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(71) 가 가  
가 가  
가 4 6

(72) 5 - 15  
1 - 5 - 1

(74)

:

(54)

가 IPS  
) , IPS  
, ( )  
, 가 1  
1 , 가 2  
1 , 가 1

1

1

1

2

1

3 1 A - A'

4 1 B - B' (TFT)

5 1 C - C' (Cstg)

6 1 D - D' (ST)

7

8 (GTM) (GL)

9 (DTM) (DL)

10 (CTM1), (CB2) (CL)

11 (CTM2), (CB2) (CL)

12

13

14 (SUB1) A C

15 (SUB1) (D E)

16 (SUB1) (F)

17

18 (CH1)가 (TCP)

19 (TCP) (PNL) (GTM)

20			.		
21	1			.	
22			.		1 .
23	22	D - D'	(ST)	.	
24			.		1 .
25	24	D - D'	(ST)	.	
26			.		1 .
27			.		1 .
28	26	D - D'	(ST)	(Cadd)	.
29			.		1 .
30			.		1 .
31			.		1 .
32			.		1 .
33			.		1 .
34			.		1 .
35			.		1 .
36			.		1 .
37			.		1 .
38			.		1 .
39			.		1 .
40			.		1 .
41			.		1 .
42			.		1 .
43			.		1 .
44	43	E - E'	(ST)	.	

45	.	(	)
(ST)	.		
46	.	1	.
47	46 F - F'	(ST)	.
48	.	1	.
49	.	1	.
50	.	1	.
51	.	1	.
52	.	1	.
53	.	1	.
54	.	1	.
55	.	1	.
56	.	1	.
57	.	1	.
58	.	1	.
59	.	1	.
60	.	1	.
61	.	1	.
62	1	.	.
63	.	.	.
64	.	.	.
65	.	.	.
66	.	.	.
67	(ST)	.	.
68	(ST)	.	.
<	>		

CL : Cstg :  
CT,CT2,CT3 : DL :  
GL : PIXEL :  
PX,PX2,PX3 : SD1,SD2 :  
TH :

(TFT)

, OA

, 가

2 가

2

가

2

가

5 - 505247

63 - 21907,

6 - 1608

78, 9 - 15650,  
5,910, 271

7 - 225388,

7 - 306417,

5,754,266,

2,701,698,

가

5 - 165059,

5 - 323373,

5,334,859가

( , )

7 - 225388,

7 - 306417

가

7 - 306417

가

( )

가

(IPS : In - Plane Switching

mode)

( )

가



(CT,CT2) (PX) (CT2) (DL)  
 (CT,CT2) (PX) 가, (DL)  
 (CT2) (DL) ( )  
 (CT2) (CL) (PX) (DL)  
 (DL) 가 (PX) (DL)  
 (Vs) ( )

(PX) 가 가 (CT)  
 CT) 5 μm 가 가 (PX) 5 μm, ( )  
 μm (PX) (CT) , 4 μm, 6 μm, 7 μm, 8

(DL) (PX) (CT)  
 (DL) 8 μm (CT) (DL) (CT2) 2  
 1/2 (DL) (DL) (CT2) (DL)  
 (CT2)

(DL) (4 μm ) (CT2)  
 (DL) (CT) 1/2

(CT2) (PX) 가 (CT2) (PX) (DL) 1  
 1/2 가 (CT2) (DL) , 10 μm 가  
 (PX) 1/2 (CT2) (CT,CT2)

(PX) (CT,CT2) 가  
 가 ( )

(PX), (CT,CT2), (DL)  
 가

(GL) (GTM) (GT)  
 가 (CB1) (CB2) 가 CB1 CB2 ) (GL) (CT) 가

(PX) (CT,CT2) (PX) (CT) ,  
 , , , ( ) ,  
 , , 가 , ,  
 , ( ) , ,  
 , K<sub>22</sub> 99 μm , 13.5 μm, (PX)  
 4 .

가 ,가 , 1 (ST) (ST) , ,  
 ( ) (ST) , (TH) ,  
 (PX3) .

《 (ST) 》

(ST) , , ( )  
 .  
 62 , 1 62 (PSV) , , 가  
 , (PSV) , ,

가 , 가 , 2 (PSV) , ,  
 , 1 , , 1 , ,  
 가 , .

(PSV) (GI) , ,  
 , 1 , ,  
 가 2 , 2 , ,

63, 64 . 63 , , 가 , ,  
 가 , , 가 , ,  
 , , 가 , ,  
 , ,

, 64 , 가 , 가 , , ,



T) , (GL) 가 (GT) (GL) , (G  
 (SD1), (SD2), (DL), (PX), (CT,CT2),  
 (CL) , (ST) ,  
 (PX) , (ST)

, (ST) ( ) , ITO, IZO  
 , ITO, IZO,  
 (ST) (ST)  
 (ST) (PSV) , 가

7 8 (ST) 1 (ST) 1 1 (ST)

《 ( ) 》

3 , 1 A - A' , 4 1 B - B' (TFT)  
 , 5 1 C - C' (Cstg) , 3 5 (LC)  
 (SUB1) (TFT), (Cstg)  
 (SUB2) (F1L), (BM)

(SUB1,SUB2) ( LC ) (ORI,  
 ORI2) , (SUB1, SUB2) ( )

, 6 , 1 D - D' (ST) , (PSV)  
 , (.ORI1) , 1011 ,  
 (ST) , (i1)(Indium - Zn - Oxide ITO: ) (ST)  
 , (PSV) , ITO가  
 , IZO(Indium - Zn - Oxide) 가 , Cr 가  
 ( ) , Al( )

, (ST) , 가 , 가 , 1, 6  
 (PSV) (TH) , (PX)  
 (PX3)

《TFT 》  
 , (SUB1) (TFT )



《i (AS)》

i (AS) , , 100 3000 ( , 1200 )  
 (d0) (P) n(+) i (AS)  
 , (d3)

i (AS) (d0) , (GL) (CL) (DL) ( )  
 i (AS) (GL)  
 (CL) (DL)

, i (AS) , , 가 ,

《 (SD1), (SD2)》

(SD1), (SD2) , n(+) (d0) (d3)

(d3) - (Cr - Mo) , 500 3000 ( , 2000 )  
 . Cr - Mo  
 , Cr - Mo n(+) (d0) (d3) , Cr - Mo  
 (Cr, Mo, Ti, Ta, W) , (MoSi2, TiSi2, TaSi2, WSi2)  
 , , Al, Cu

(d3) (d3) , n(+) (d0) , i  
 (AS) n(+) (d0) (d3) n(  
 +) (d0) , i (AS)

, (BCE) , i (AS)  
 (CHP)

《 (DL)》

(DL) (SD1), (SD2) (d3) (D  
 L) (SD2) , (SD1), (SD2)  
 , Al, Cu

《 (PX)》

(PX) , (d3) , (SD2) (PX2, PX3)

《 (CT,CT2)》

(CT,CT2) (g3) , (CL)

DL) (CT) (Vcom) 가 (Vcom) ( )  
 가 (Vdmin) (Vdmax) ,  
 (TFT) Vs , 가 .

《 (CL) 》

(CL) (g3) (CL) (g3) (GT),  
 (GL) (CT) (g3) , (CT)  
 , (DL) (CL) (DL) (Vcom) (CT) ,

《 (Cstg) 》

(d3) , (TFT) (SD2) (CL) .  
 , 5 (PX) (PX3)(d3) (CL)  
 TFT) ( ) (Cstg) (Cstg) , (CL) (  
 (GI)  
 1 , (Ctg) (CL) .

《 (PSV1) 》

(TFT) (PVS1) (PSV1) (TFT)  
 (PSV1)  
 0.1 3 μm (CVD) , (PSV1) ,

(PSV1) , (DTM,GTM) (PSV1) (GI)  
 , (PSV1) (GI) , (gm)  
 가 , (TH) (TH) d3 , d3 (PX3) (ST)  
 , (TH) .

《 》

, 1, 2 가 , (SUB2) ( ) .

《 (BM) 》

(SUB2) , (PX) (CT) )  
 , (BM)( )  
 (BM) , i (AS) (BM) (GT) .  
 (TFT) i (AS) (BM)

1 (BMb) , (BM) , (BM) ,  
 (TFT)

1 1  
 가

(BM) 가 , (PX) (CT) , 1.2 μm

(BM) , (BM) i  
 (AS) , 2가

(BM) (BM) , (SL) , 1 , PC

(BM) (SUB2) 0.3 1.0 mm , (SUB2)

《 (FIL) 》

(FIL) , (FIL) (BM)

(FIL) (SUB2) , ( , , )

《 (OC) 》

(OC) (FIL) 가 (LC) , (FIL), (BM)  
 (OC) ,

《 》

《 》

(LC) , 13.2, n · d가 0.075(589nm, 20 )

( ) , 3.9 μm , n · d 0.285 , n · d  
 , 가 45° , ( ) ,  
 , 가 (LC) , n ,  
 ( ) , 0.25 0.32 가 , ,  
 《 》  
 R) (ORI) , 75° , 21 (RDR) , 가 (ED  
 , (RDR) 가 (EDR) , 45 9  
 0 , , 0° 45° .  
 《 》  
 (POL) , (POL1) (MAX1) (RDR) ,  
 (POL2) (MAX2) , 21  
 가 ( (PX) (CT,CT2) ) 가 ,  
 ( ) , , 가 가가 .  
 《 》  
 7 (SUB1, SUB2) (PSL) (AR)  
 , 1 가 가  
 , (SUB1, SUB2) , LN 가 7  
 , (Tg, Td) (CTM)( )가 ( 7 )  
 (SUB2) 가 (SUB1) (Tg,  
 Td) (GTM), (DTM)  
 (CHI) (TCP)( 18, 19) .  
 (PNL) (DTM, GTM) , (CTM) (TCP) (CT1, CT2)  
 (CL) (CL) ,  
 (GTM) ( 7 ) , (CB1, CB2)  
 , (CTM)  
 , (CTM) (Tg, Td) , 2 ,  
 , 2 , 1 , 2 ,

, TCP , (IC) (COG, FCA )

(SUB1, SUB2) 가 (INJ) , (LC)  
(SL)

(OP11, OR12) , (SL) (POL1, POL2) (SUB  
1), (SUB2) (LC) ( (OR11)  
OR11) (OR12) (SL) (OR11)  
(SUB1) (PVS1)

(SUB1) , (SUB2)  
(SL) (SUB2) (SUB1) (SUB2) , (SL)  
(INJ) (LC) , (INJ)

(INJ) (GTM)  
(DTM) , 1 가 2

《 》

8 (GL) (GTM) , (A)  
, (B) (A) B - B' , 8 7  
. Cr - Mo (g3) ,

(GTM) Cr - Mo (g3) , , TCP(Tape Carrier Packete)  
(il) (il) (ST)

(ITO)

(GI) (PVS1) 가 8 , (GL) (GTM)  
(OR11) (SHg)( ) (Tg)( 7)

《 (DTM) 》

9 (DL) (DTM) , (A)  
(B) (A) B - B' , 9 7  
(SUB1)

TSTd , 가  
(DTM) (DTM) , 7 (Td)( )  
(SUB1) (TSTd) , 9 1 (DL) 가 (SHd)(

O) (DTM) (ii) (il) (GTM) (PSV1) (DL) (IT (d3)

《 (CTM) 》

10 (CL) (CTM) , (A) , (B)  
 (A) B - B' . , 10 7 .

(CB1) (CL) (CB1) 1 (CTM) 가  
 (g3) (3) , (il) (CL)

가 (CTM) , (g3) (il) (il)  
 (PX) (ITO) (il) ,  
 (il) (g3) (d3) (PSV1) (GI) (g3) . ,

, 11 (CL) (CM2) ,  
 (A) , (B) (A) B - B' , 11 7 .  
 (CB2) (CL) ( (GTM) ) 1  
 (CTM2) . (CB1) (GL)  
 (d3) (il) , (GL) (GI)

《 가 》

가 12 . 12 , X  
 (DL) , AR 2 가 . Y (GL)  
 , G, B R ,  
 1, 2, 3, ..., end 가 .

( ) (V) , (X)( ) (H)  
 . SUP 1 ( )  
 ) CRT( ) TFT .

《 》

13 . (Vc) 가 . (Vg) 1  
 , 1 , 1 가 . 가 2  
 , 2 , 가 (Vd) 1 ,

, ( ) . , (Vc)  
 , 가  
 , 가 ( 가 가 , , ,  
 ). , 가  
 , ( )  
 가 .

《 (Cstg) 》

(Cstg) , ( (TFT)가 ) , 가  
 , ( ) , (Cstg)가  
 , 가 (Cstg)

, (Cstg) , (TFT)가 , (Vs) Vg  
 .

$$Vs = \{ Cgs / (Cgs + Cstg + Cpix) \} \times Vg$$

, Cgs (TFT) (GT) (SD1) , Cpix  
 (PX) (CT,CT2) Vs Vg  
 , Vs (LC) 가 , (Cstg)  
 , (LC) 가 , (LC) ,

(SD2) , (GT) i , (AS) , (SD1),  
 (Vg) , (Cgs) , (Vs) ( )  
 , (Cstg) ,

《 》

, (SUB1) 14 16 .  
 , 가 3 . B, D (TFT) , 8  
 , 가 A I

A, 14

AN635 ( ) (SUB1) 가 2000 Cr - Mo  
 (g3) (GT), (GL), (CL),  
 (GTM), (CB1) 1 , (CTM1) 1 , (GTM)  
 (SHg)( ) .

B, 14

(CVD) 가 , 가 , 가 , 가 3500 Si ,  
 (CVD) 가 , 가 , 가 , 가 1200 i Si , (C  
 VD) 가 , 가 , 가 300 N(+) Si .

C, 14

, 가 SF6, CC14 N(+) Si , i Si  
 , i (AS) .

D, 15

가 300 Cr (d3) , (d3) A  
 (DL), (SD1), (SD2), (CB2) 1 ,  
 (DTM) (SHd)( ) , CC14, SF6  
 , N(+) Si , N(+) (d0)

E, 15

(CVD) 가 , 가 , 가 , 가 0.4 μm Si .  
 (GI) 가 SF6 Si , (PSV1)

F, 16

가 1400 ITO (il) , (GTM) ,  
 (DTM) (CTM1) (il) (CTM2) 2 .

《 (PNL) (PCB1) 》

17 , 7 (PNL) (H) (V)

CHI (PNL) IC ( 5 IC , 10 (TAB)  
 IC ) . TCP 18, 19 IC (CHI)  
 , PCB1 TCP ,  
 2가 . FGP (SHD)  
 . FC (PCB1) (PCB1)  
 (FC) , ( Sn 가  
 )

《TCP》

18 (V) (H) (CHI)  
 (TCP) , 19  
 (GTM)  
 , TTB (CHI) , TTM (CHI)  
 , Cu ( ) (CHI) (PAD)가  
 (TTB,TTM) ( ) (CHI)  
 CRT/TFT (SUP) , (ACF)  
 (PNL) (TCP) 가 (PNL) (GTM) (PSV1)  
 (GTM(DTM)) (PSV1) (TCP)

BF1 , SRS  
 (SL) (EPX)  
 (TCP) (SUB2) (SIL) 가  
 《 (PCB2)》  
 (PCB2) , IC, (PCB2) , 1  
 ) TFT ( ) CRT(  
 가 (SUP)가 . CJ  
 (FC) (PCB1) (PCB2)

《》

20 (MDL)  
 SHD ( ) , LCW , PNL , SPB  
 , LCB , RM 가 , BL (MDL) , LCA  
 (MDL) , (SHD) ( ) 가  
 (LCA) (BL), (SPB), (LCB), (RM)  
 (LCB) (BL) (LCB), (RM), (SPB)  
 (PNL)  
 (BL) (PCB3) , (BL)  
 (ST)  
 , IPS TFT - LCD , ( )  
 ) (ST) ( )

) , (PX, PX2, PX3), (SD1) , (CT, CT2), (CL)  
 , 가 .

