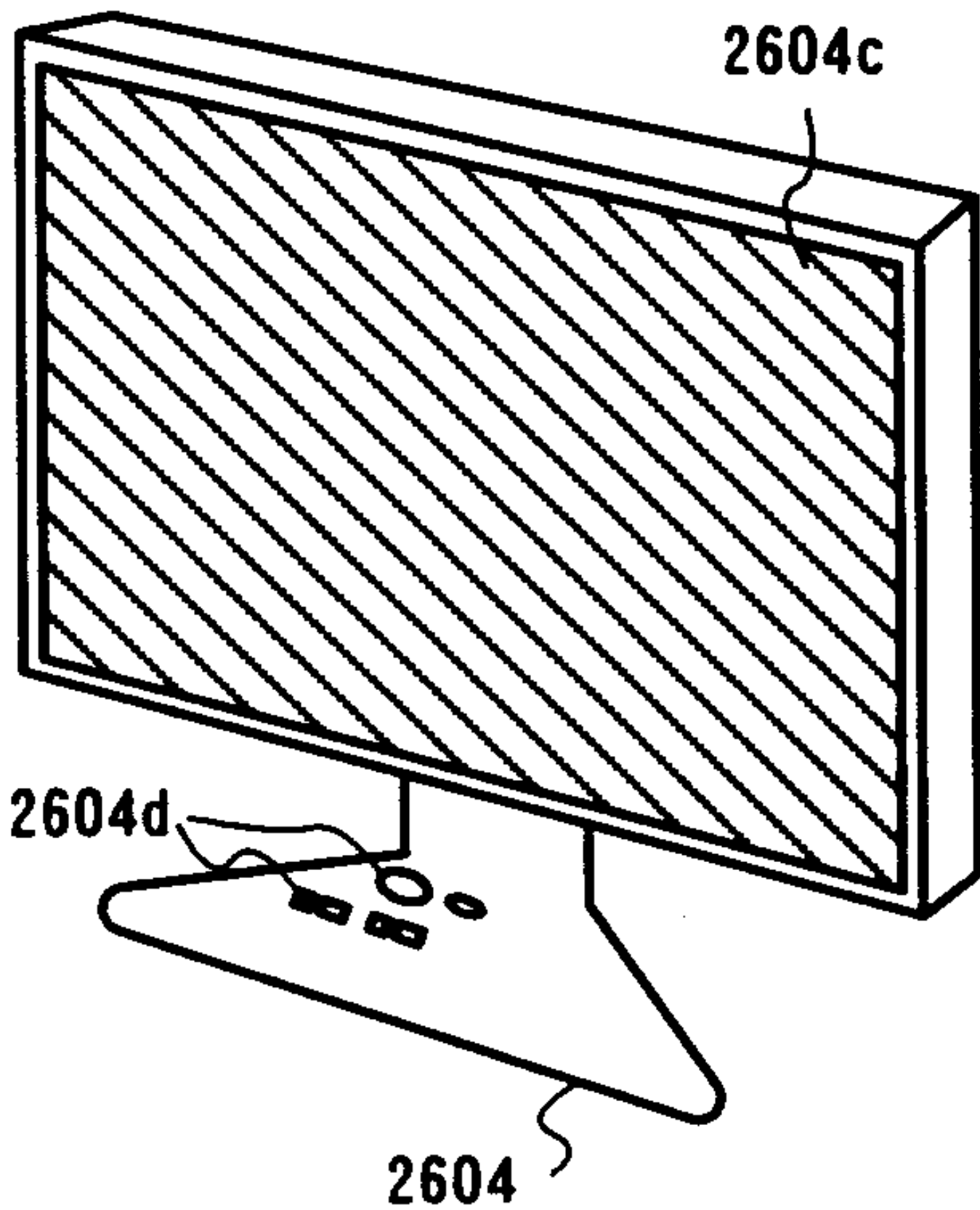
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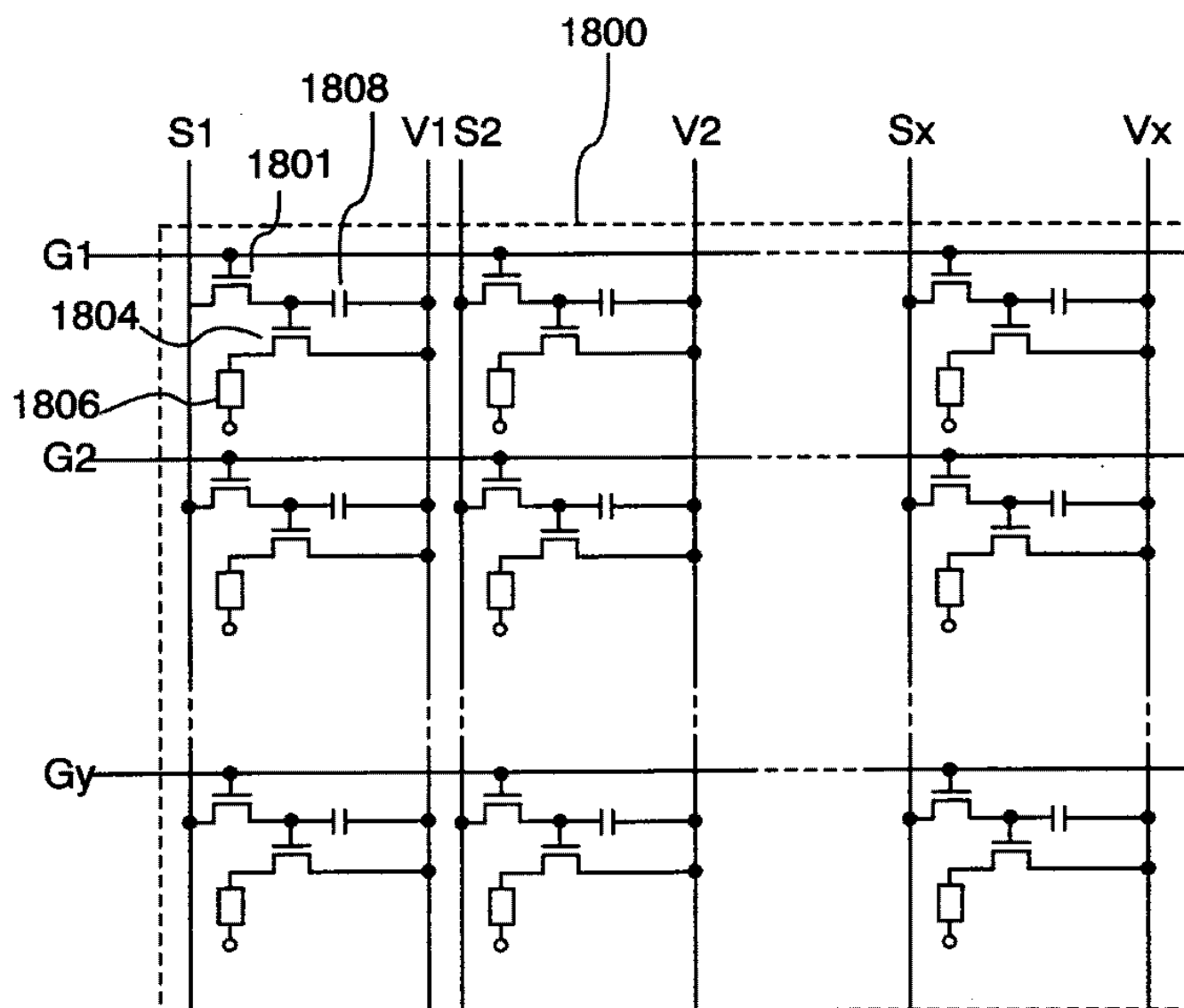
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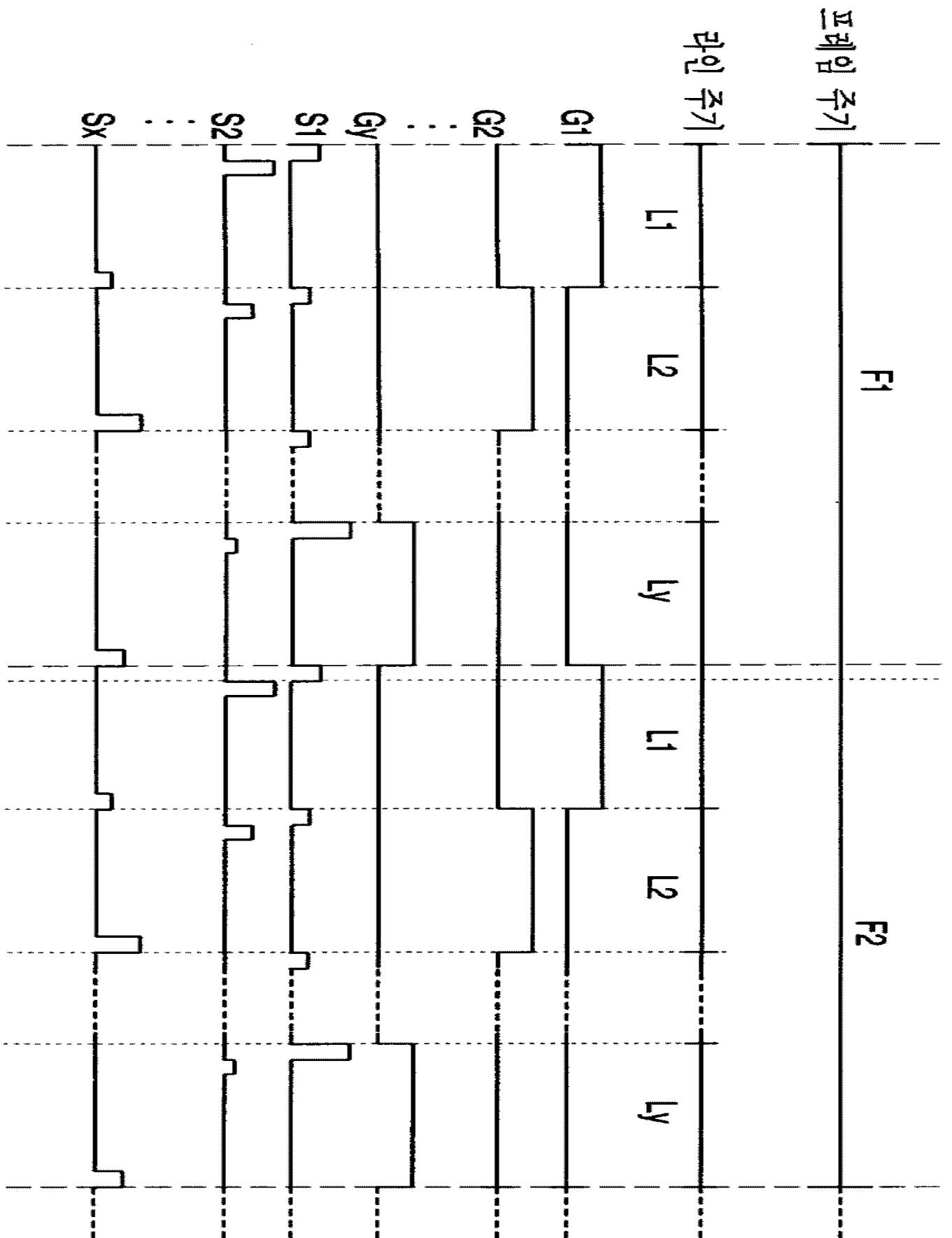