, , , , 가 ,  
 ( ) , .

( 2)

, , 1 .

22 1 23 , 22 D - D'  
 (ST) , (TH) , (CT3) .

, , , 가  
 (ST) , 가 ,

, 1 , .

( 3)

, , 1 .

24 1 25 , 24 D - D'  
 , (ST) (TH) , (DL3) .

, , 가 가 . ,  
 , , .

, (ST) ( ) , (DL)  
 , 가 ,  
 , 1 가 , ,  
 ( ) , 가 ,

, , ,  
 가 (ST) , , 가 ,

, , (ST) 가 , , ,

( 4 )

, , 1 .  
 26, 27 1 , (ST) , (TH) , 28 , 26 D - D' ,  
 , (ST) 1 ( ) (GL2) , , (PX3) ,  
 (Cstg) 가 (Cadd)가 .

《 (Cadd) 》

(Cadd) , (Cstg) ( (TFT)가 ) 가 ,  
 가 , (Cstg) (Cadd) 가 .  
 , (Cstg) , (Cadd) , (TFT)가 , (Vs)  
 Vg .

$$Vs = \{ Cgs / (Cgs + Cstg + Cadd + Cpix) \} \times Vg$$

Vs (LC) 가 , (Cadd) ,  
 . (LC) 가 , (LC) ,  
 , (ST) , 1 , 가 , 가 ,  
 (GL) 가 , (GI) (PSV1) ,  
 가 .  
 , (ST) 가 ,  
 , (ST) , (ST) ,  
 , , ,  
 , , ,  
 , 1 가 , ( ) (GL)  
 , 가 .

( 5 )

, 1, 2 4 .  
 29 1 .  
 4 , 2 , (ST) , (TH) , (CT3) ,  
 (ST) 1 ( ) (GL2) , ,  
 (Cadd)가 .

( 6 )  
 , 1, 2 4 .  
 , , 1, 3 4 .  
 30 1 , , 3 , (ST) , (TH)  
 (DL3) , 4 , (ST) 1 ( )  
 (GL2) , , (Cadd) .

( 7 )  
 , , 1 .  
 31 1 , , 1 , (ST) (TH)  
 , (ST) 2 , , (GL) , 4  
 , , ,  
 , 1 4 .

( 8 )  
 , , 1, 2, 7 .  
 32 1 , , 2 , (ST) , (TH)  
 , , ,  
 , , 1, 2 4 .

( 9 )  
 , , 1 4 .  
 33 1 .  
 , 4 , (ST) (TH) , ,

, TFT , (Cstg) , (TFT) (Cgs)  
 , Vs( 13 ) 1V , ,  
 , 가 가 , (ST) ,

$V_s = 1\text{ V}$ , (Cstg) (TFT)  $1\text{ V}$  (Cgs)  $0.5\text{ V}$

$1\text{ V}$  가  $0.5\text{ V}$

(SD1), (SD2) (GL), (CT,CT2), (CL) (PX,PX2,PX3), (DL), 4 가

$1$  가

( 10)

$1, 5, 9$  (ST) (TH)

$9$  (Cstg) (TFT) (Cg) Vs ( $13$ )  $1\text{ V}$  (ST) 가

$V_s = 1\text{ V}$ , (Cstg) (TFT)  $1\text{ V}$  (Cgs)  $0.5\text{ V}$

$1\text{ V}$  가  $0.5\text{ V}$

$9$  가  $2$  (ST)

( 11)

$1, 6, 9$  (ST) (TH)

(Cstg) (TFT) (Cg) Vs ( 13 ) 1V (ST) 0.5 1  
 Vs 1 V (Cstg) (TFT) 1 V (Cgs) 0.5 V  
 ( 12)

(TFT) (TFT) (TFT) Vs 가  
 Vs' 가 Vs Vs'  
 Vs Vs'

$$\Delta V_s = \frac{C_{gs(on)}}{C_{gs(on)} + C_{stg} + C_{add} + C_{lc}} (V_{gh} - V_d - V_{th}) - \frac{C_{gs(off)}}{C_{gs(off)} + C_{stg} + C_{add} + C_{lc}} (V_d + V_{th} - V_{gl2})$$

.....(Eq.1)

$$\Delta V_{s'} = \frac{C_{add}}{C_{gs(off)} + C_{stg} + C_{add} + C_{lc}} (V_{gl1} - V_{gl2})$$

, Cgs(on) (TFT)가 - , Cgs(off) (TFT)가  
 (ST) 가

, (ST) , , .

, (SD1) , (SD2) ( ) (GL) (CT, CT2), (CL) (PX, PX2, PX3), (DL), 4 가 . , 가 . , .

, 1 , ( ) , 가 , .

( 13)

1 .

35 1 , (ST) (TH) ( ) , .

(ST) 1 , 가 , , (DL) 가 (PSV1) , , , .

, (DL) (ST) , (ST) 가 , . (ST) , , , .

, 1 , ( ) (DL) 가 .

( 14)

, 1 .

36 1 , (ST) (TH) , (自列) ( ) .

(ST) , 13 , , 가 , 가 , (DL) , (PSV1) , , 가 (DL) , ( , ) . , 13 가 , 2 , ( 15) , , 1 . 37 1 . , (ST1) (TH) , (ST2) , (TH) , , ST1 , ( ) . (ST1, ST2) , , 가 , 가 , (DL) (GL) , (GI) (PSV1) , 가 . 가 . , PAS ( ) , , 가 . , 1 , , 가 ( ) , 가 . , 가 . , ( ) , . ( 16) , , 1 . 38 1 . , (ST1) (TH) , (ST2) , (TH) , , ST1 ( ) , (ST1, ST2) , , 가 , 가 , (DL) (GL) , (GI) (PSV1) , 가 . ( ) (GL) , ( , ) .

가 15 가, 2  
 가  
 ( 17)  
 , 1  
 39 1 ( ) (ST1) (TH)  
 , ( ) (ST2) (TH)  
 , ST1 ( )  
 (ST) (ST)  
 (ST)  
 (ST1,ST2) ( )  
 가 가 (DL) (GL)  
 (GI) (PSV1)  
 가  
 ( ) (GL) ( )  
 16 가  
 가 16 2  
 ( 18)  
 , 1 4  
 40 1 (ST) (TH)  
 (TFT)  
 (ST) 가 가 (TF)  
 T) (DL) (GL) 가 (GI) (PSV1)  
 가  
 16 (ST)

( 19)

, 1 4 .

41 1 (ST) (TH) ,  
 , (ST) (ITO) ,  
 (ST) , ,  
 , 가 .

, 4 가, 가 .

, SD3 가 ,

가 ,

( 20)

, 1 5 .

, (ST) (TH) , (CL) .  
 , (ST) (ITO) ,  
 . , (ST) ,  
 , 가 .

, 5 ,

( 21)

, 1 20 .

, (ST) 1 , (TH) (CL) ,  
 . , 1 (ST) (TH) ,  
 , (ST) (ITO) ,  
 (ST) ,

(ST) , , 가 .

, 20 ,

( 22)

1 .

42 1 (ST) (TH) ,  
(ST) , 1 ( ) , , 가 , 가,  
(DL) , (PSV1) ,  
가 .

13 (ST) 가 ,  
(ST) X ( ) ( ) (DL) , 1 , 가  
(ST) , (ST)  
( , ) .

1 ( ) (GL)  
가 . , 가 가 .

( 23)

1 .

43 1 , 44 , 43 E - E'  
, 45 , 7 ( ) (ST) , 43,  
(ST) (TH) ,  
44 , (DL) 1  
, 45 (ST) ,  
가 .

3 , 가 , ,  
가 , ,



가, 10 12

(ST1) (ST2) 가 (ST1) (ST2) 가

(ST1) (ST2) (RDR)

20° T2) ±20.5° 가 ±10° 30 ±10.5° (ST1) ±

가 10° , 20 V 100

±15° ±15.7° 가 (ST2) (ST1)(

(L) 가 (ST1) (ST2) 가

가 (ST) (ST)

PX2, PX3), (GL) (ST1) (SD1) (ST2) (ST1) (CT, CT2), (CL) (PX,

(DL) 가 10, 12

( 27)

50 1 (ST1) (TH)

(ST2) (TH)

(ST1) (ST2), (PX, PX

2, PX3), (GL) (SD1) (ST2) (ST1) (CT, CT2), (CL) 가 10, 12

, (DL)

( 28)

, 1 26 .

51 1 (ST1) (TH) ,  
, (ST2) (TH) , .

가 가 (ST1) 가 가 (GL) , , 가 (ST2)  
(DL) 가 , , 가 ,  
가 가 , 가 , , ,

, (ST2) , 10 12 , (ST1)  
(CL), (GL) (DL) (PX, PX2, PX3), (ST2)가 ( (SD1), (CT, CT2),

( 29)

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52 HEVRON) 1 (PX) (CT, CT2) (C  
, , , , 2 , 가

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( 30)

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4 29 .

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18 29 18 . 54 1 .  
18 29 .

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, 19 29 19 . 55 1 .

( 33)

24 29 , 24 . 56 1 .

( 34)

, 26 29 26 . 57 1 .

( 35)

28 29 28 . 58 1 .

( 36)

, (ST1) , 34 . 59 1 (ST2) .  
 , (ST1) 가 , (ST2) , , (ST1) ,  
 가 , (ST1) (ST2) , , (ST1) ,  
 , (ST2) 34 , , .

( 37)

, (ST) , (SUB2) 1 (OC) 60 1 . , ,  
 , (ST) , TFT (SUB1) ,  
 , IPS TFT - LCD , , ITO , ITO  
 , (ST) 2 , (ST)가 , ITO , (FIL)

( 38)

, 1 26 .

61 1 .

(SUB2) , (ST1) (HT) , (ST)  
(OC) , 61 ,  
(ST2) , , .

(ST1) (ST2) ,  
(ST1) (ST2)

, (ST1) (ST2) (ST1) (ST2) , 27  
, (ST1) (ST2) ,

, (ST)

, IPS TFT - LCD ,  
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(ST)

(57)

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20.

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21.

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가 ,

가 ,

가

ITO IZO

가

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22.

가

23.

22

24.

22

25.

22

26.

22

가

가

가

가

가

27.

22 ,

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28.

22 ,

SiNx SiOx

29.

22 ,

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30.

22 ,

1

31.

22 ,

32.

1, 11, 13, 21, 22 ,

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가 1 V

33.

1, 11, 13, 21, 22 ,

가 0.5 V

34.

1, 11, 13, 21, 22

, 3

35.

34

가 , 1 (Cadd) 가

, 1 (Cadd)

가

36.

35

, 2 (Cstg) 가

37.

가 ,

가

가

1

1

2

38.

37

1

2

2

1

가

2 가 , 1 가 .

39.

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1 가 ,  
2 가 1 ,  
2 가 3 ,  
1 .

40.

39

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

41.

37

39

3

1

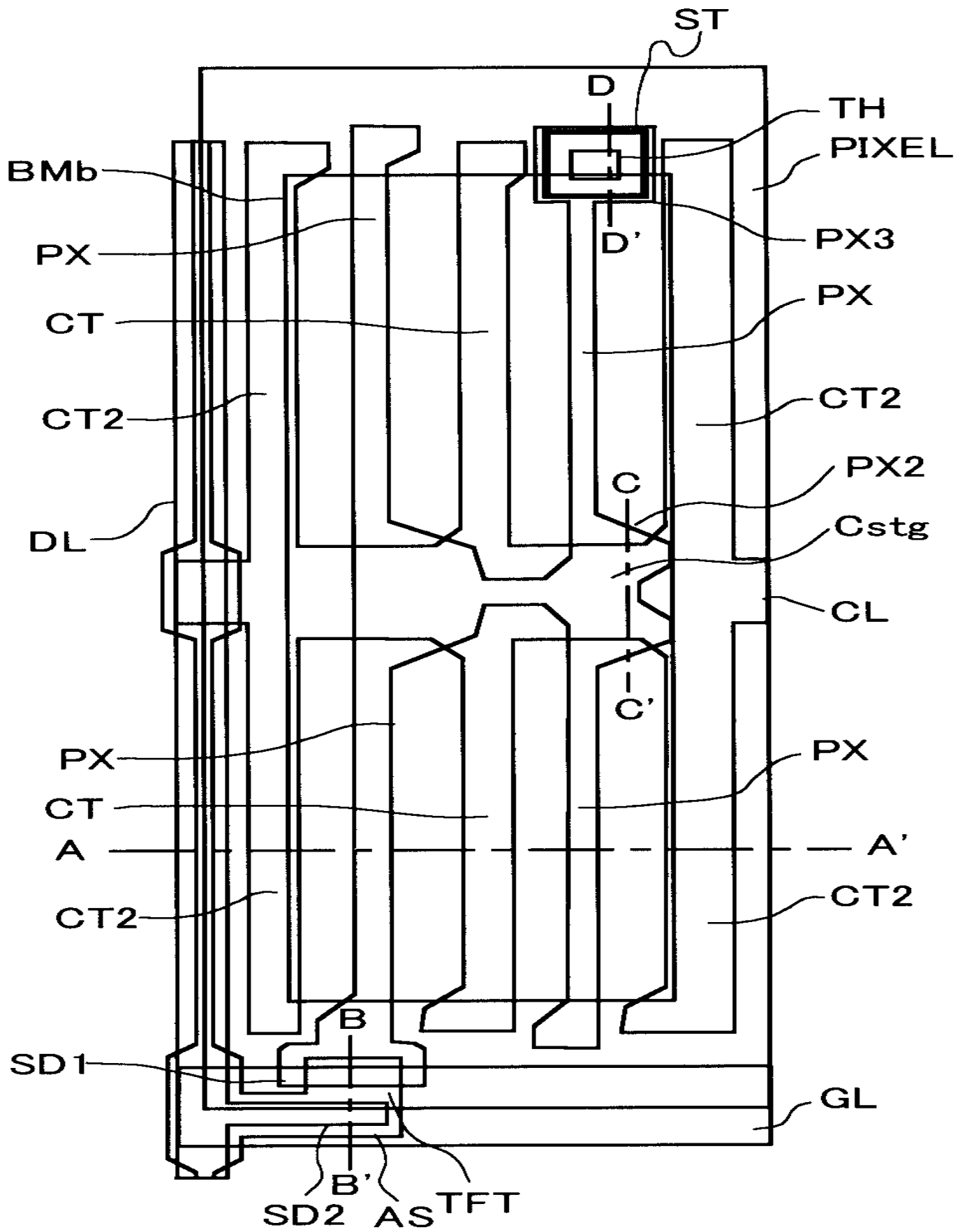
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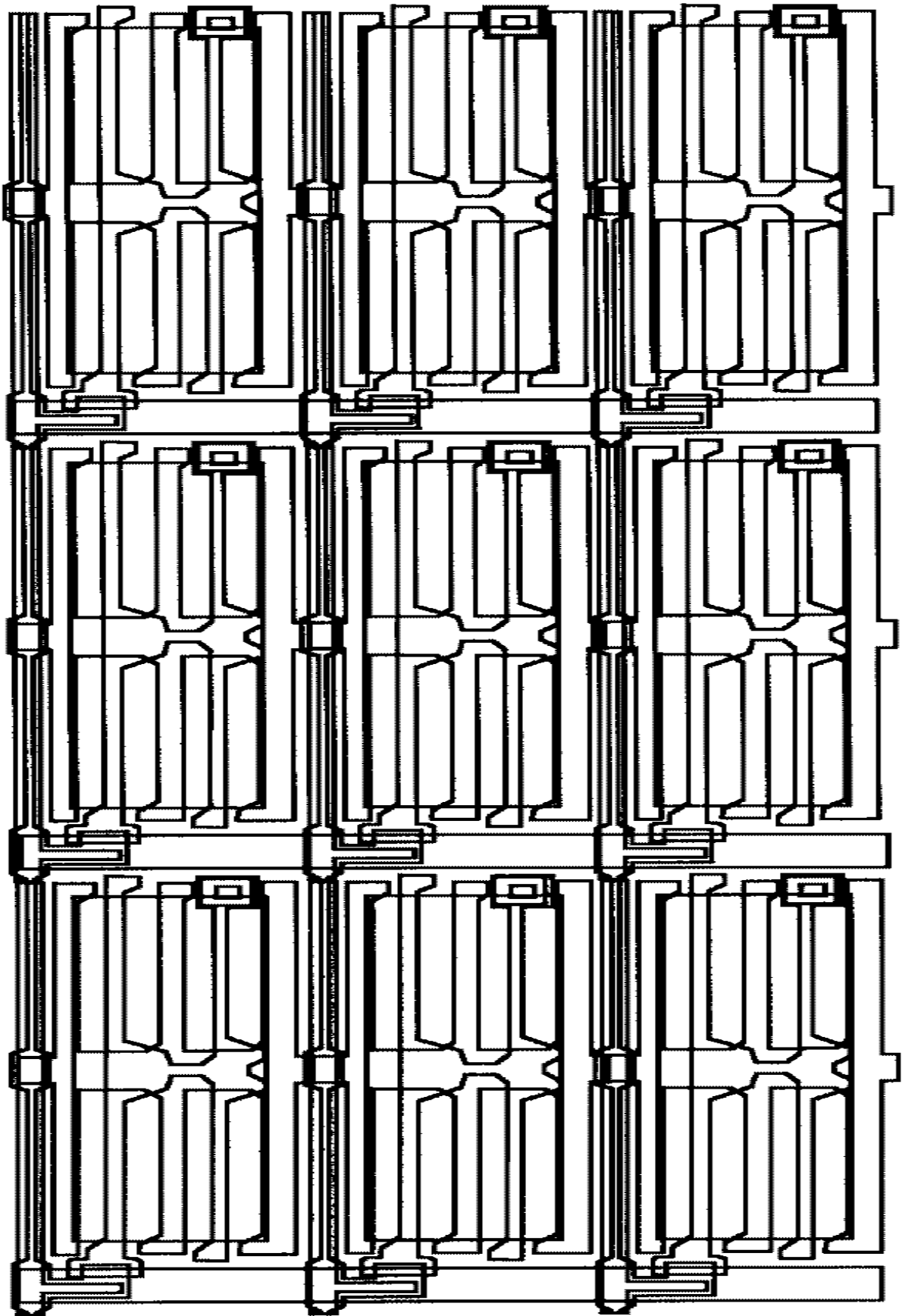
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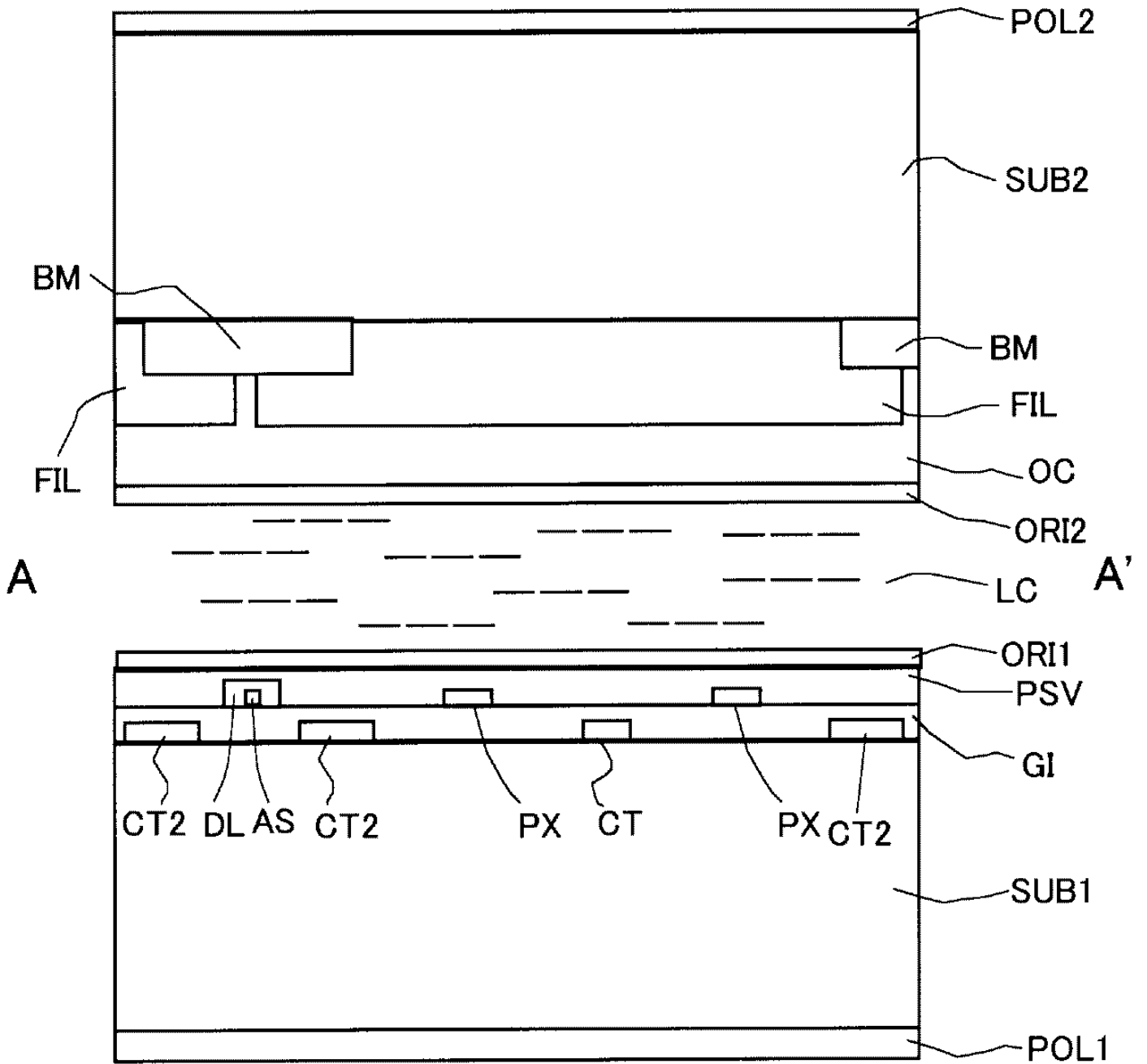
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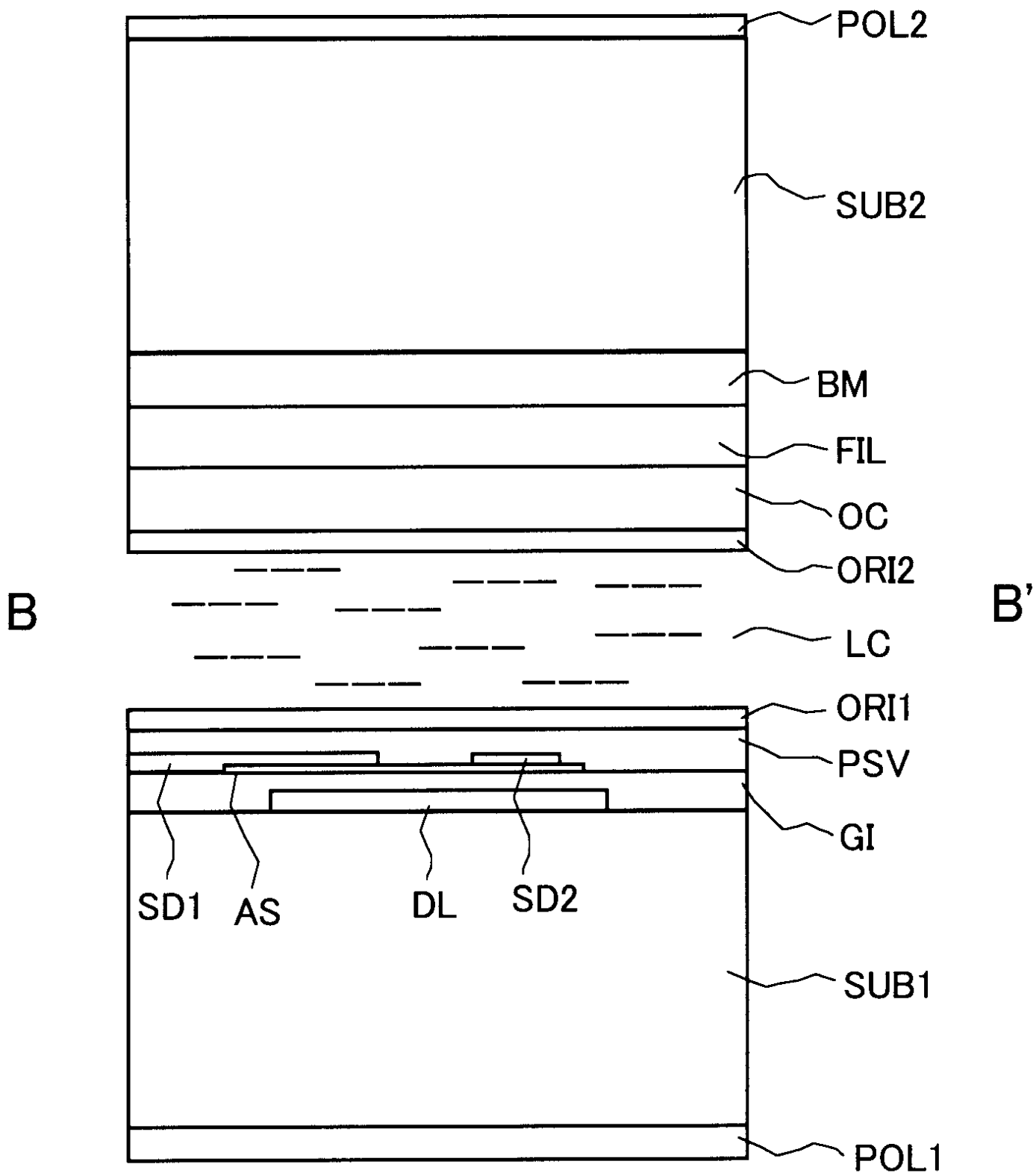
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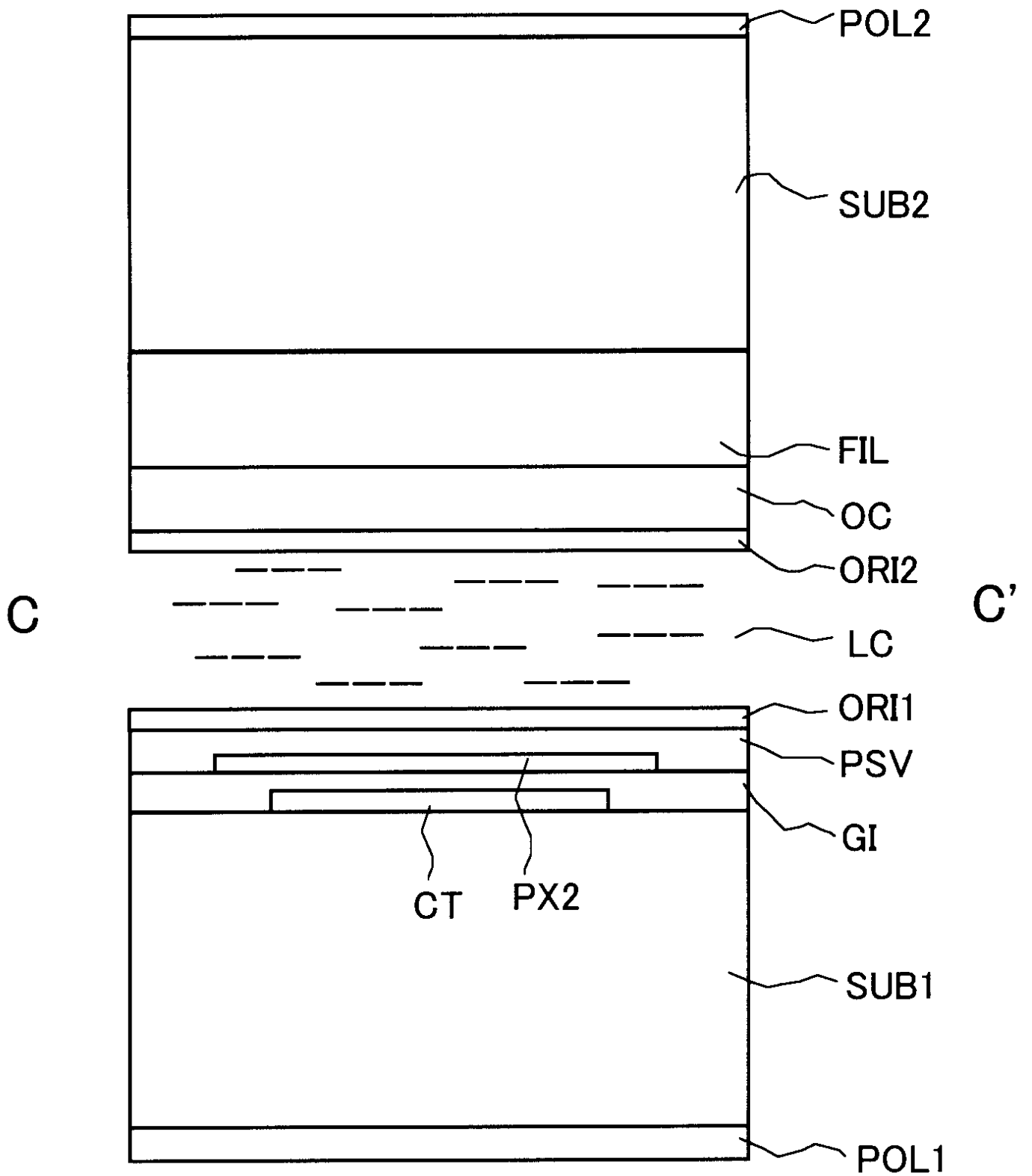