17f

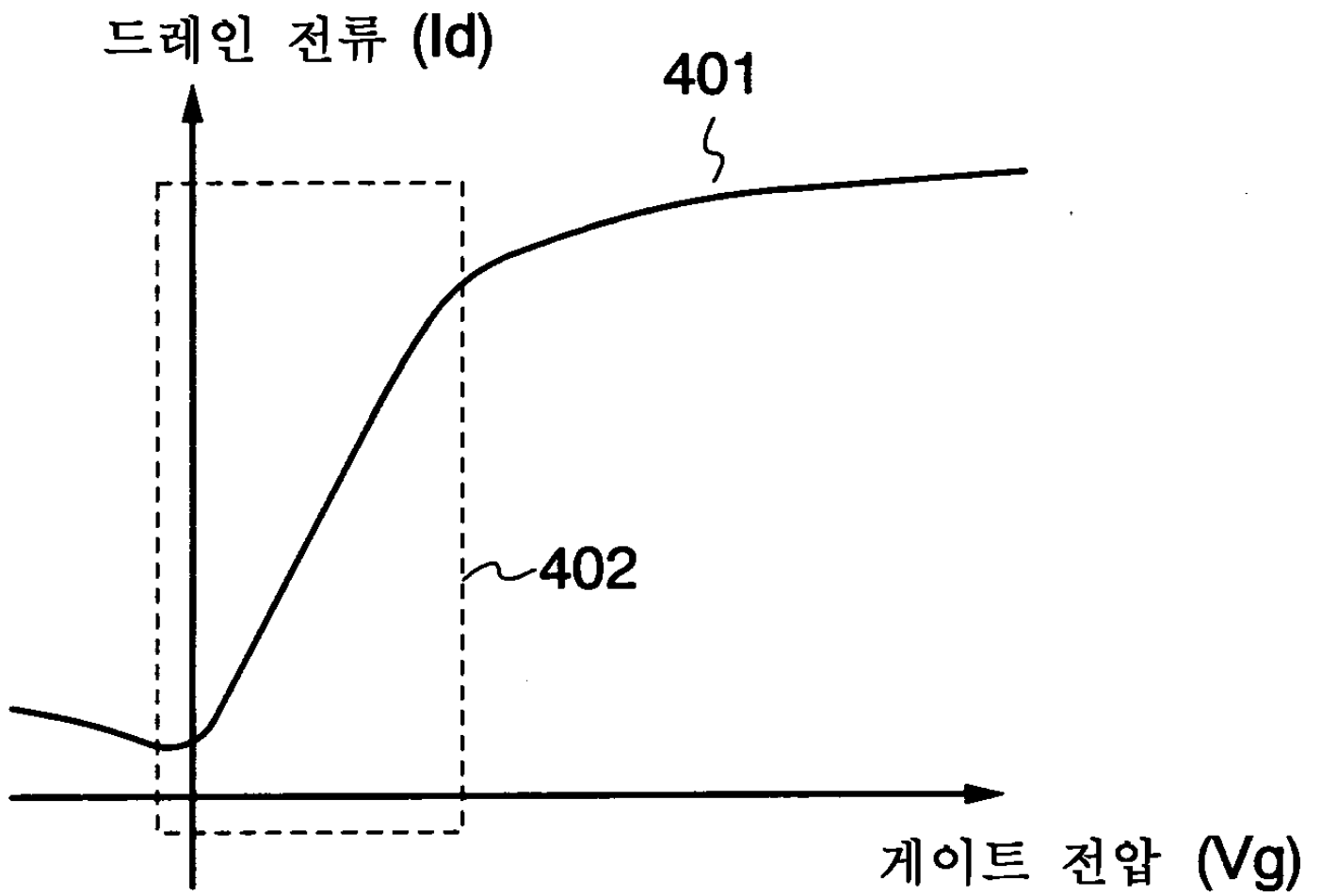


18

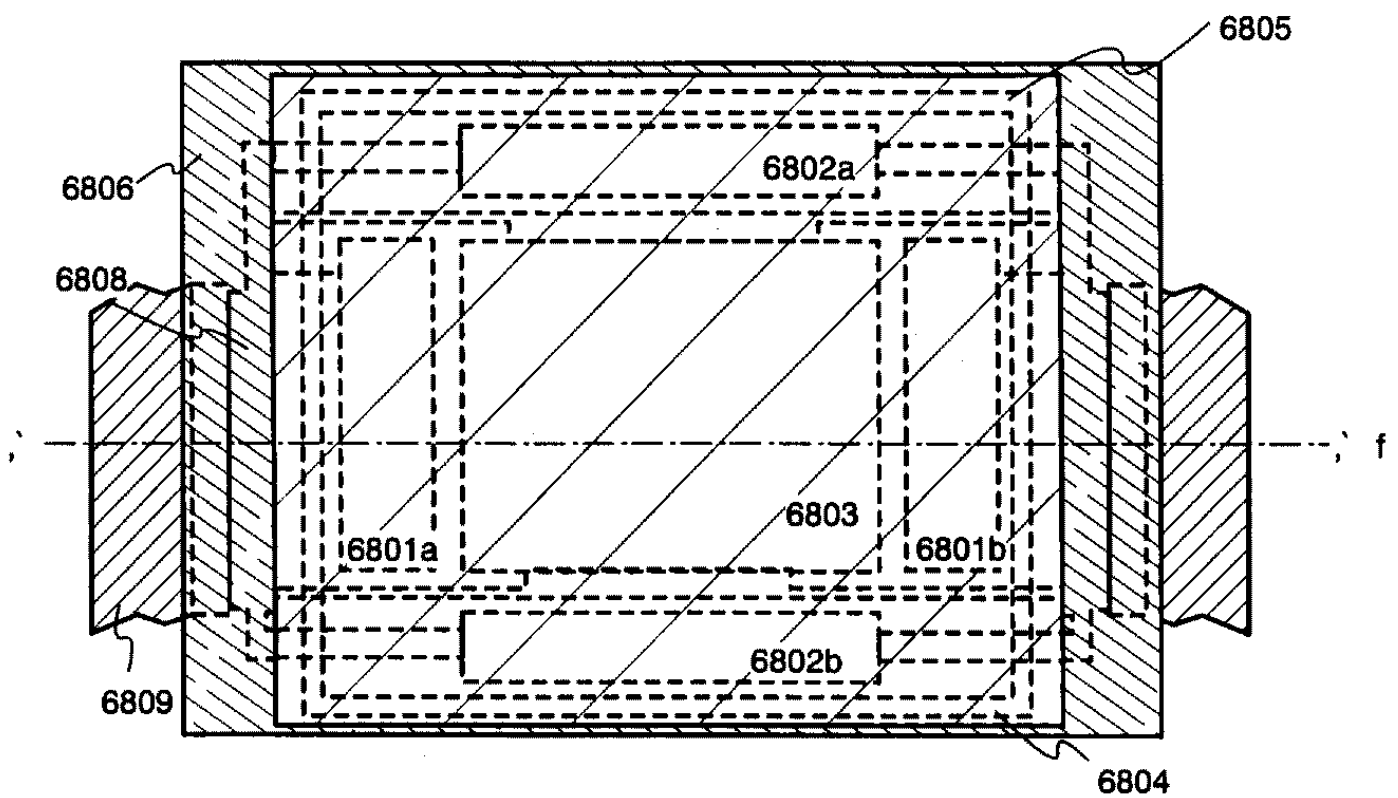




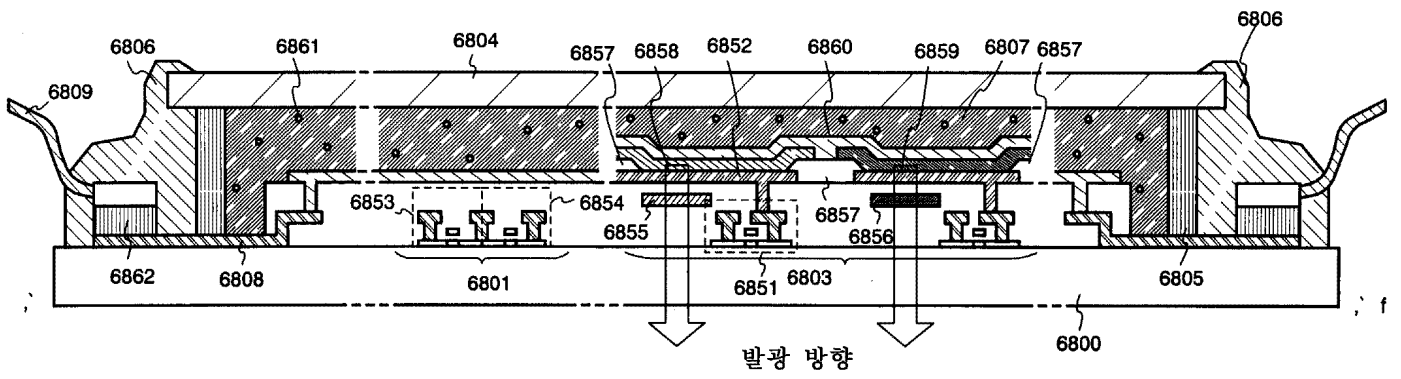
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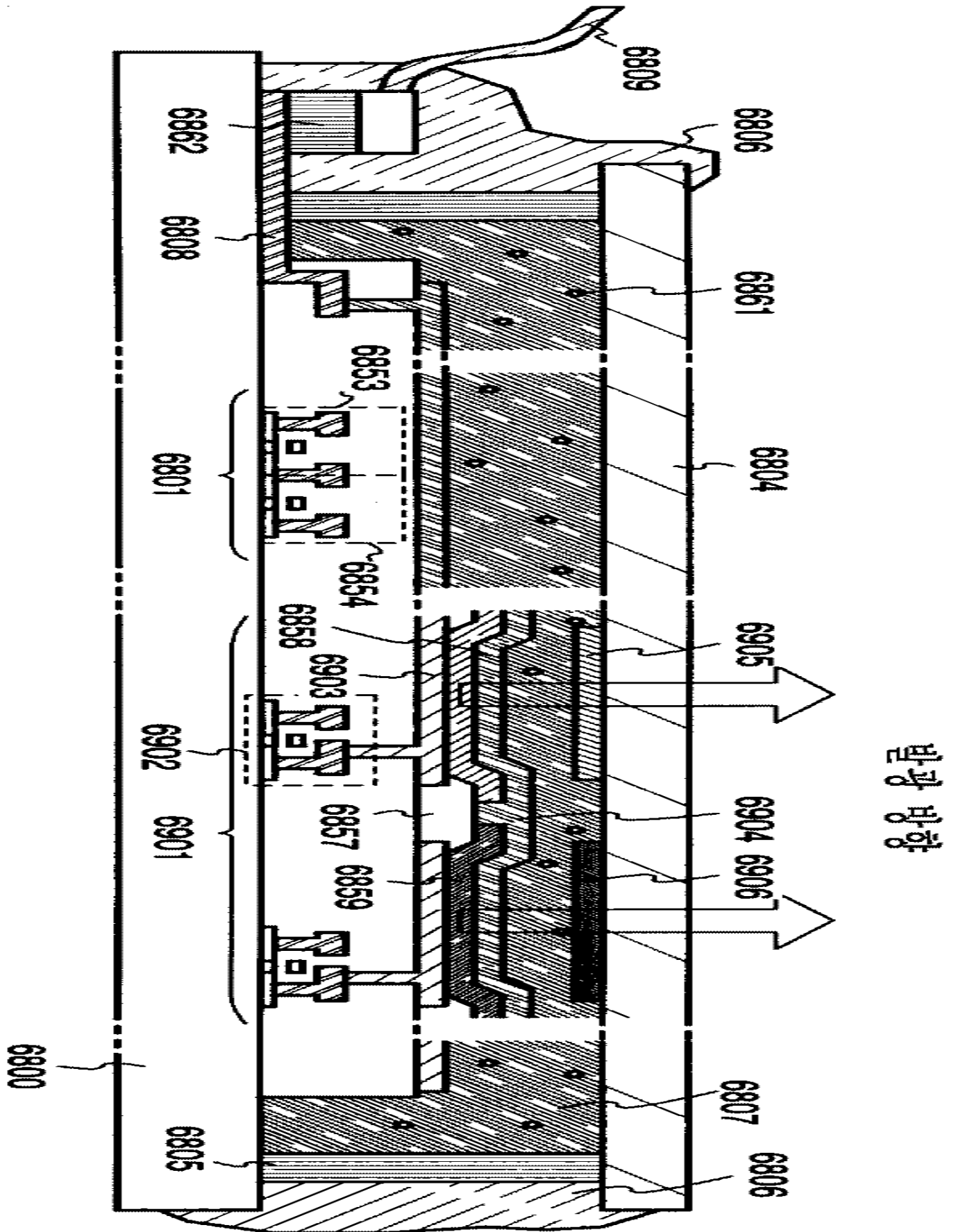
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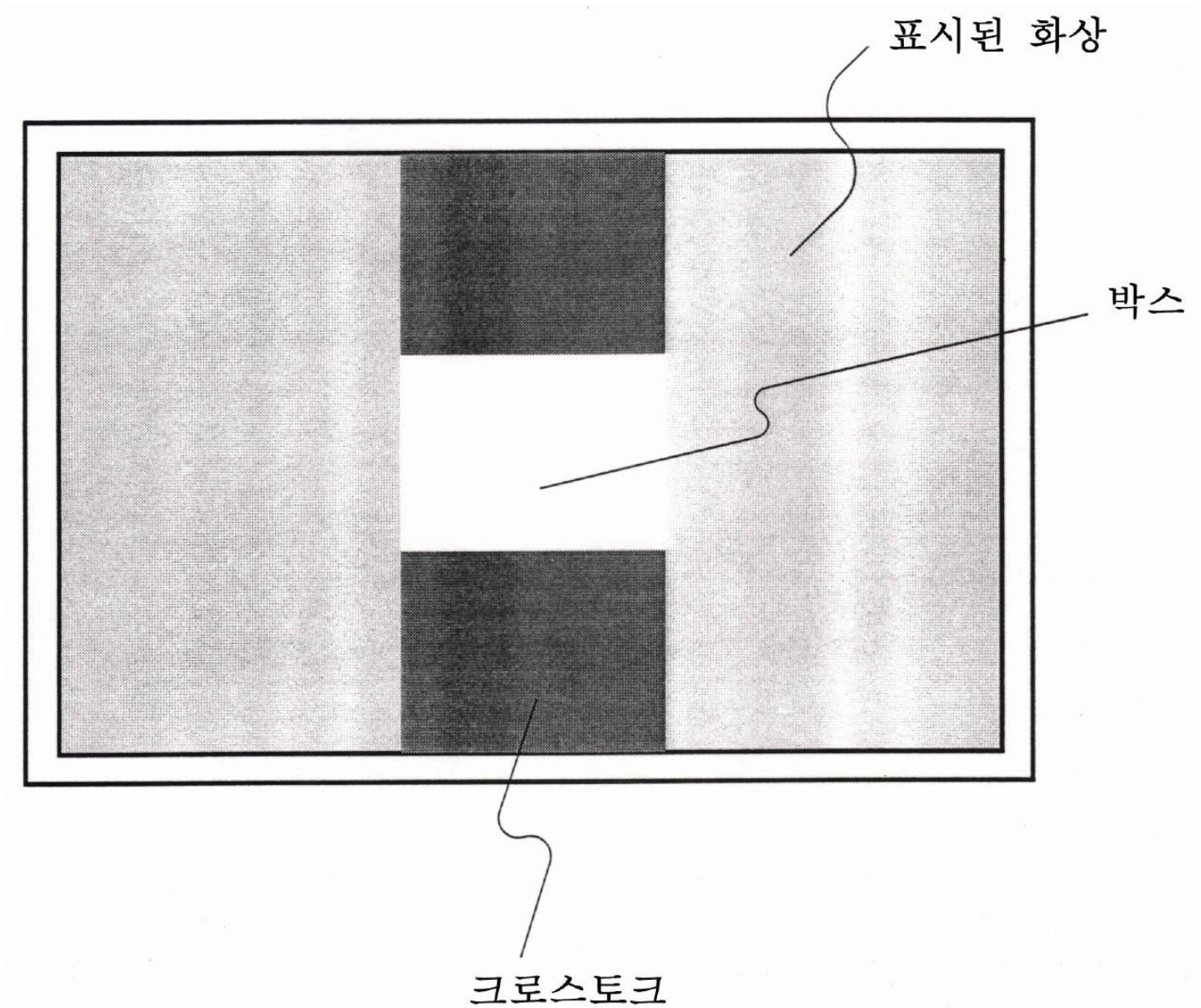
21b