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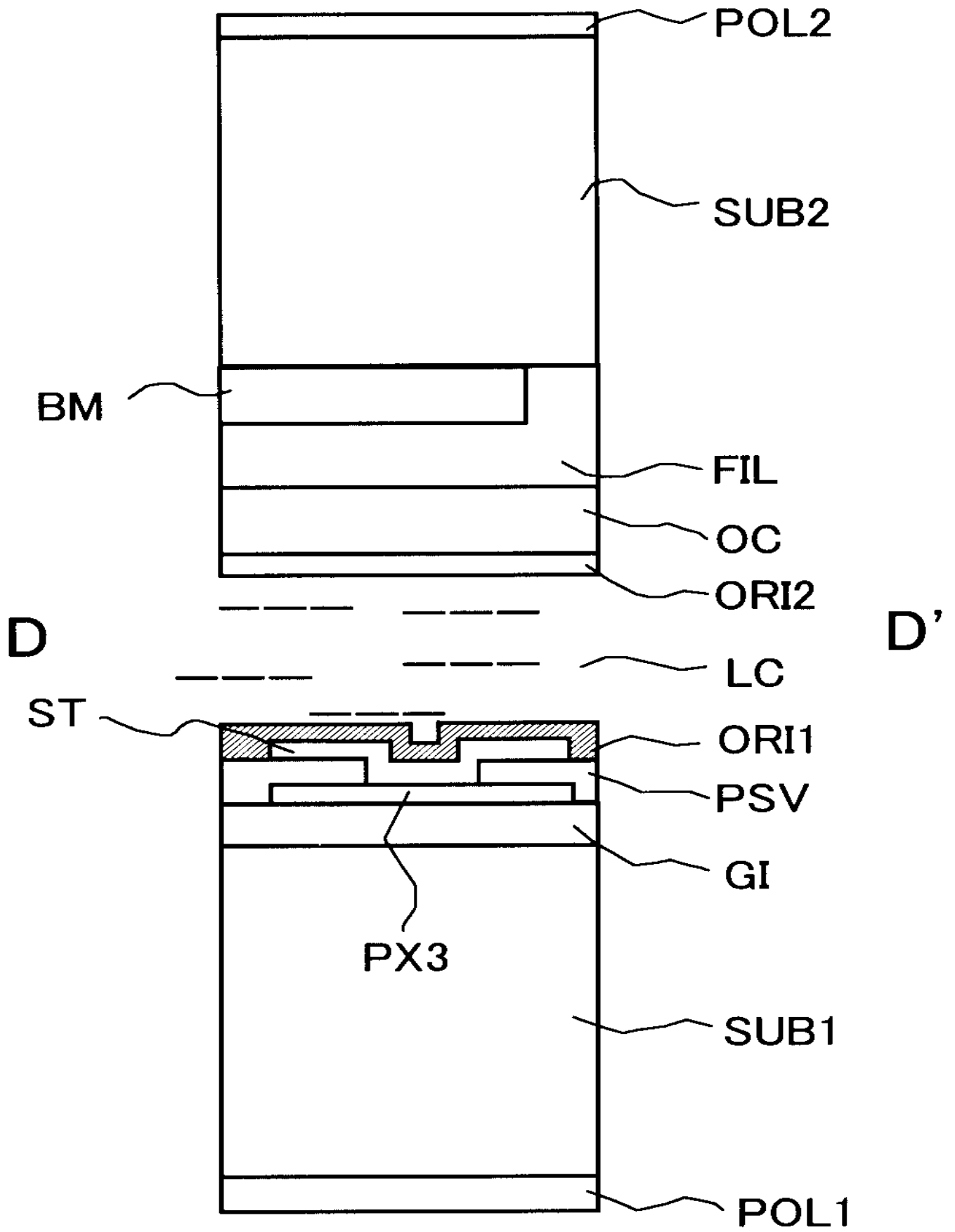




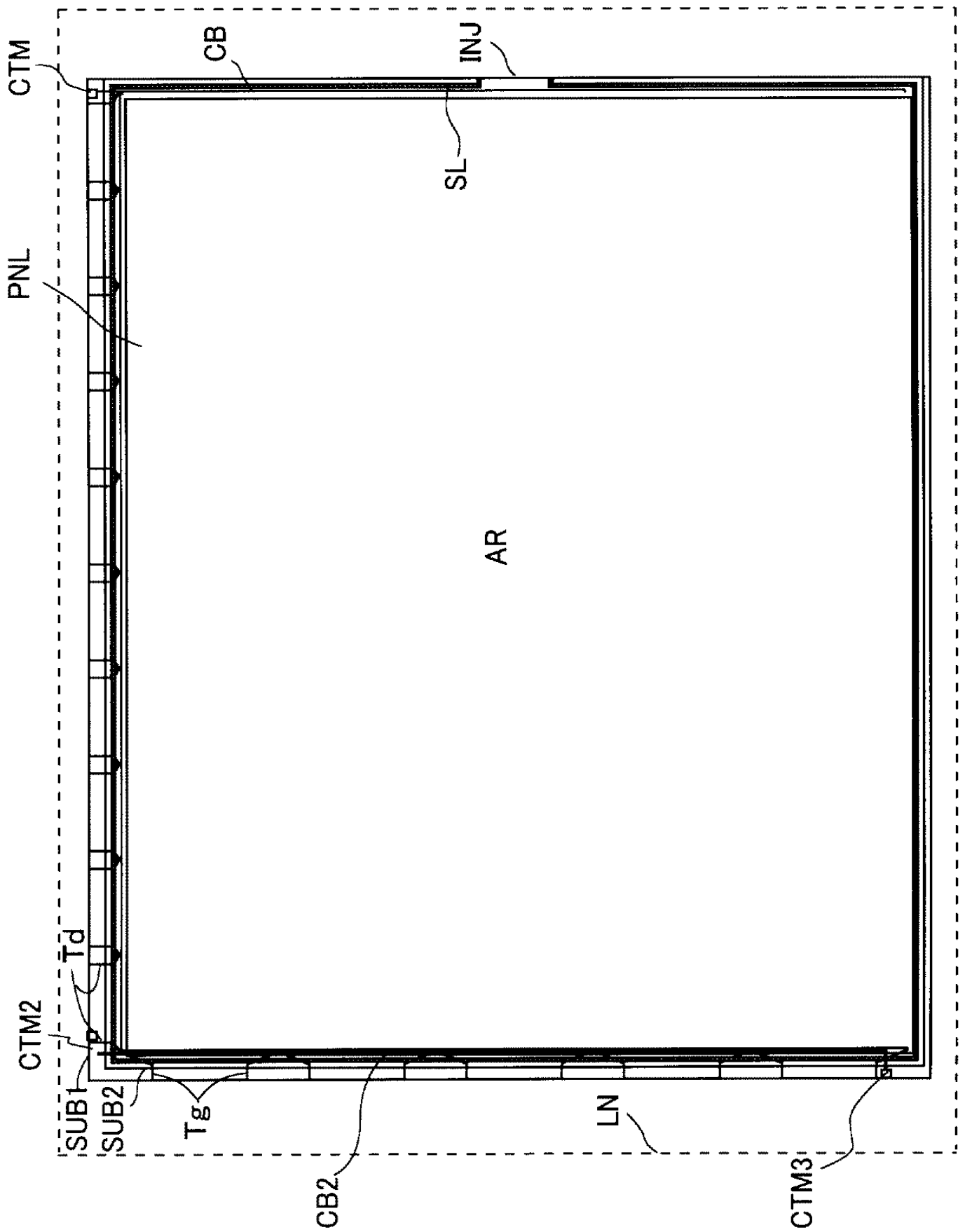


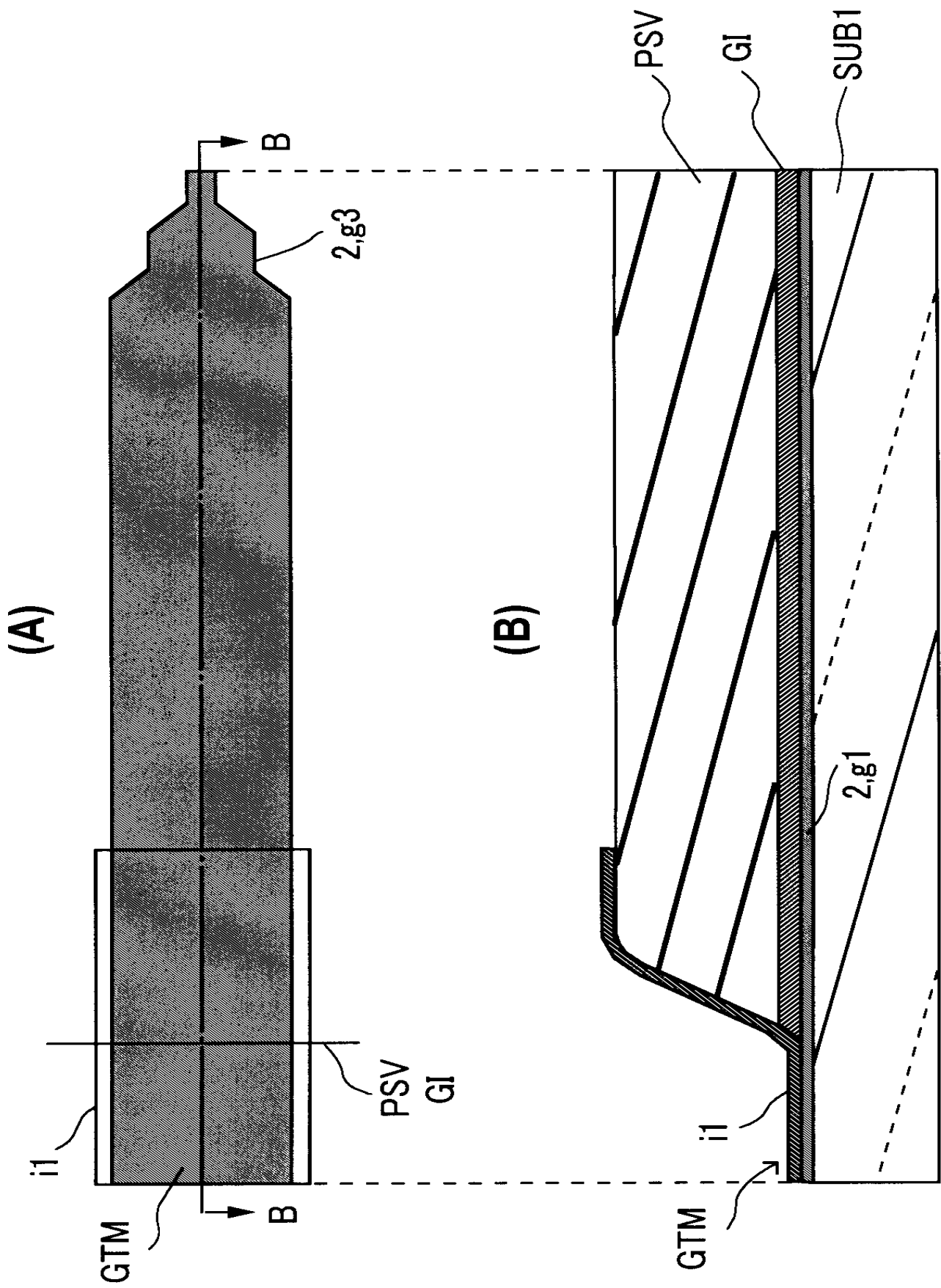


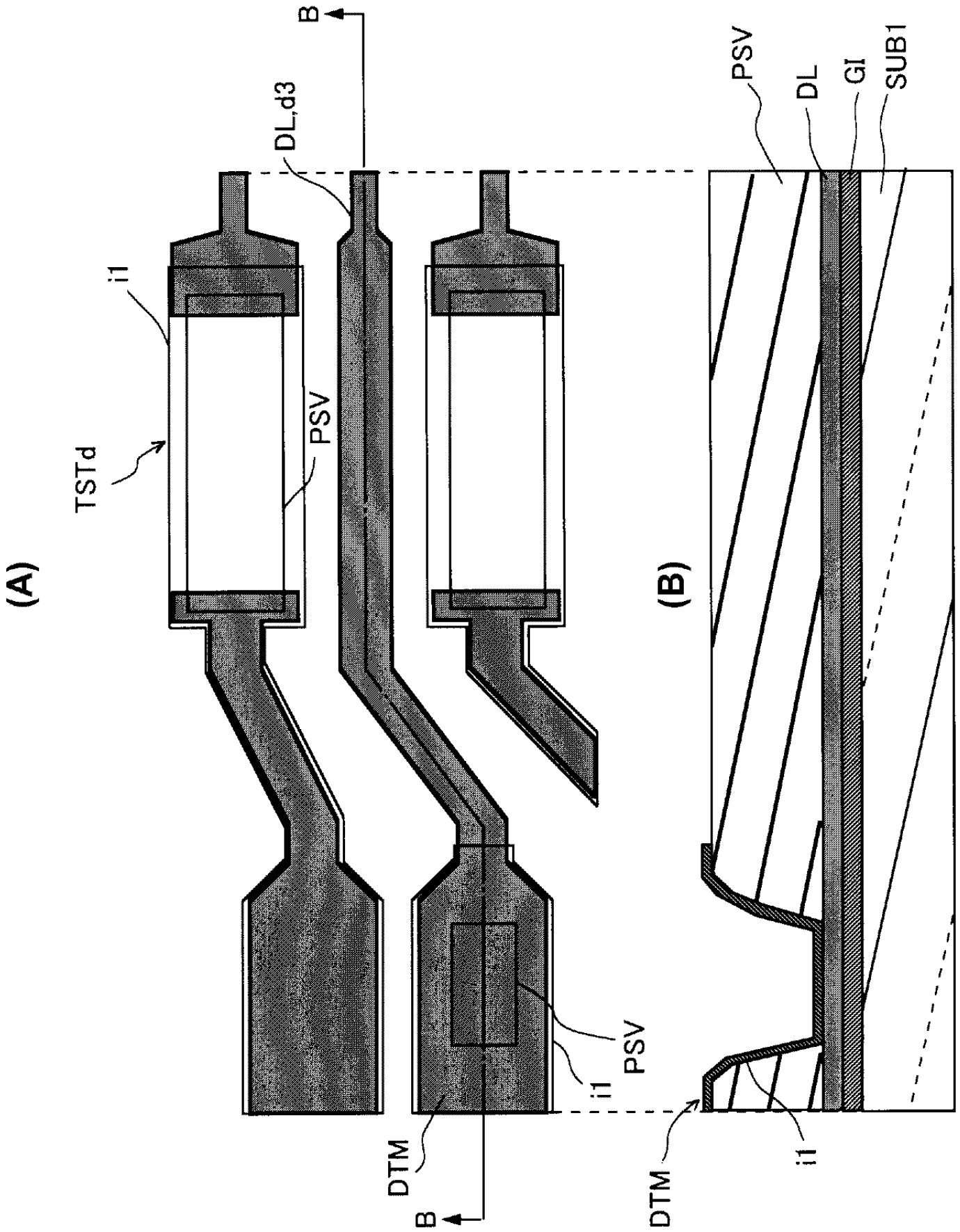
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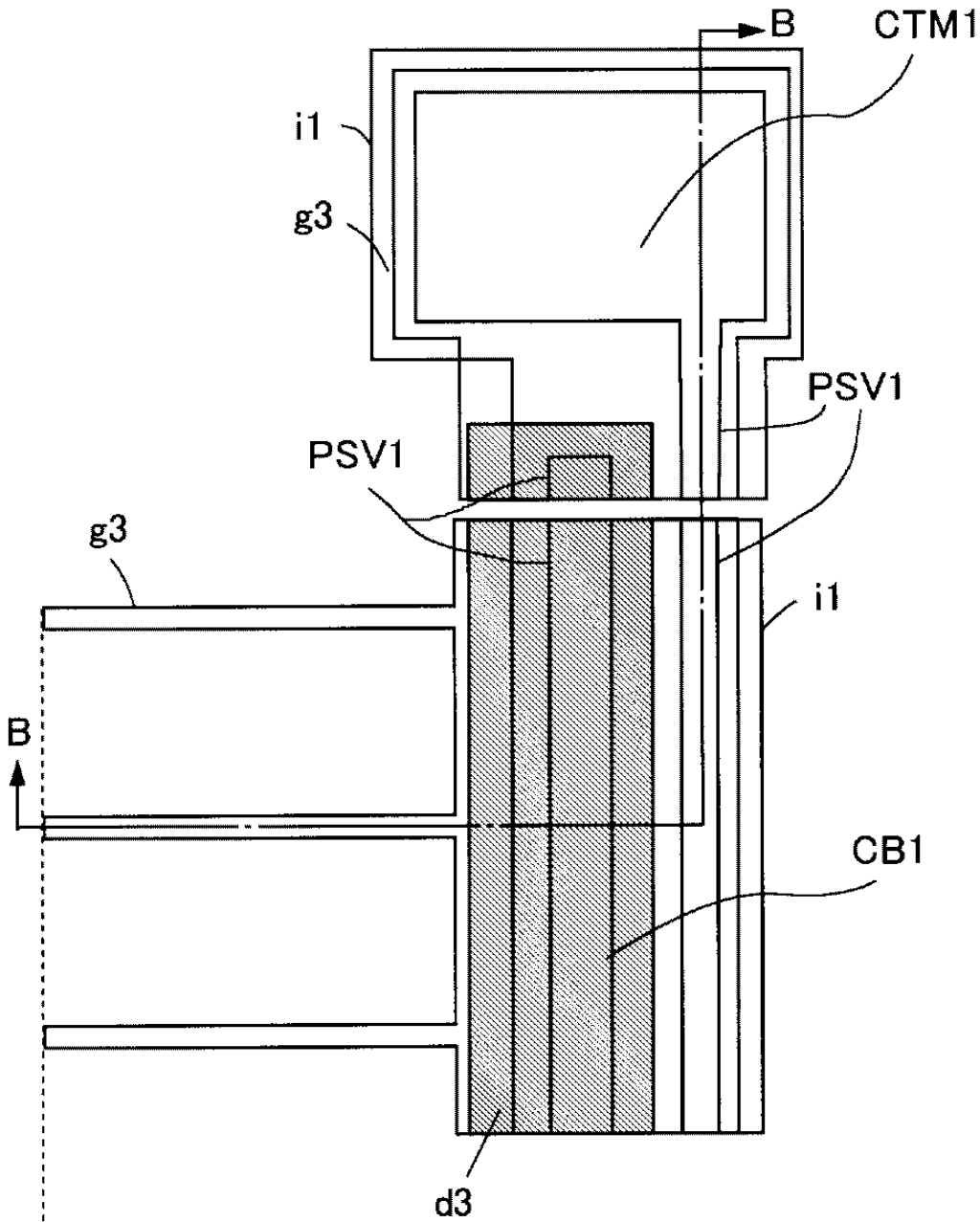




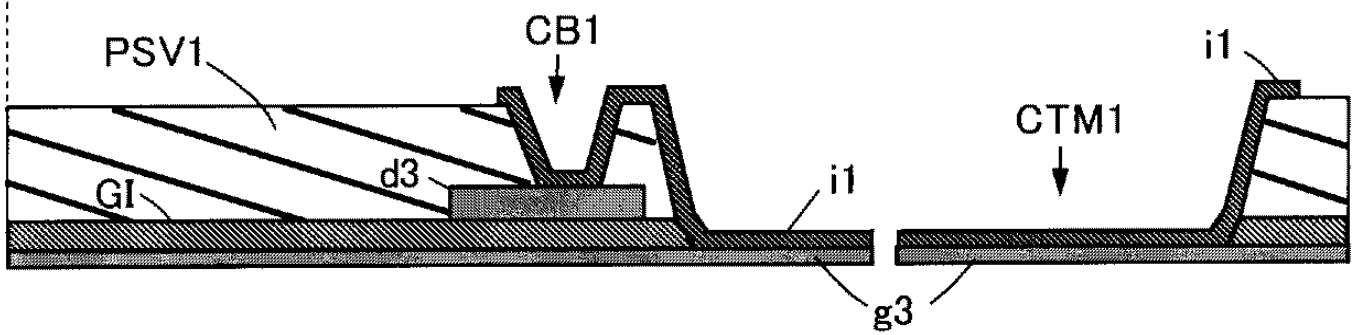


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(A)

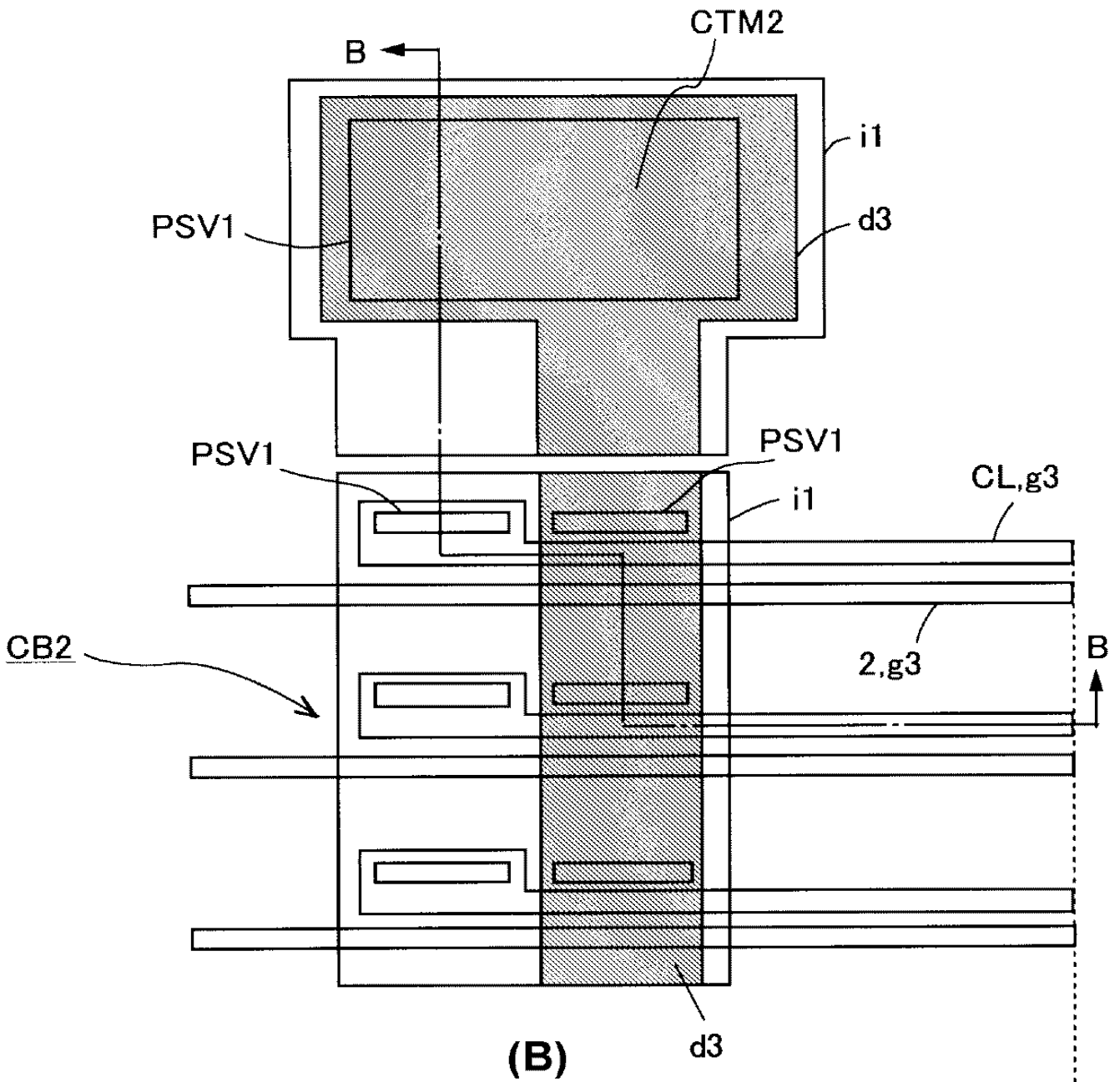


(B)