22

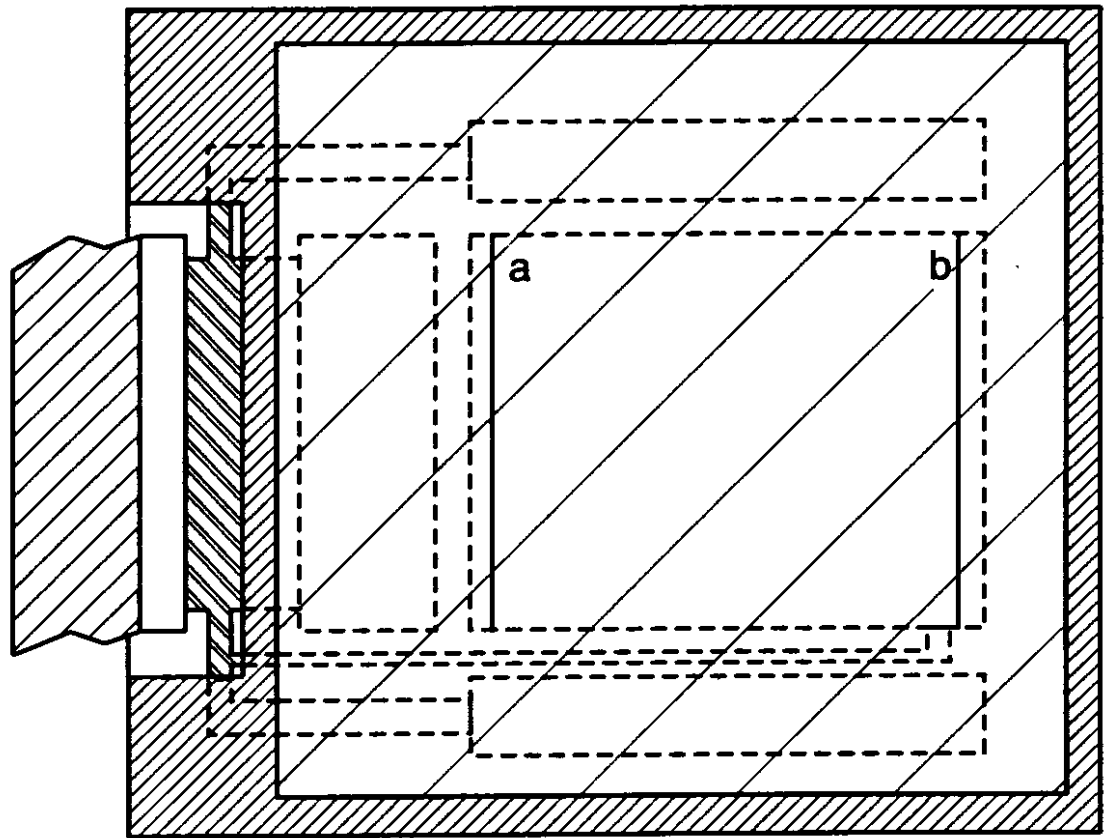


23

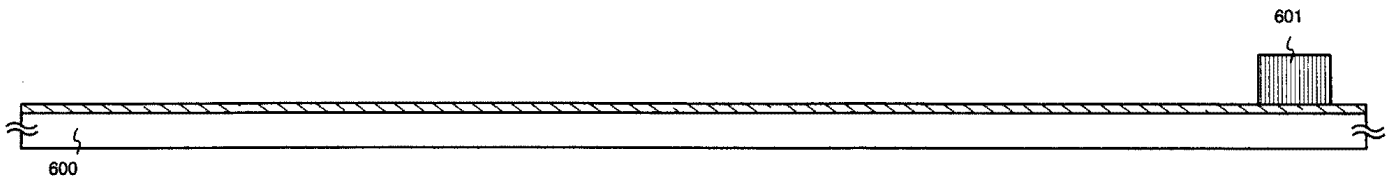


24

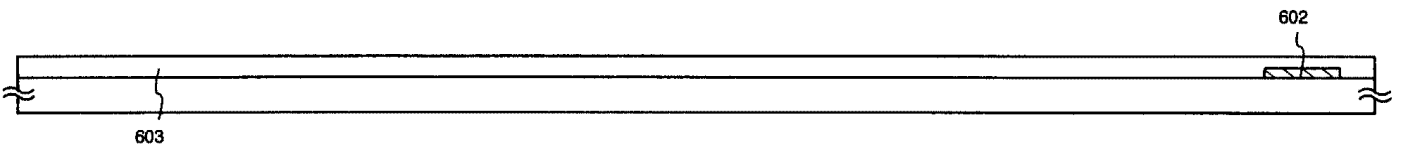
전원 공급
라인 입력부



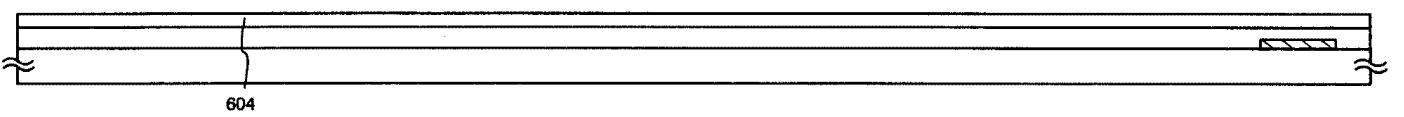
25a



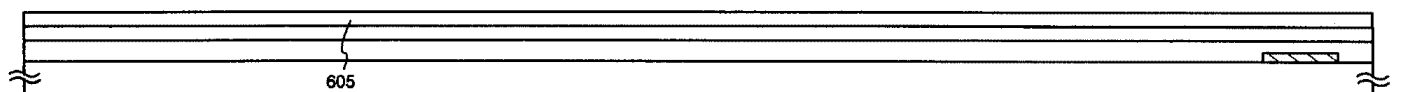
25b



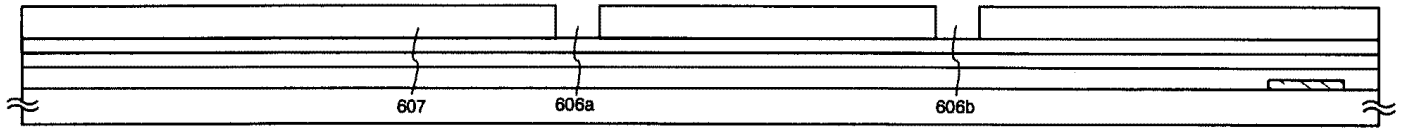
25c



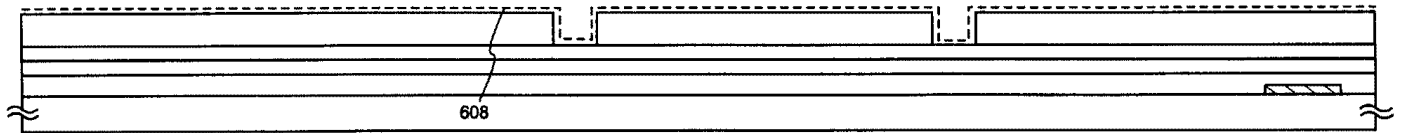
25d



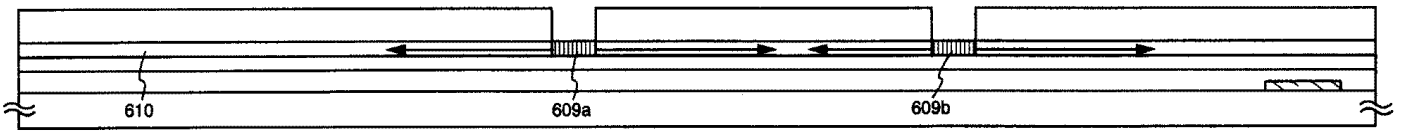
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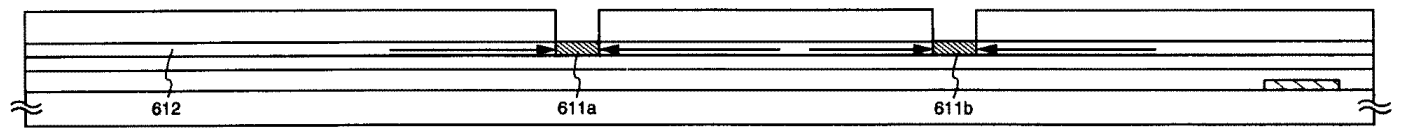
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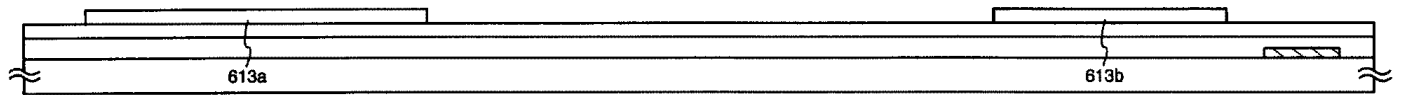
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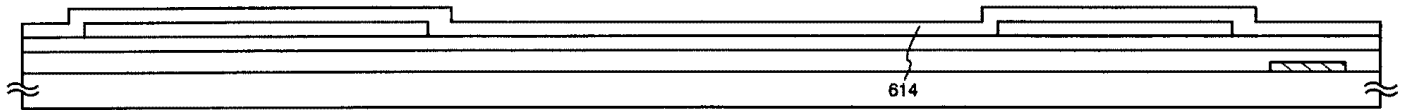
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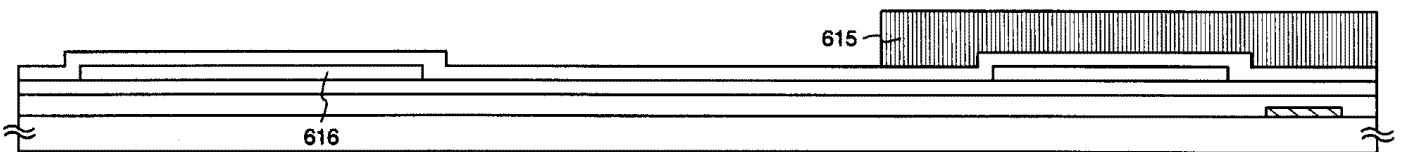
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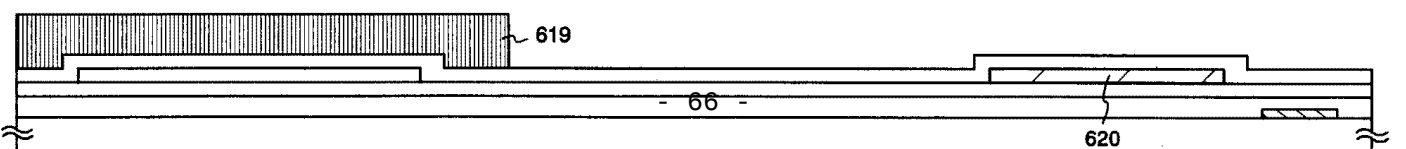
26e



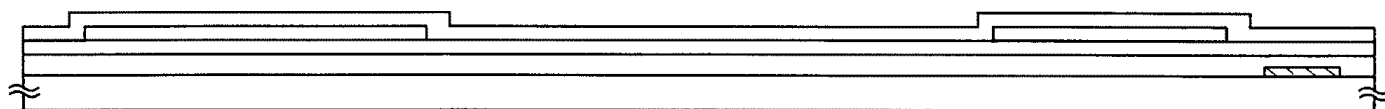
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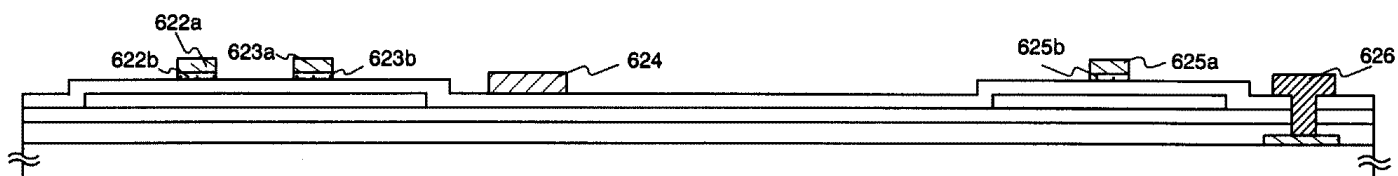
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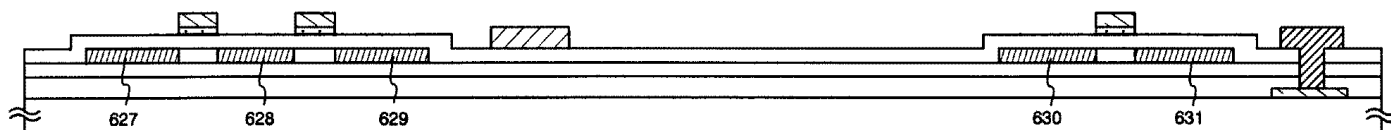
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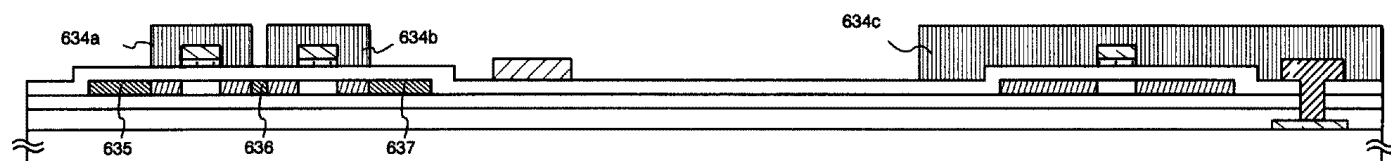
27d