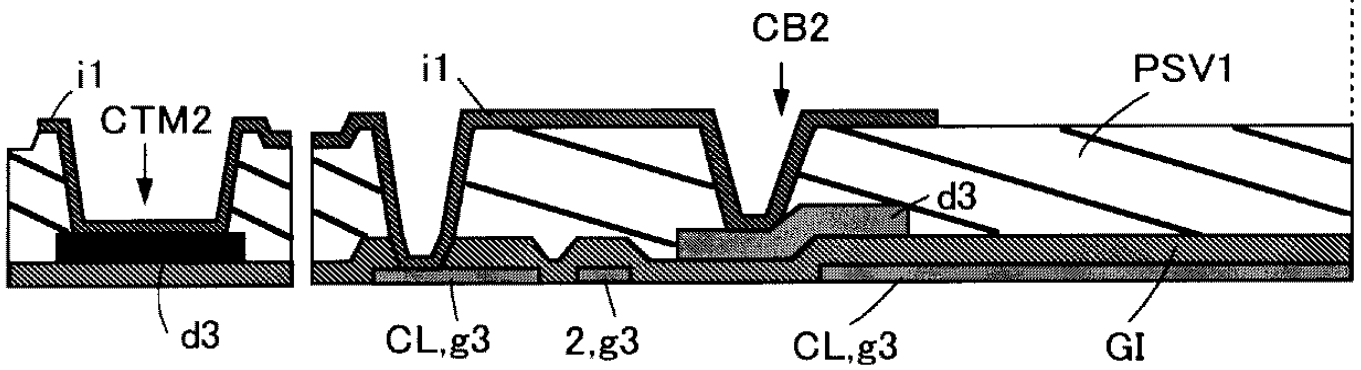


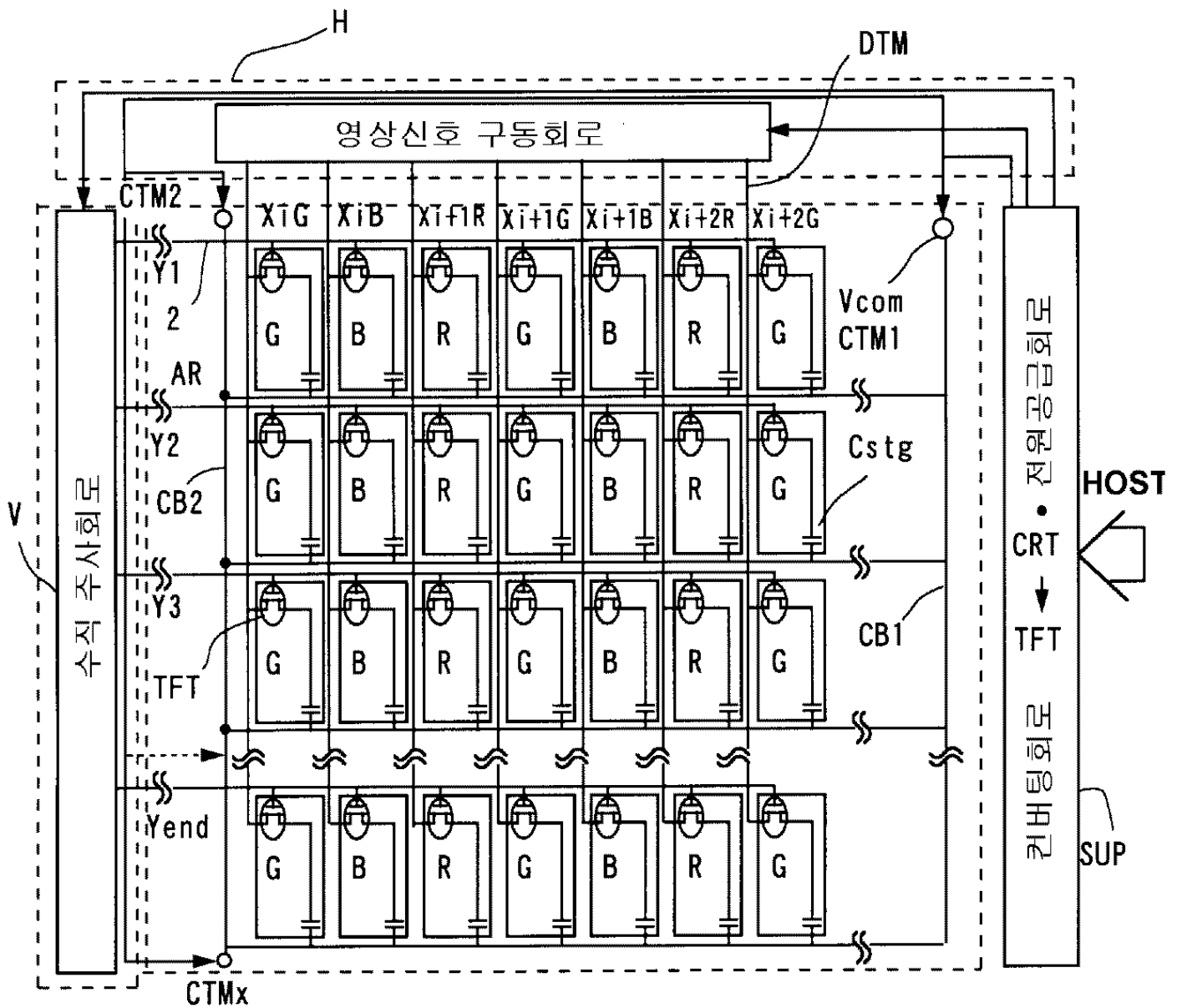
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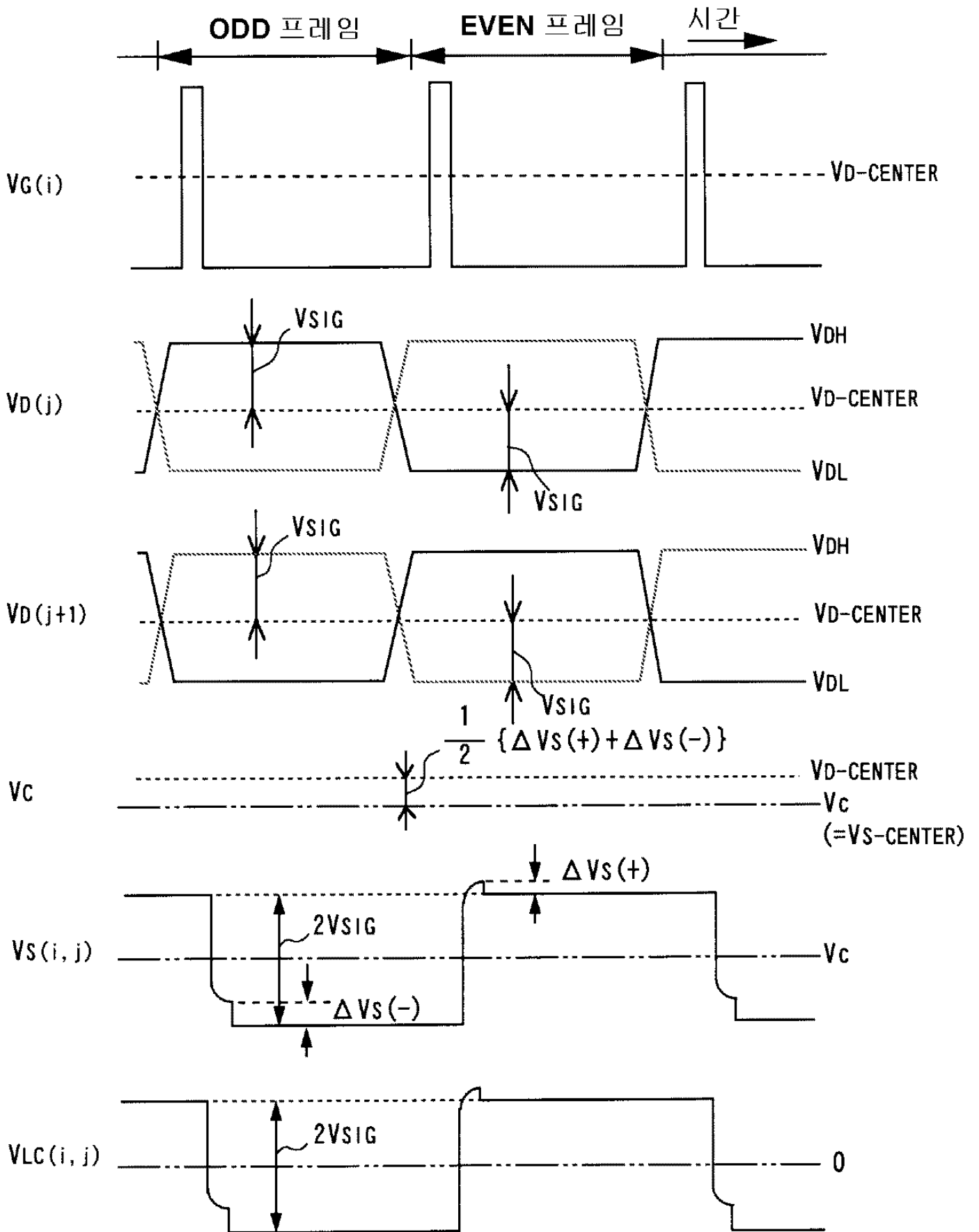
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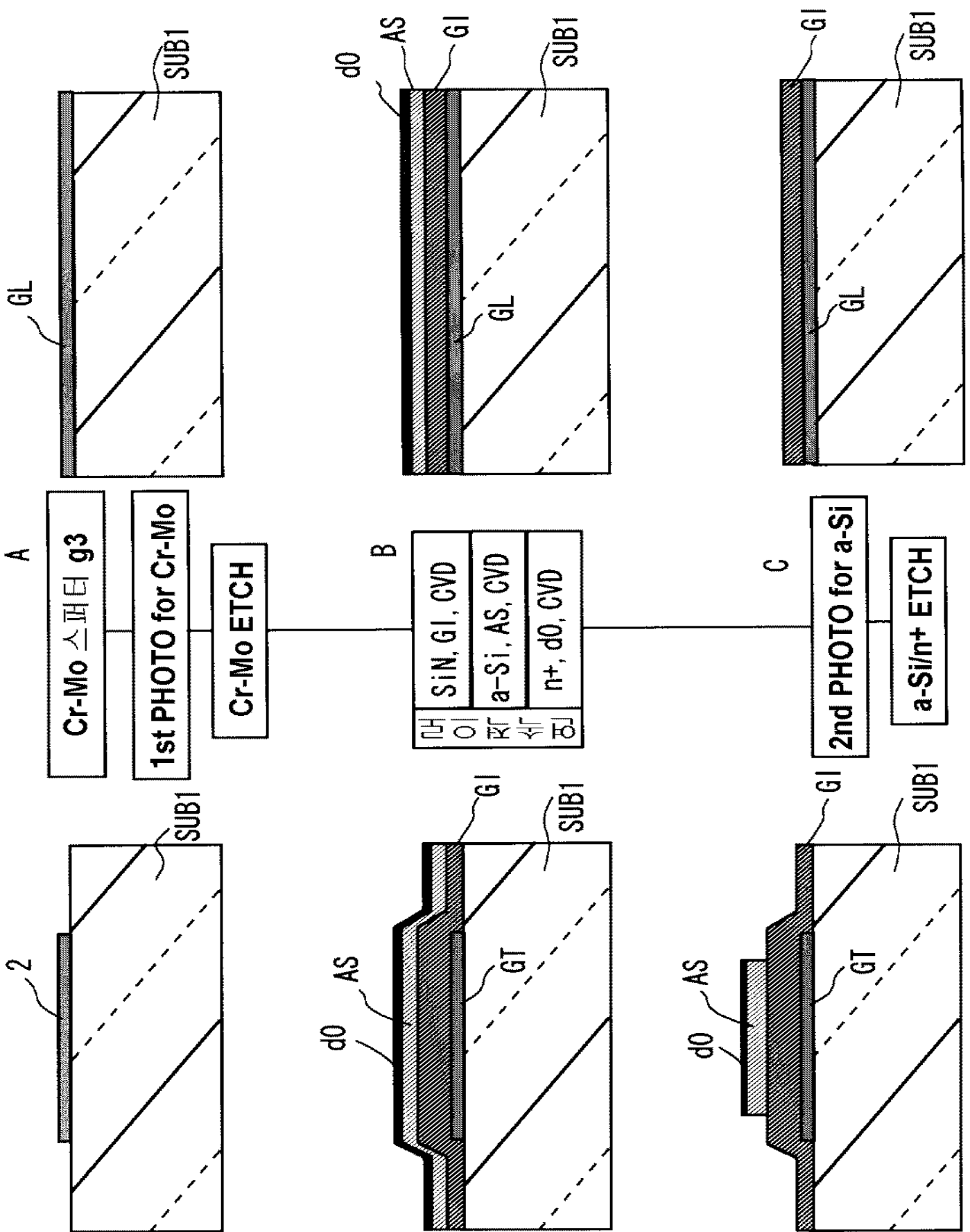


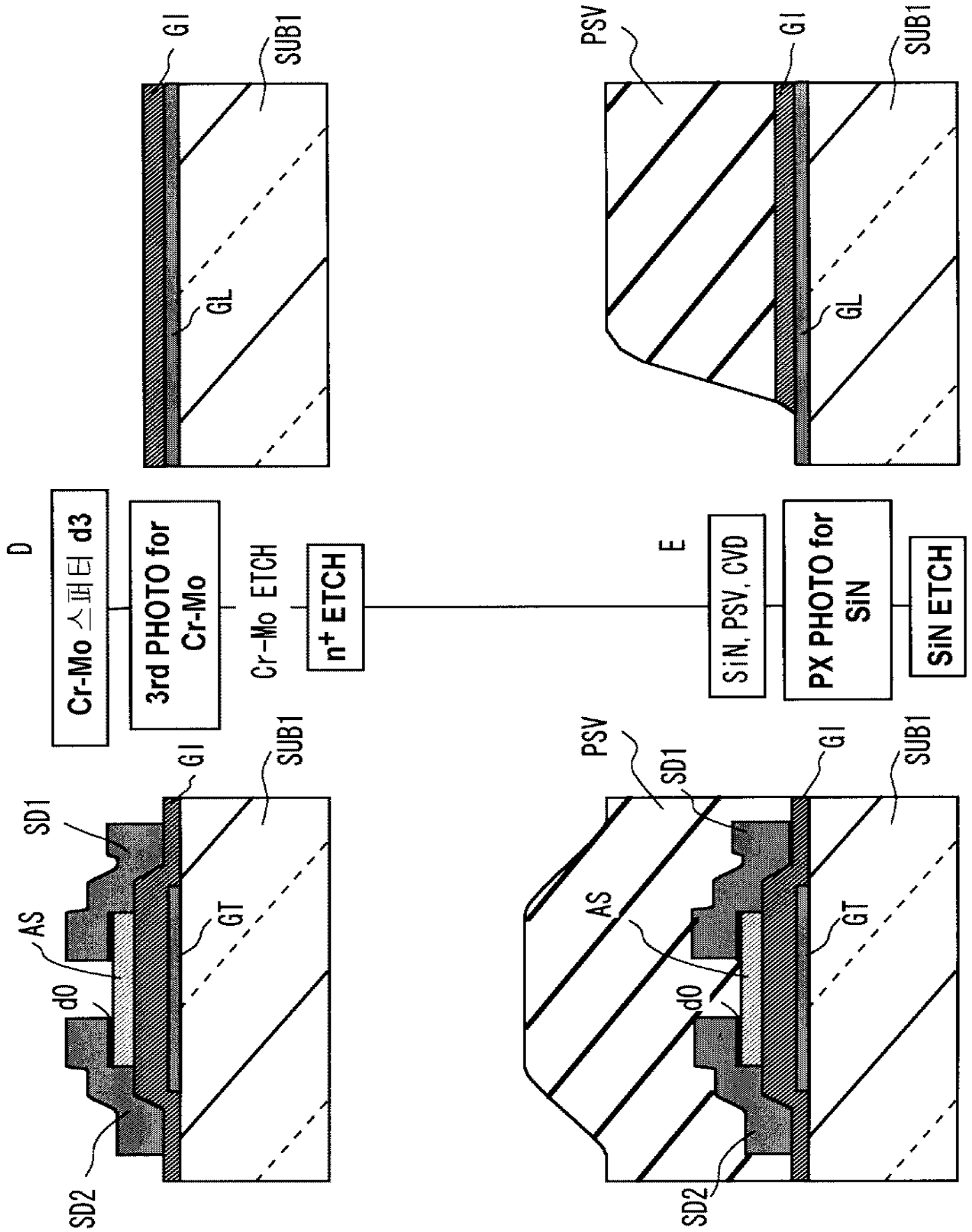
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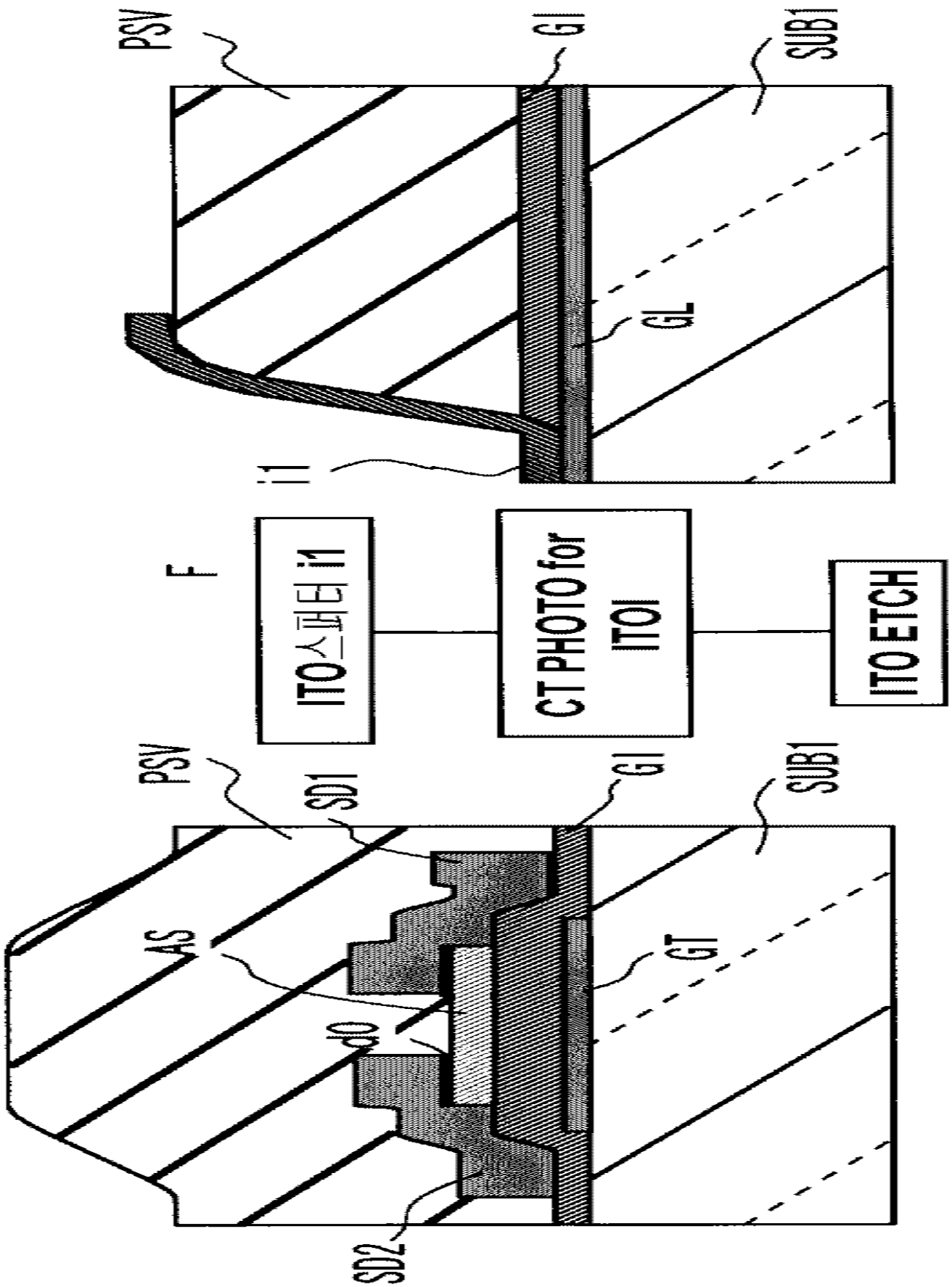