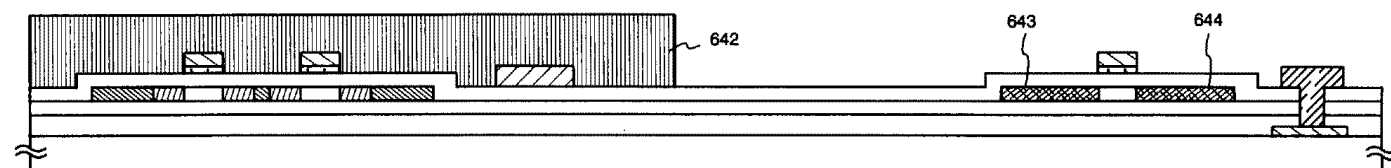
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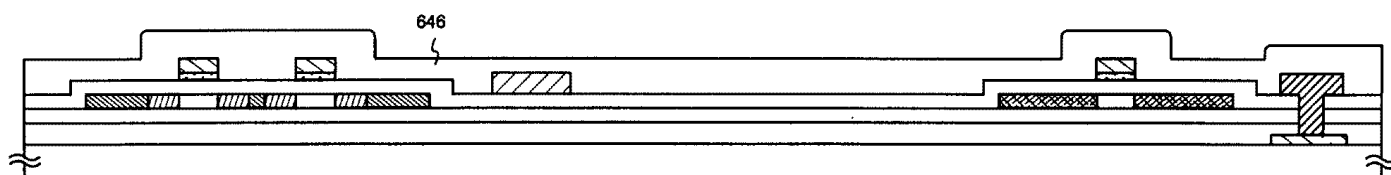
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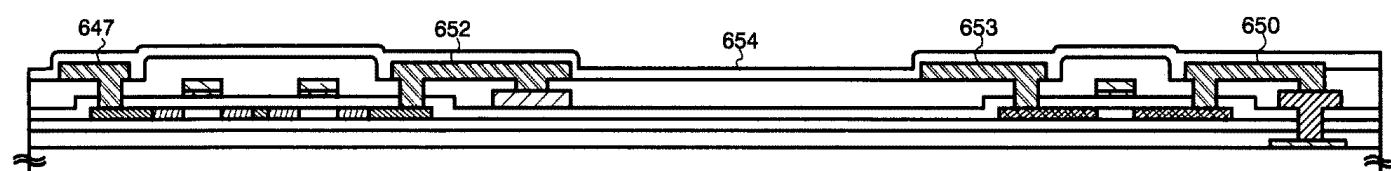
28c