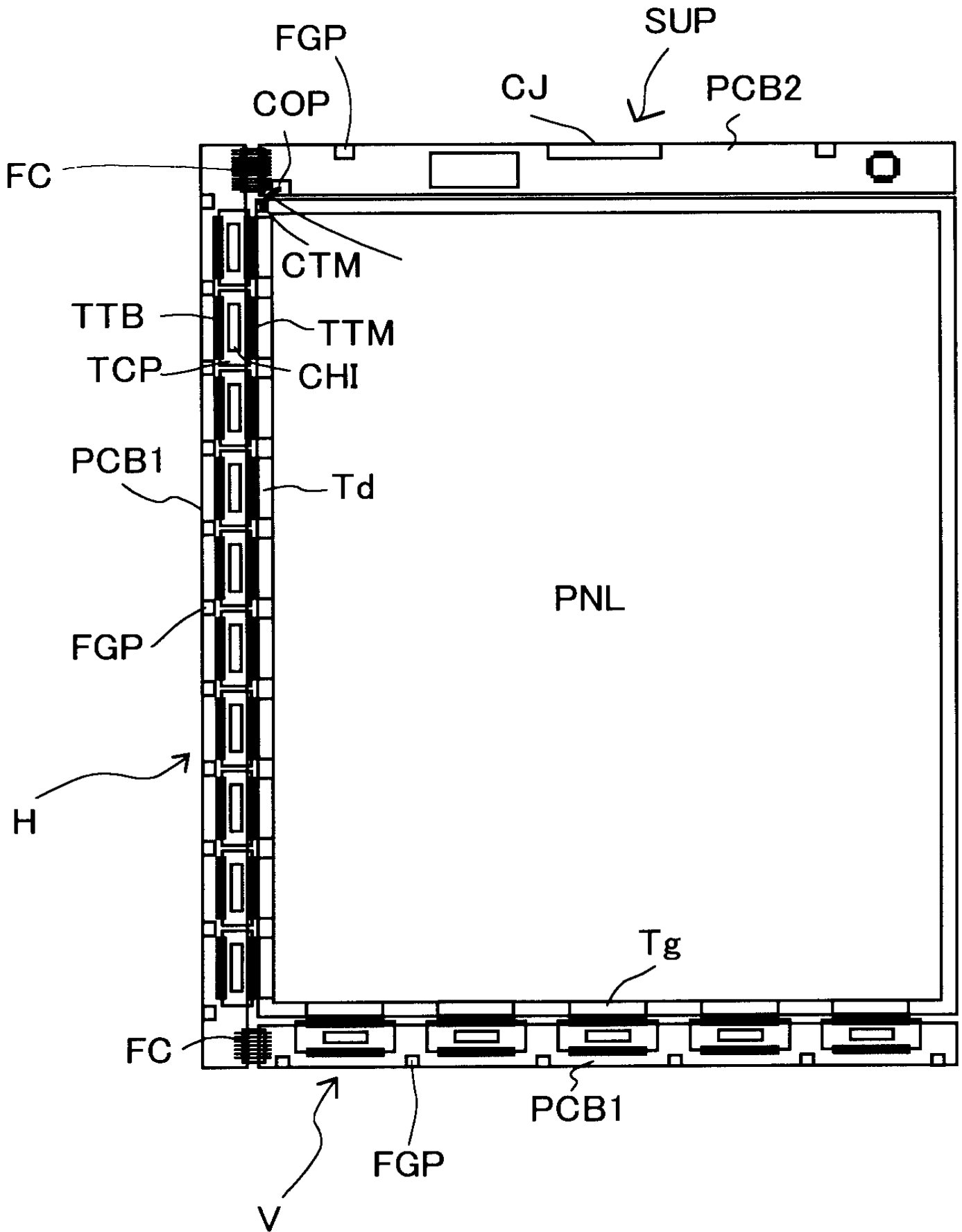




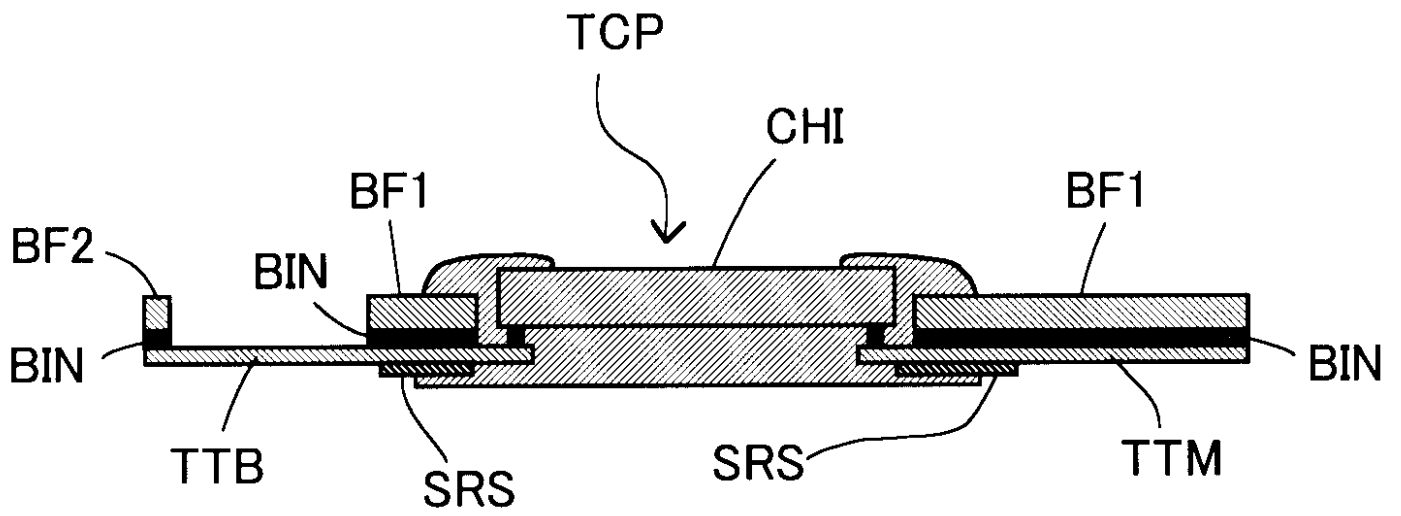




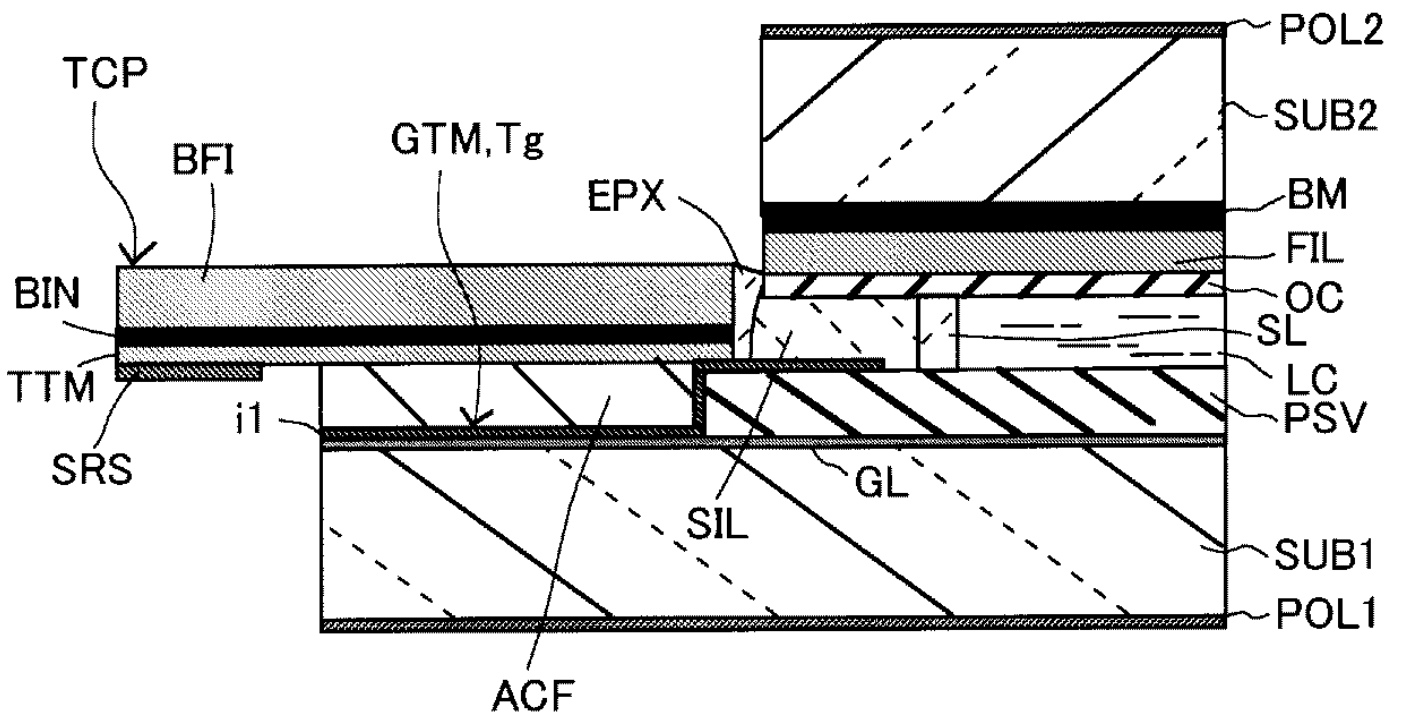
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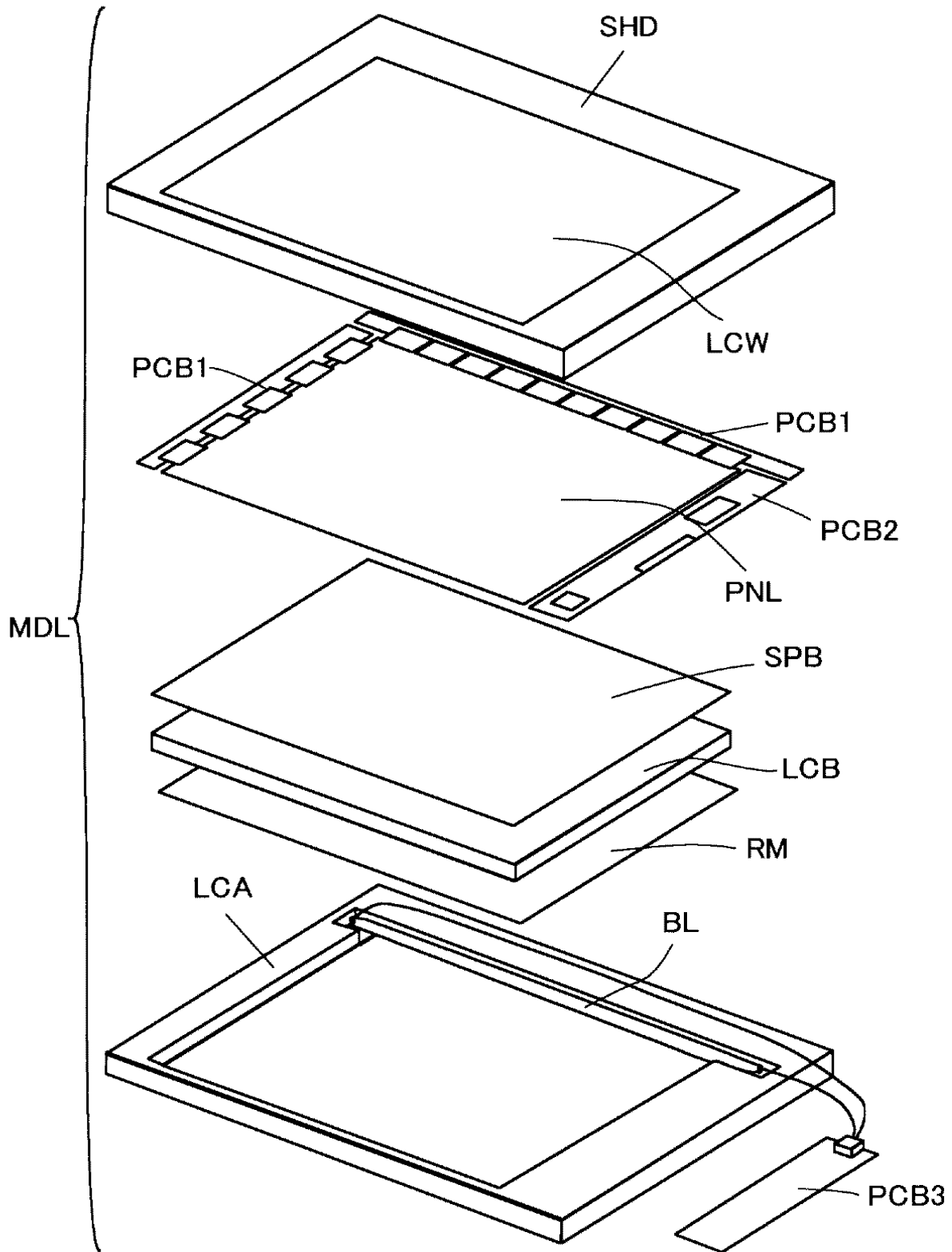