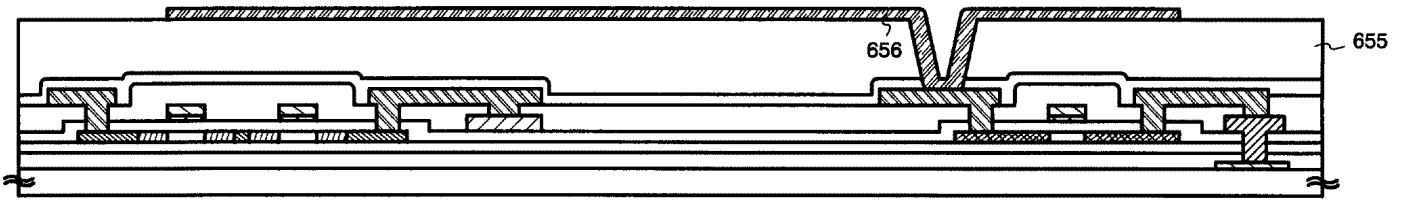
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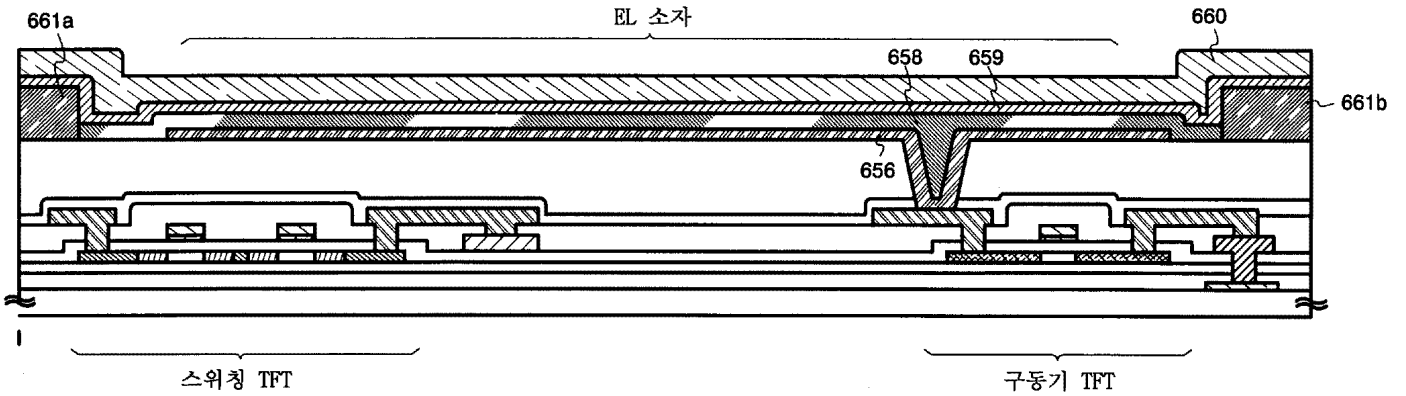
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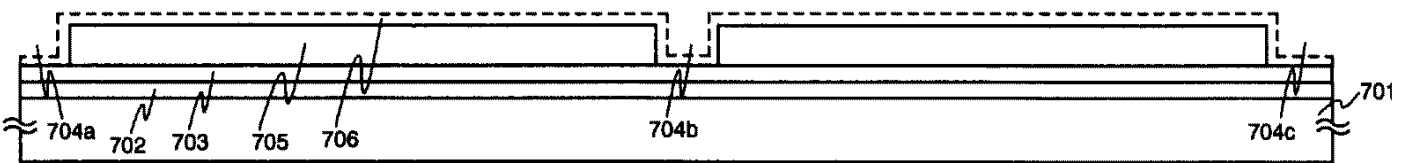
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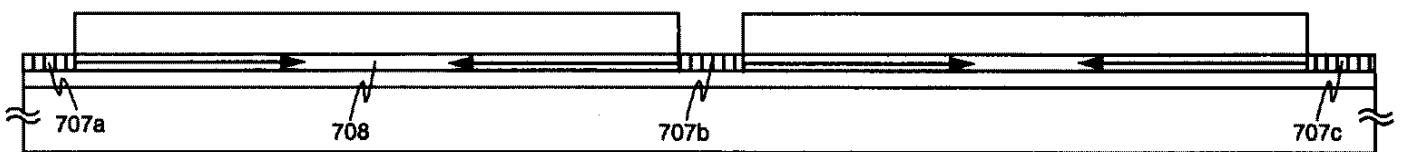
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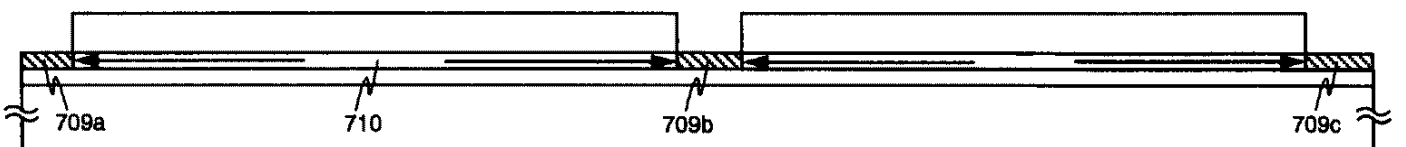
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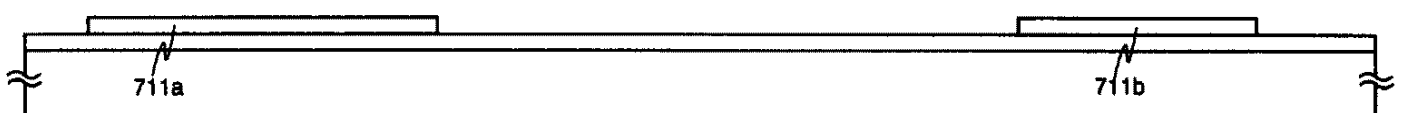
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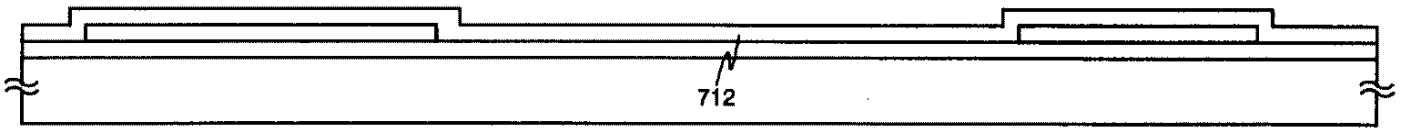
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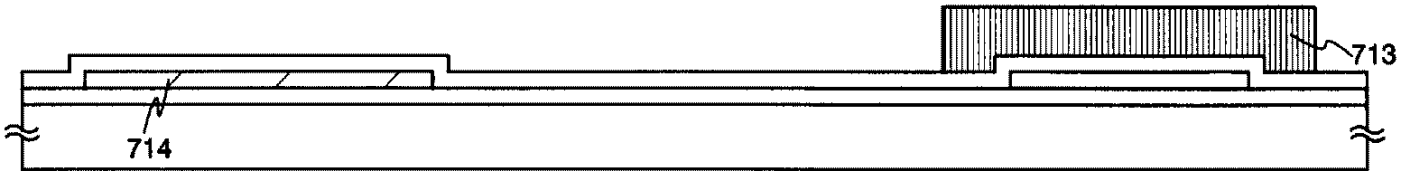
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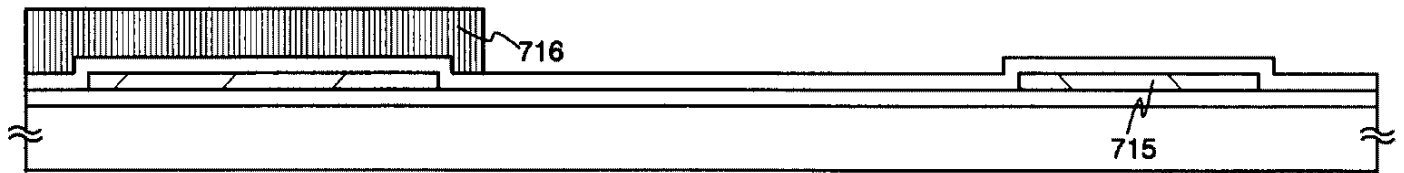
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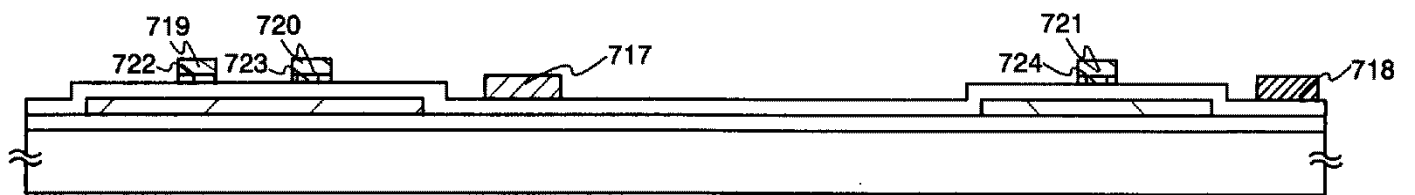
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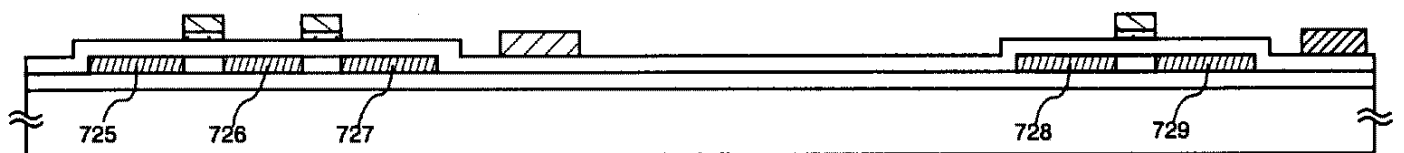
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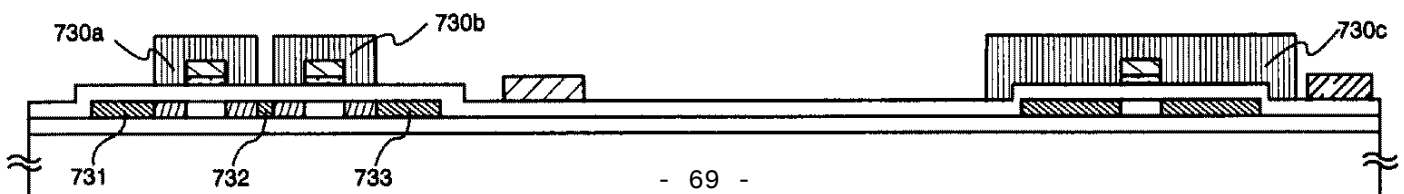
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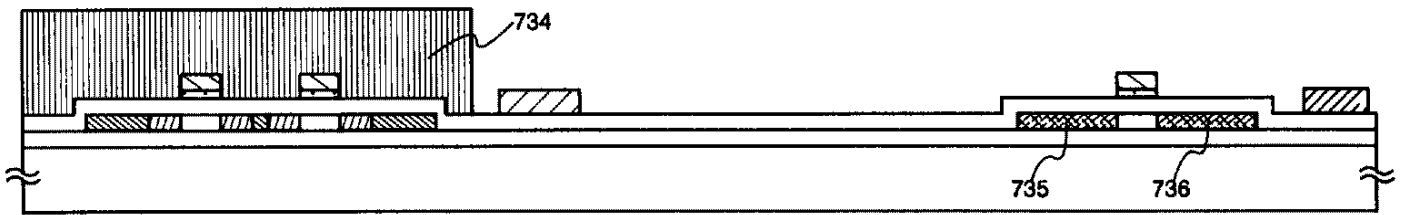
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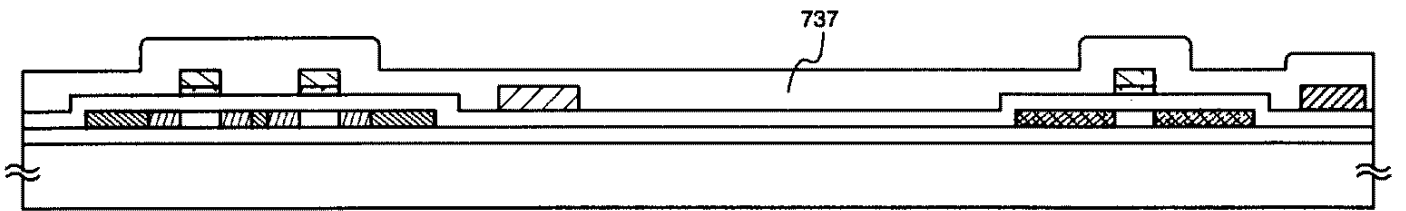
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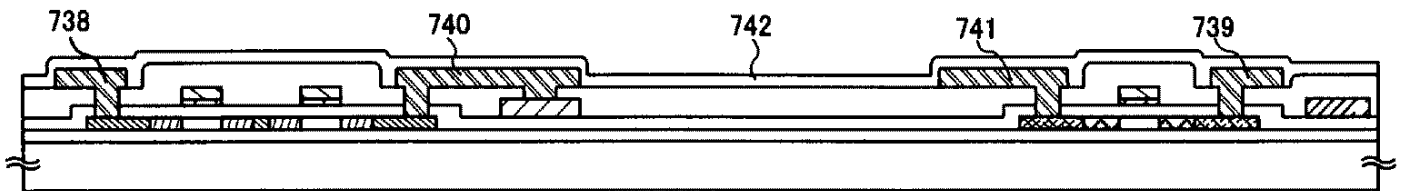
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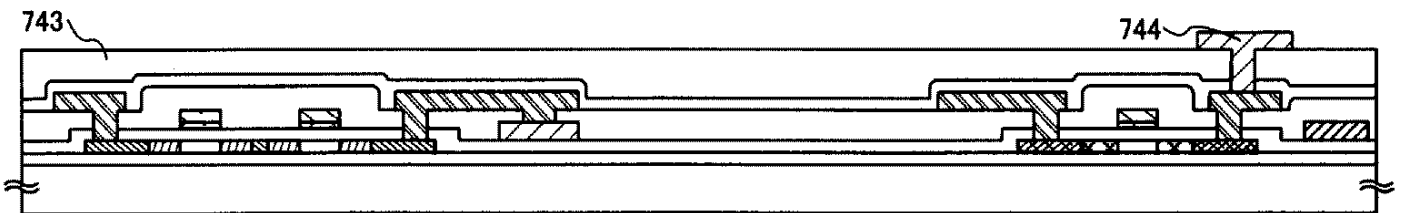
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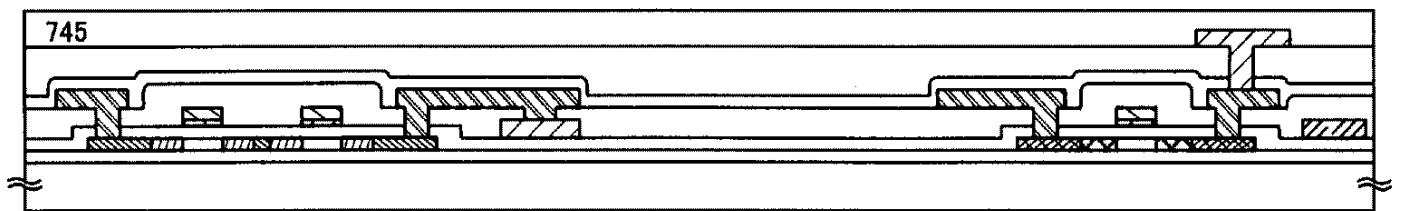
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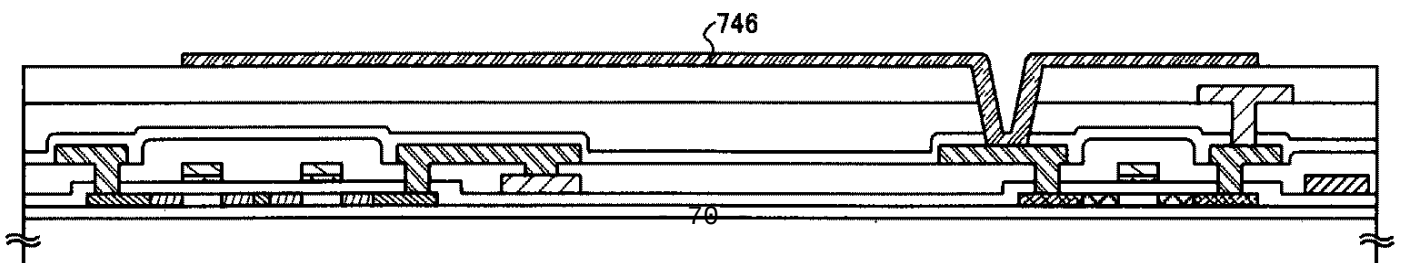
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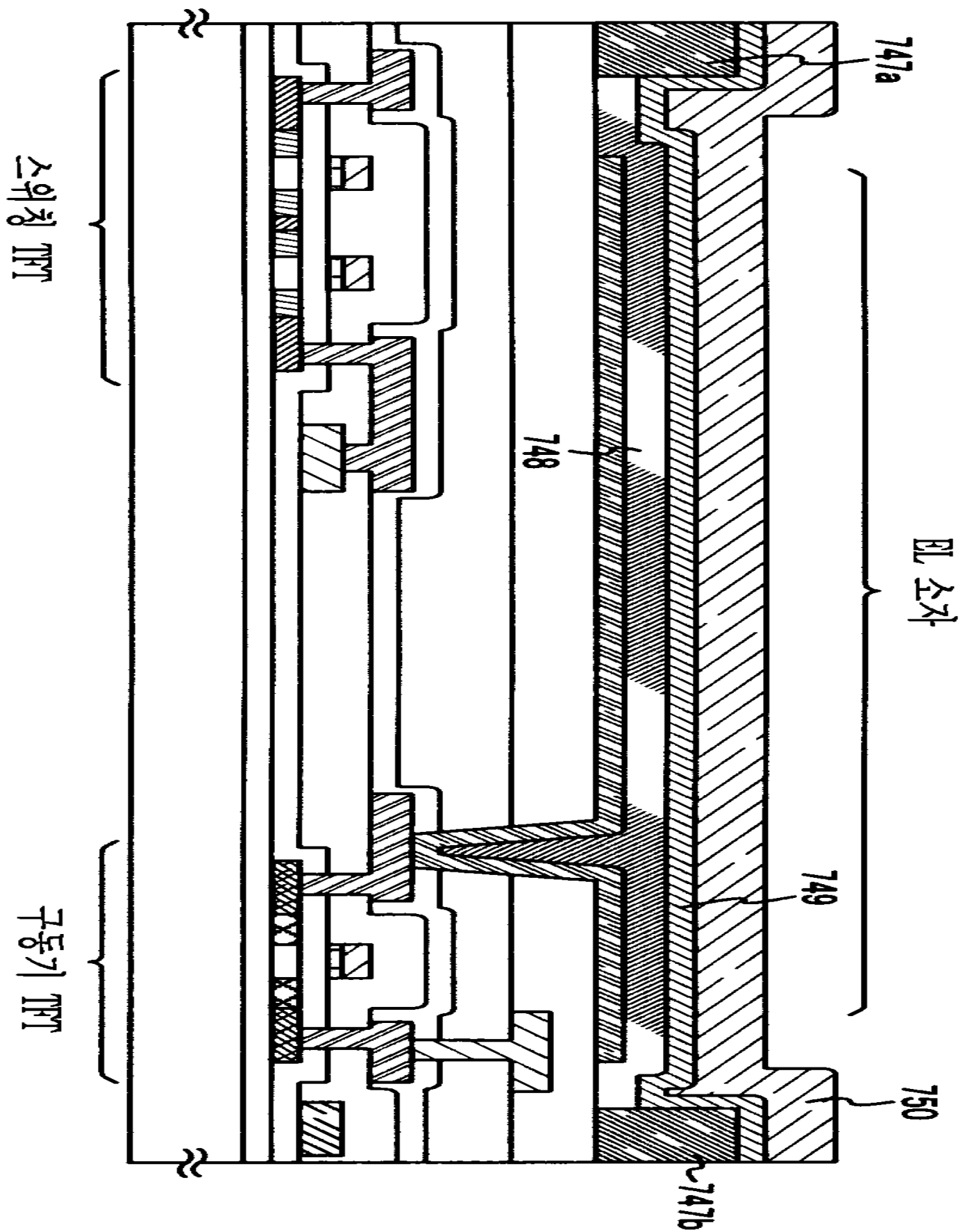


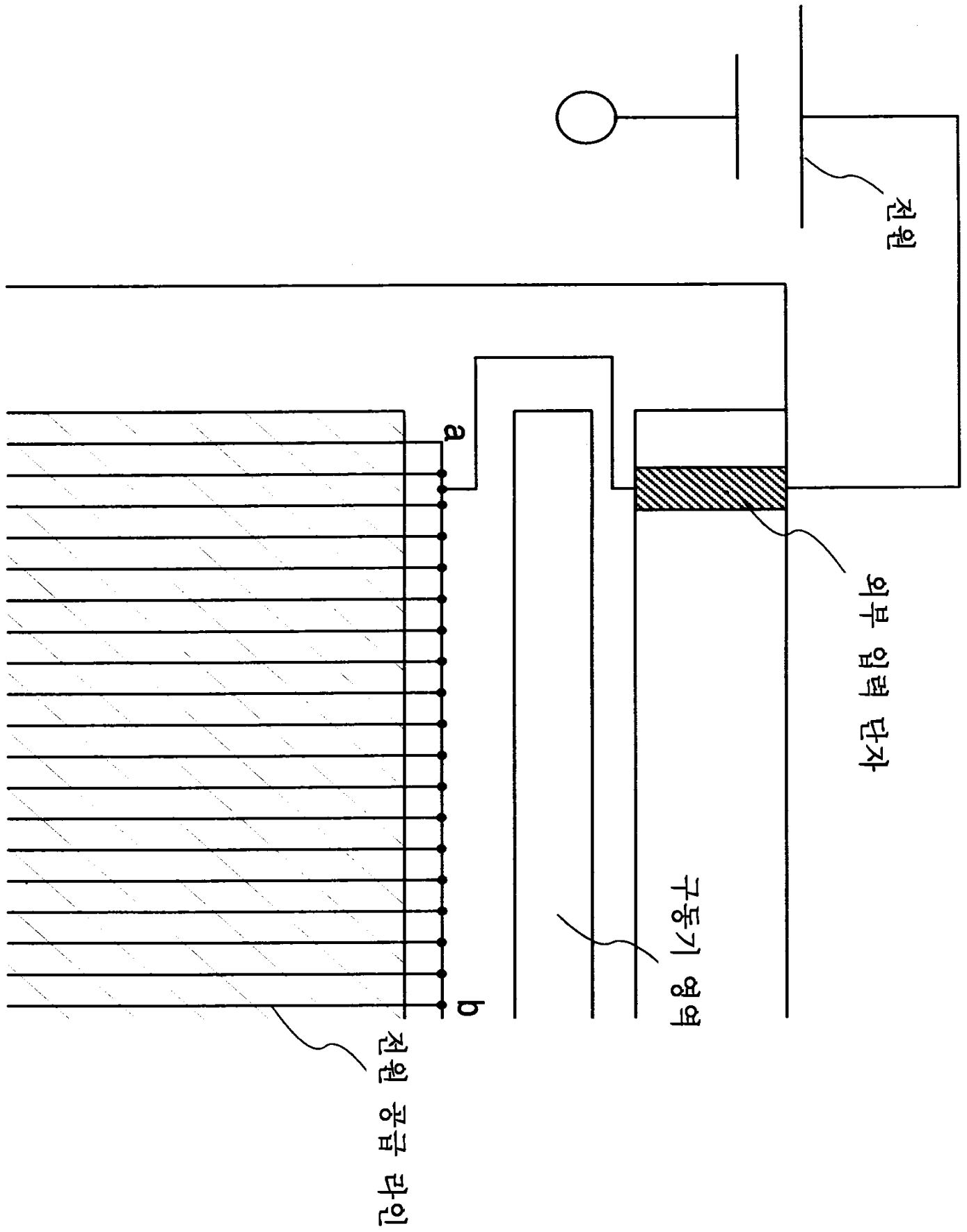
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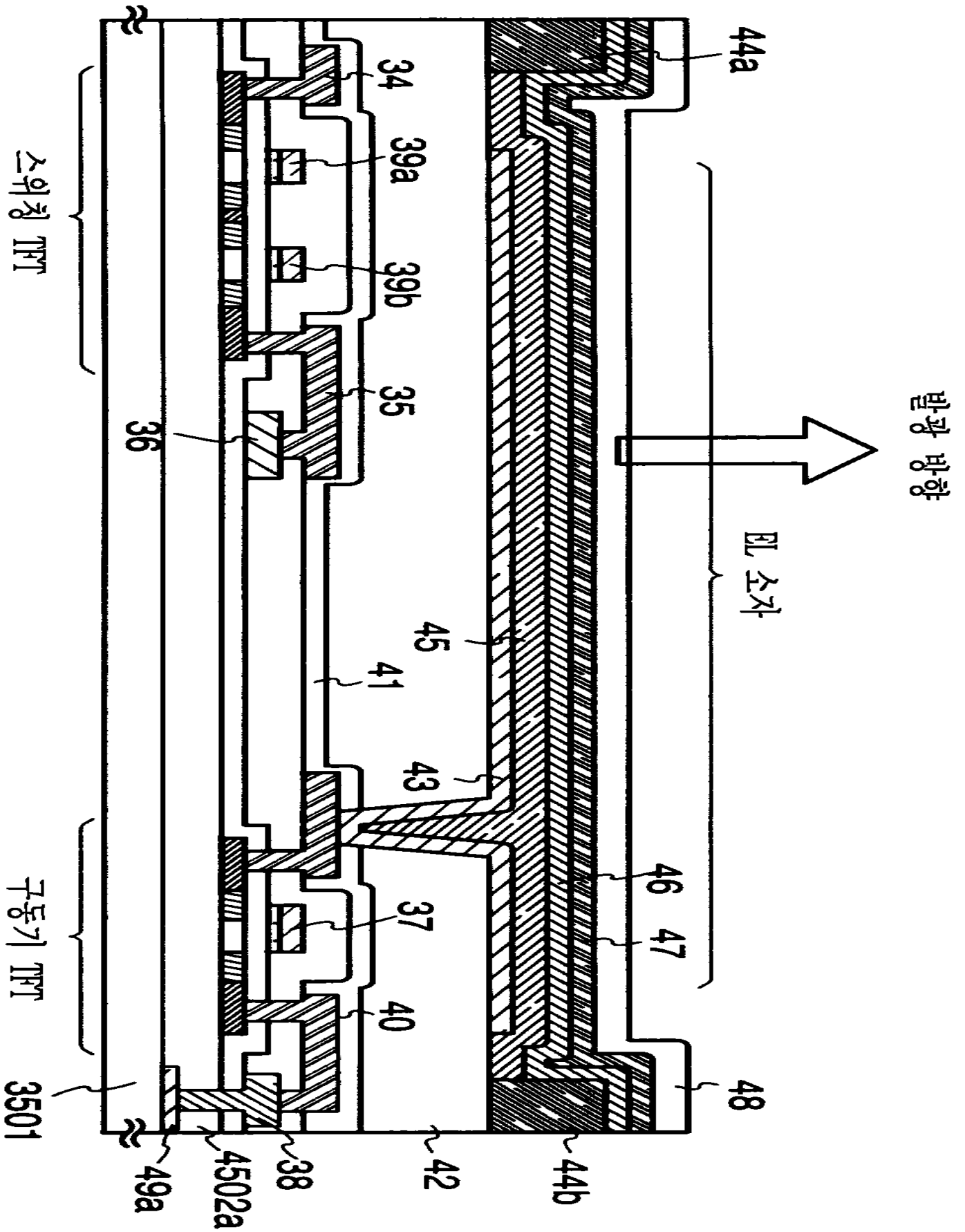
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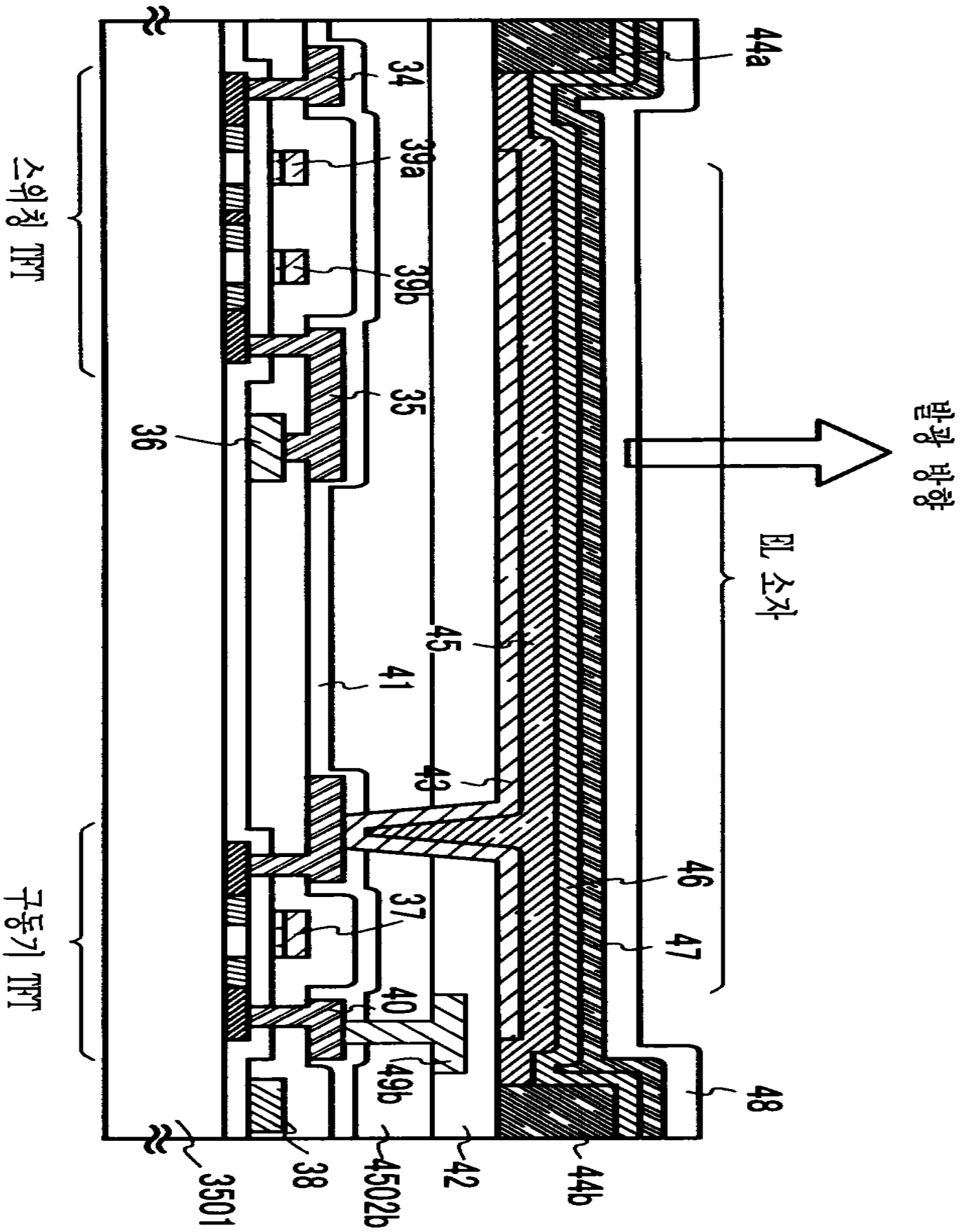




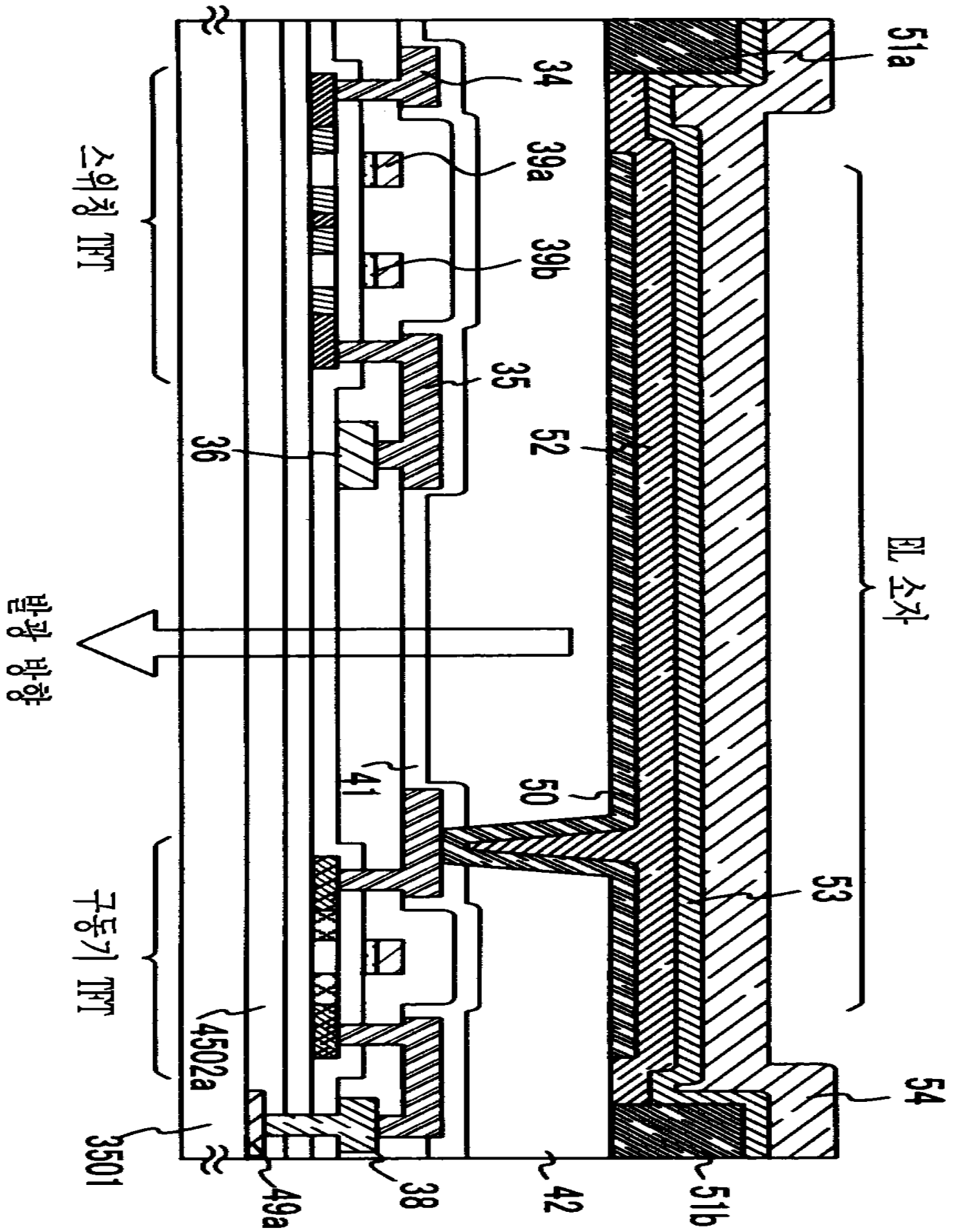
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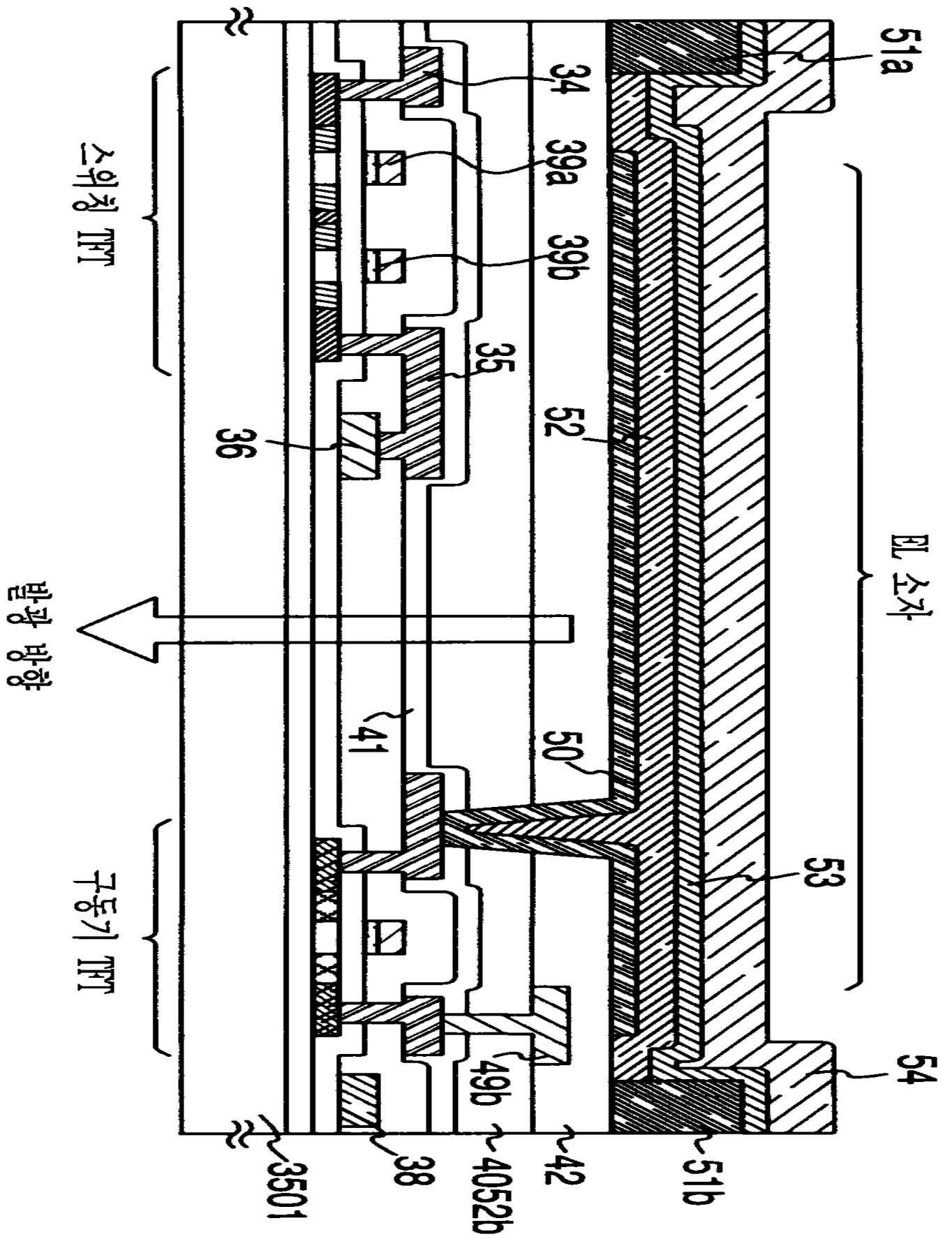
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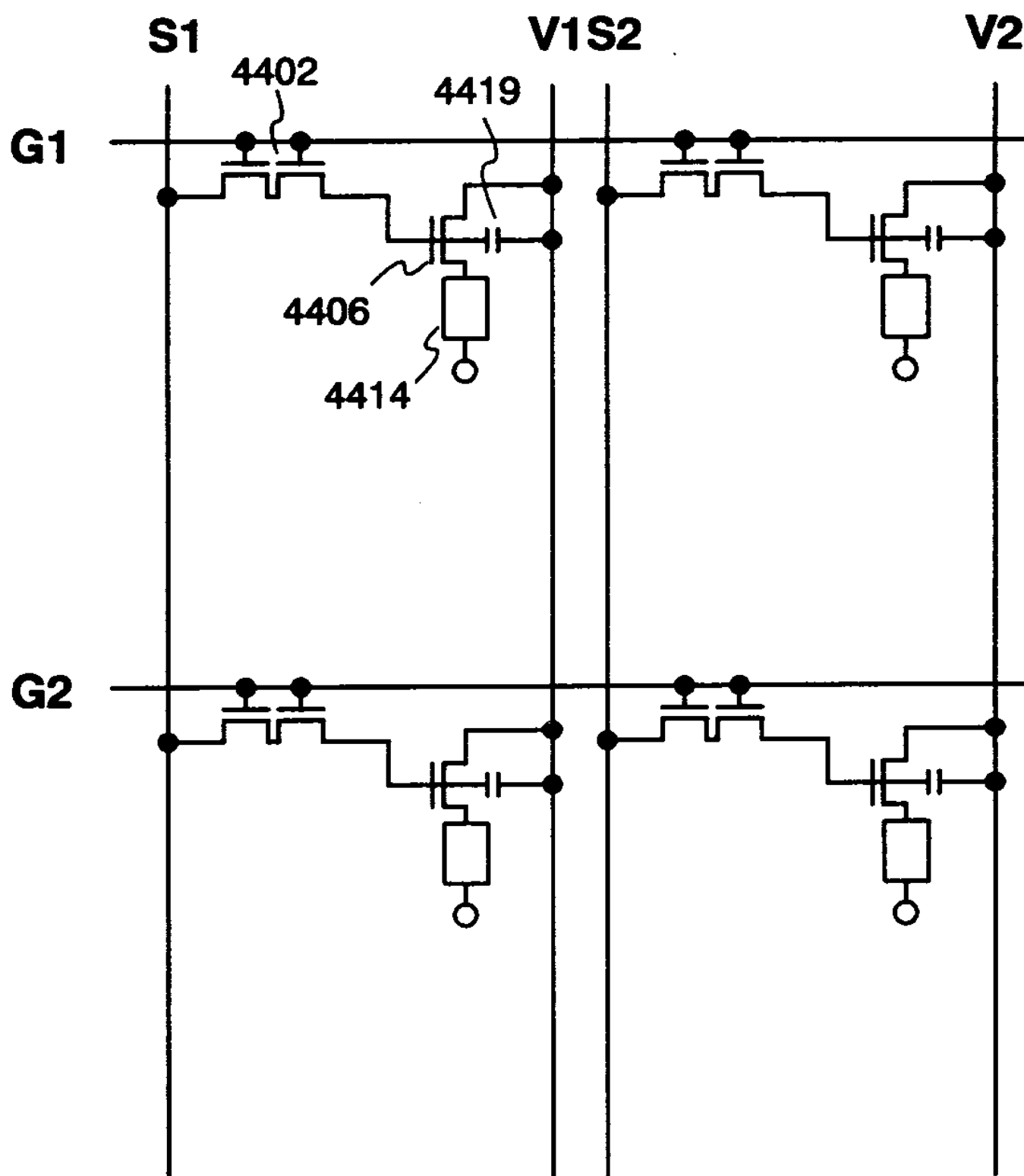
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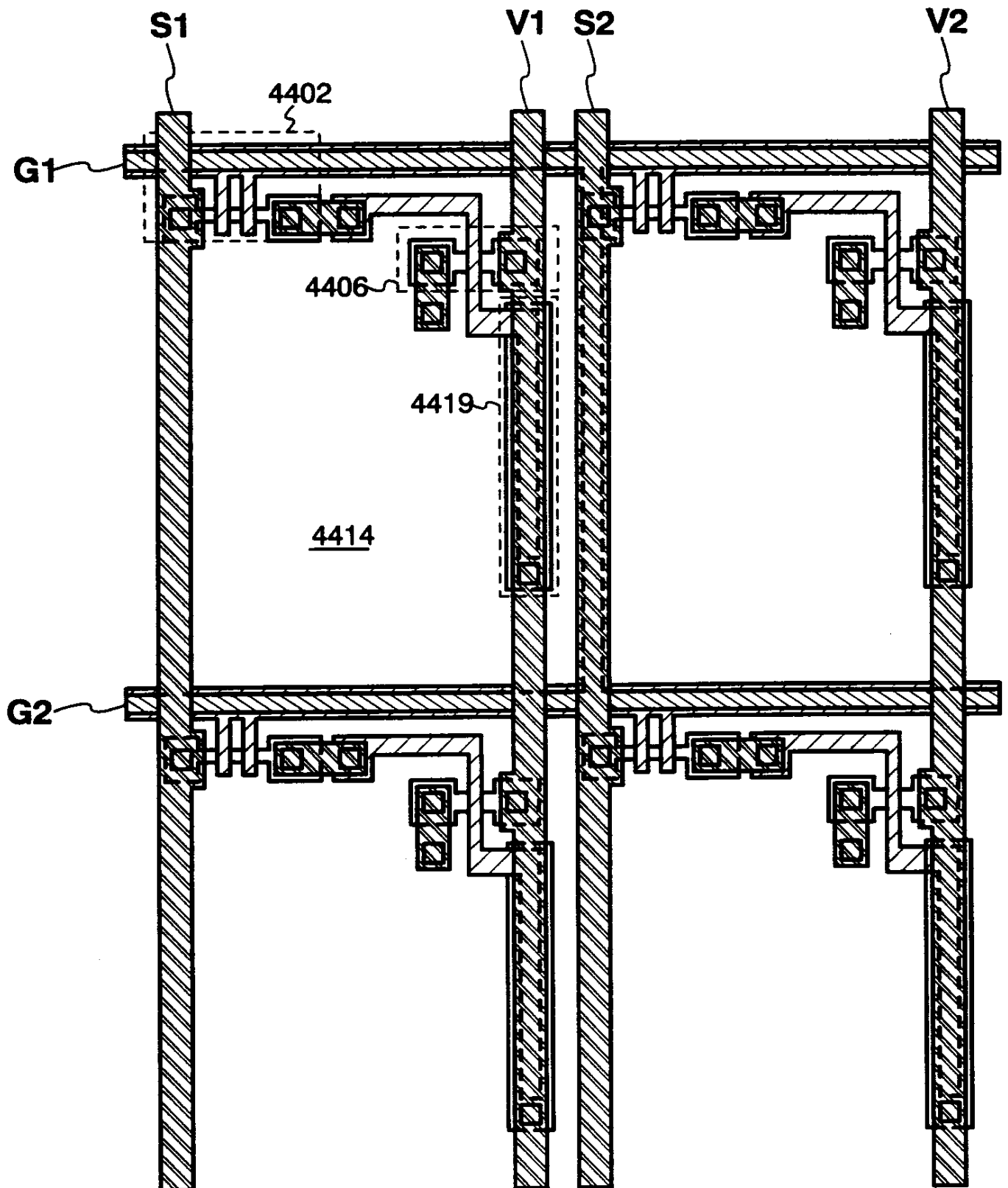
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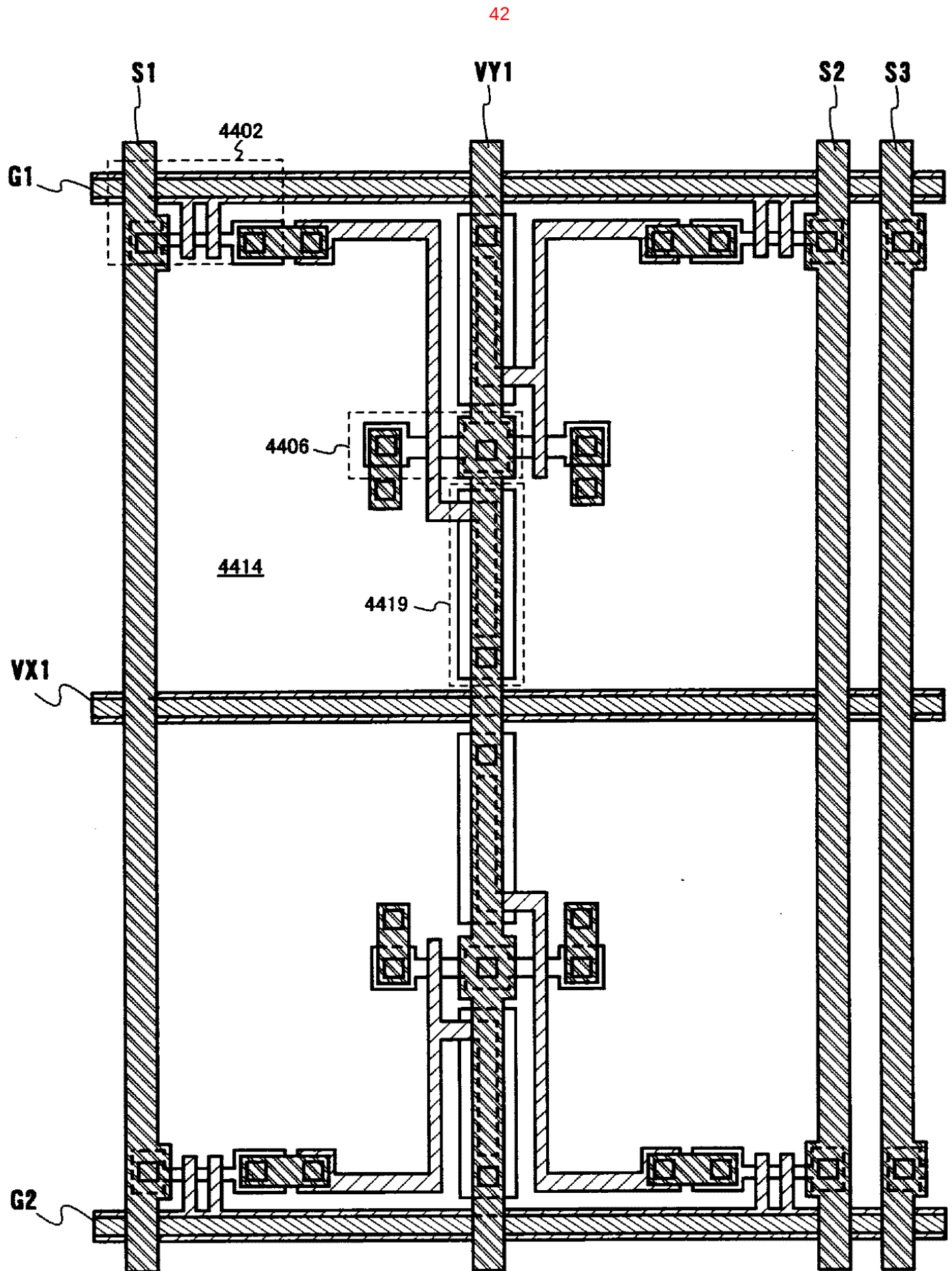


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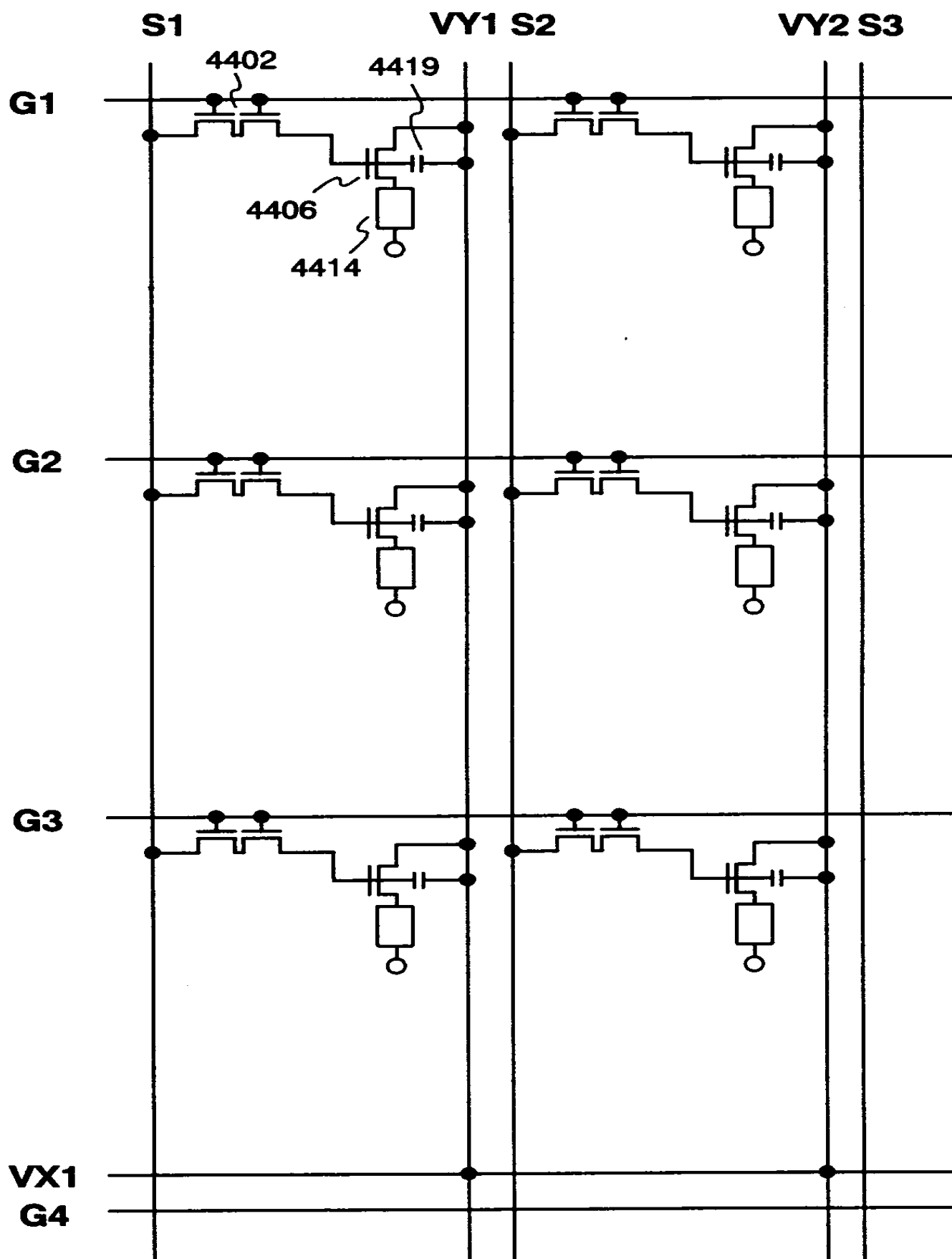


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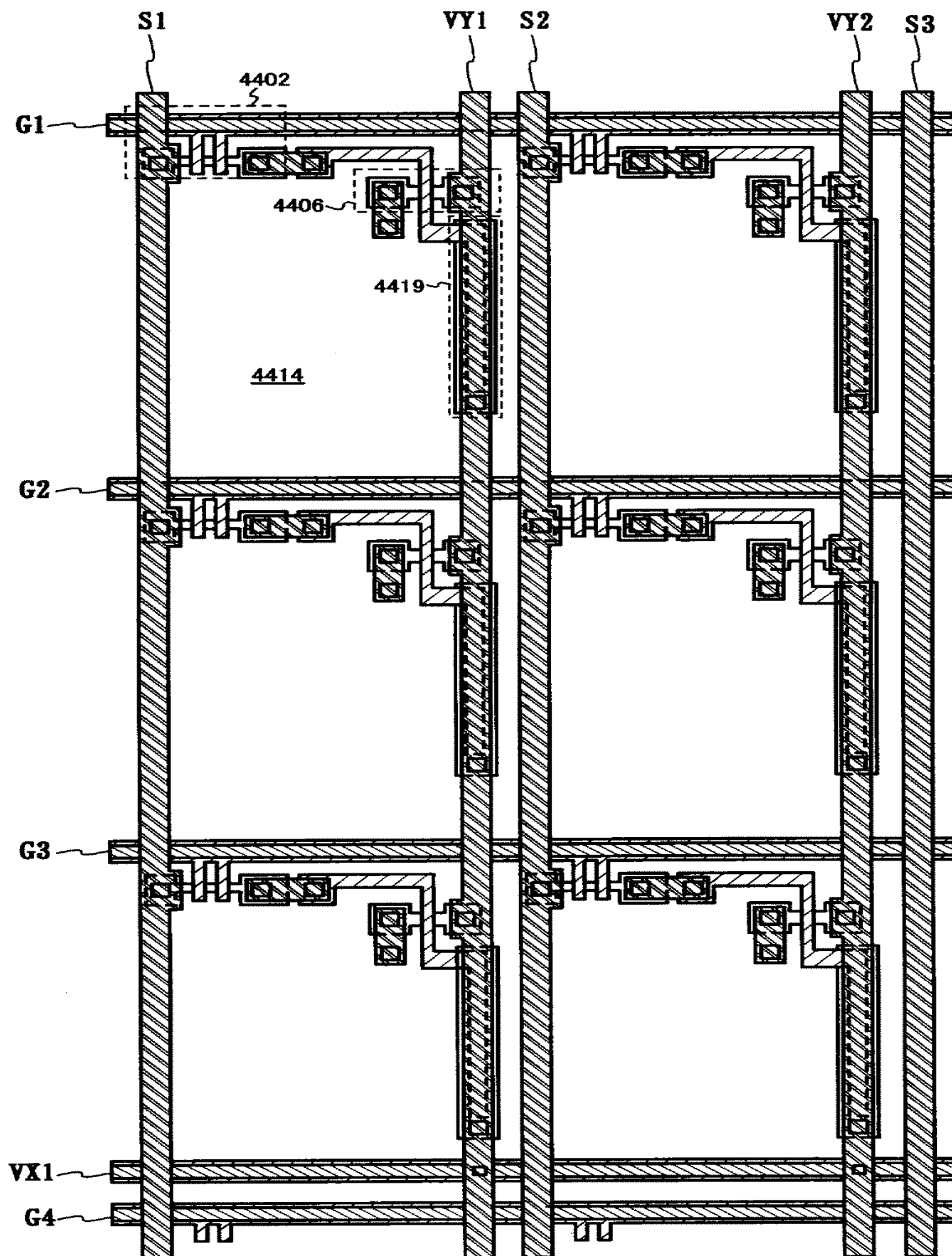




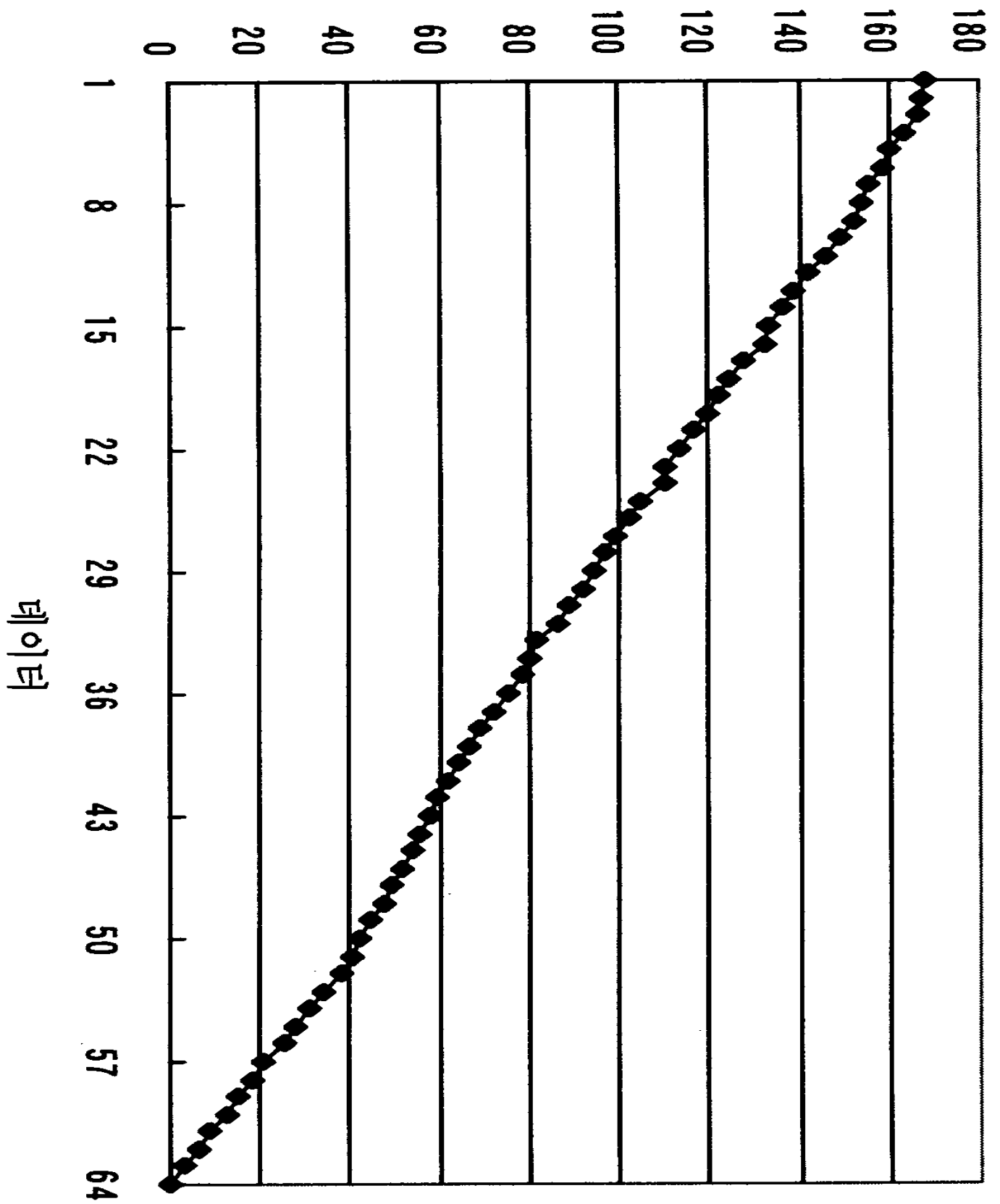
43



44



45

휘도 (cd/m²)

专利名称(译)	显示设备		
公开(公告)号	KR1020010104293A	公开(公告)日	2001-11-24
申请号	KR1020010025973	申请日	2001-05-12
[标]申请(专利权)人(译)	株式会社半导体能源研究所		
申请(专利权)人(译)	株式会社绒布器肯kyusyo极限戴哦		
当前申请(专利权)人(译)	株式会社绒布器肯kyusyo极限戴哦		
[标]发明人	KOYAMA JUN 코야마준 KIMURA HAJIME 기무라하지메		
发明人	코야마,준 기무라하지메		
IPC分类号	G09G3/32 H01L27/32 G09G3/30		
CPC分类号	G09G3/3225 G09G3/3233 G09G3/3275 G09G2300/0417 G09G2300/0426 G09G2300/0465 G09G2300/0842 G09G2320/0209 G09G2320/0214 G09G2320/0223 G09G2320/0233 G09G2320/029 G09G2330/02 G09G2330/028 H01L27/124 H01L27/3244 H01L27/3276 H01L29/78621 H01L29/78627		
代理人(译)	李, 何炳 李昌勋		
优先权	2000140513 2000-05-12 JP		
其他公开文献	KR100802966B1		
外部链接	Espacenet		

摘要(译)

为了减小显示区域的不平衡愤怒，有源矩阵EL显示装置用于指示清晰的多灰度彩色显示，以减少由于布线电阻引起的电位下降引起的电位变化。提供电源线。设置电源线的多个提取端子。此外，关于像素部分电源线和外部输入端子之间的布线电阻，通过将电位提供给电源线，由反馈放大器执行电位补偿。此外，除了上述配置之外，电源线可以布置为矩阵的形式。显示装置，电源线，源极信号线，栅极信号线，薄膜晶体管。