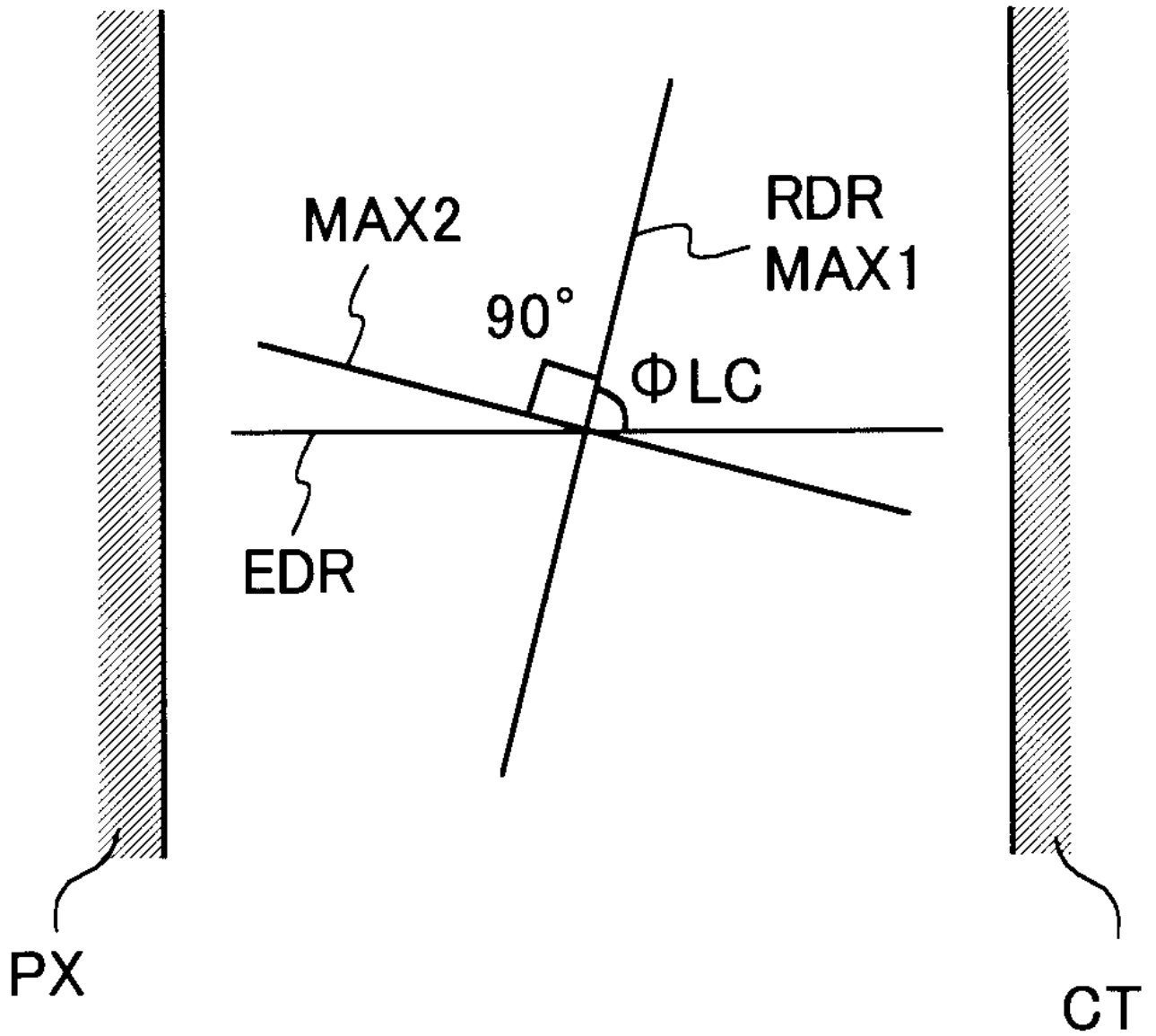
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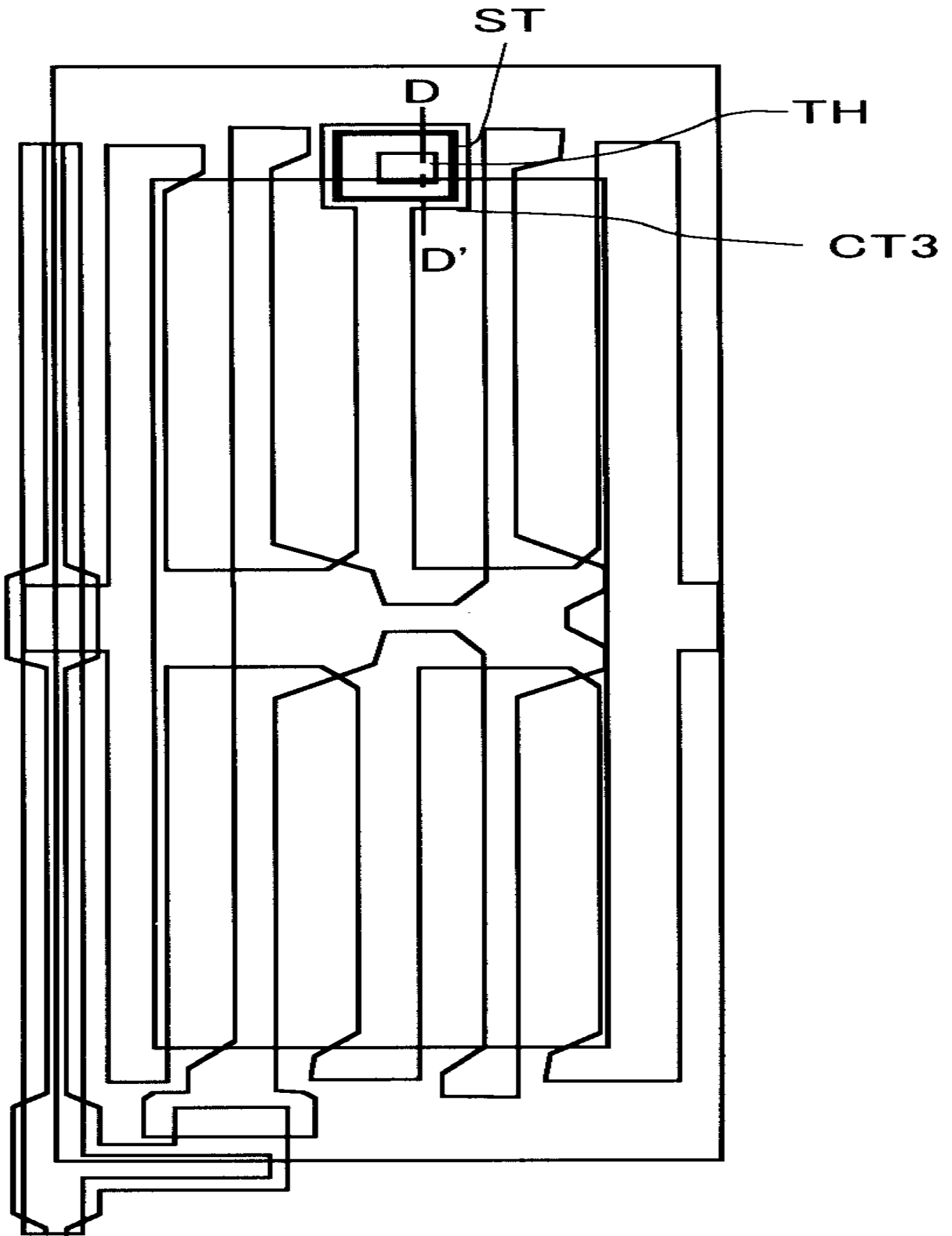
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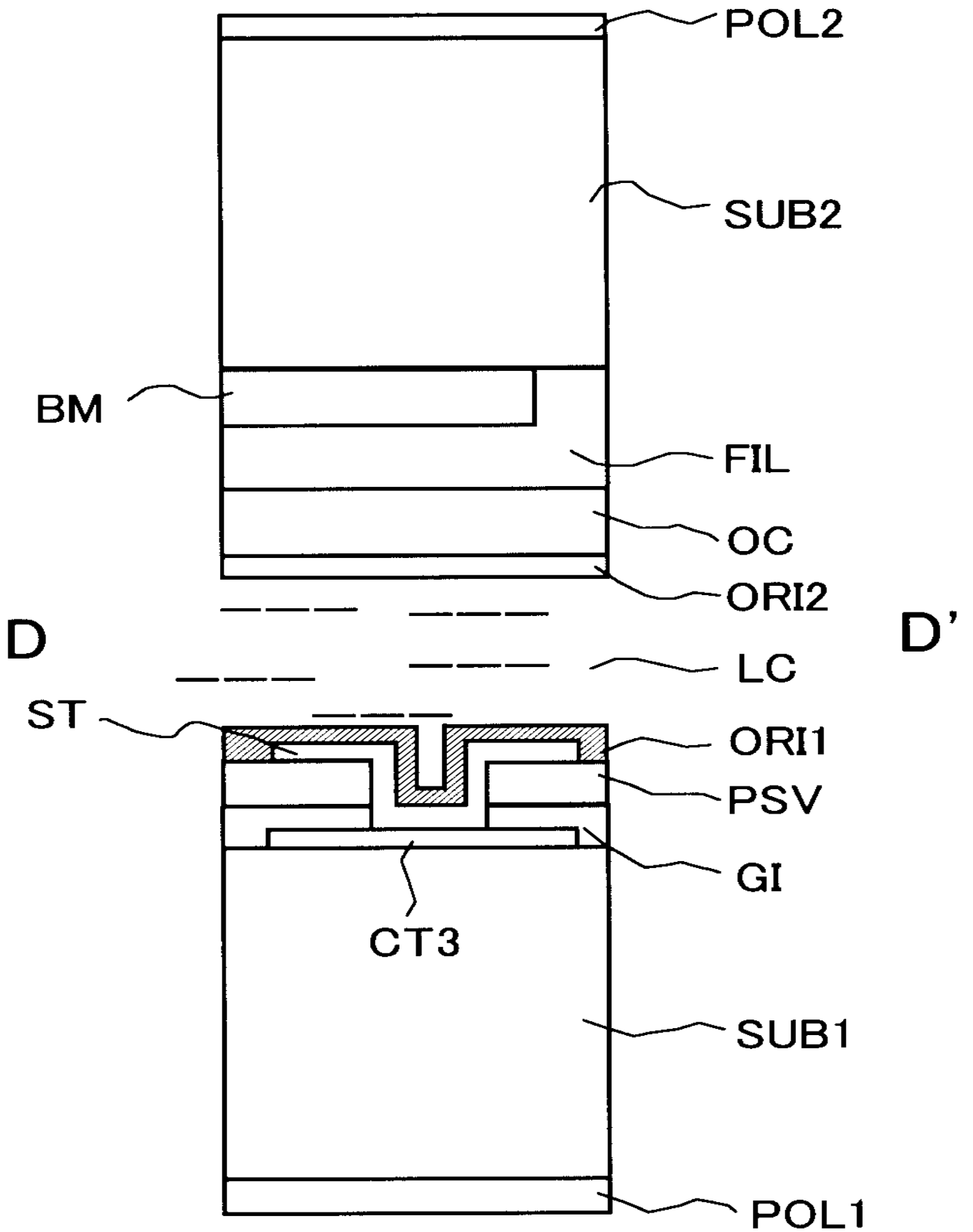


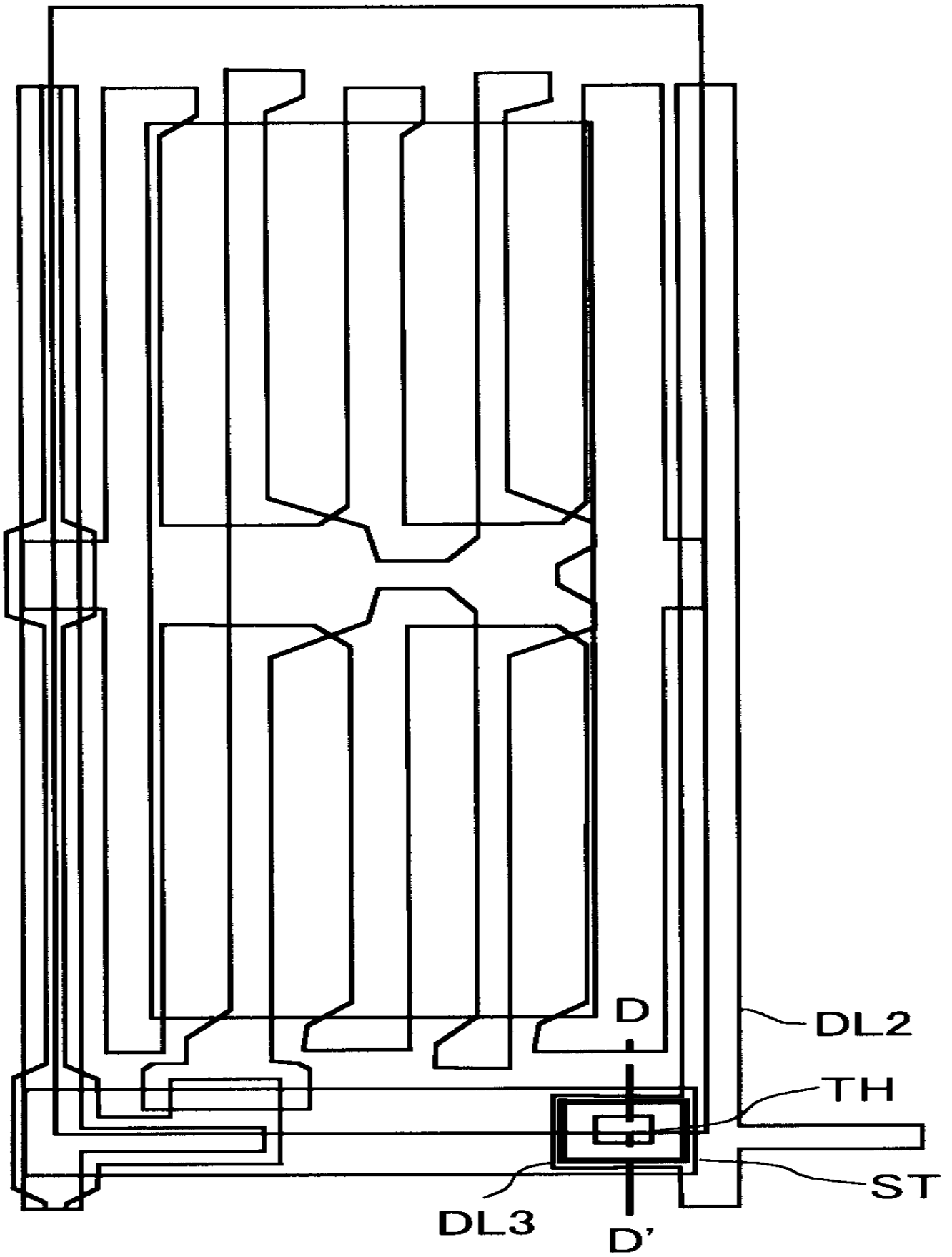


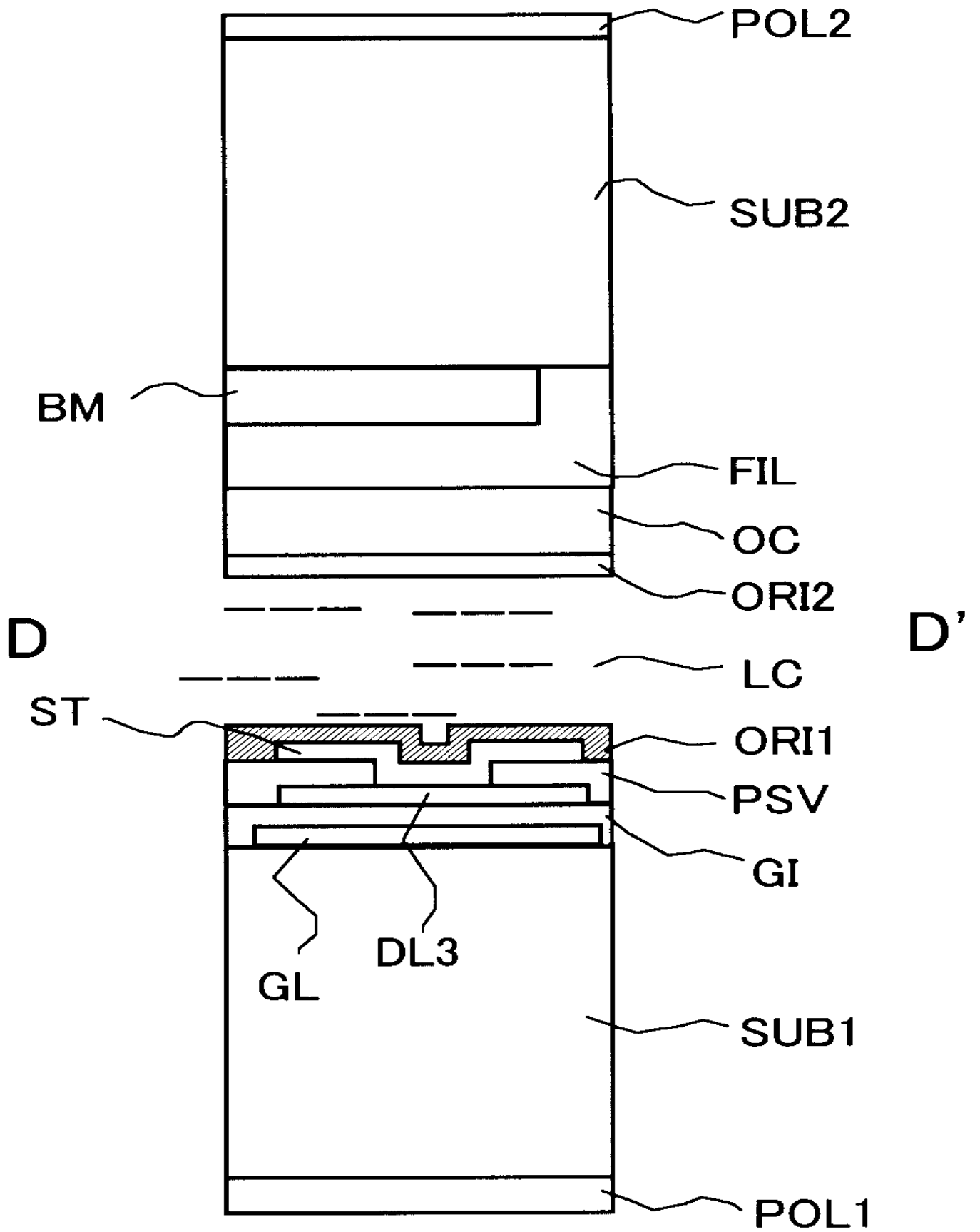
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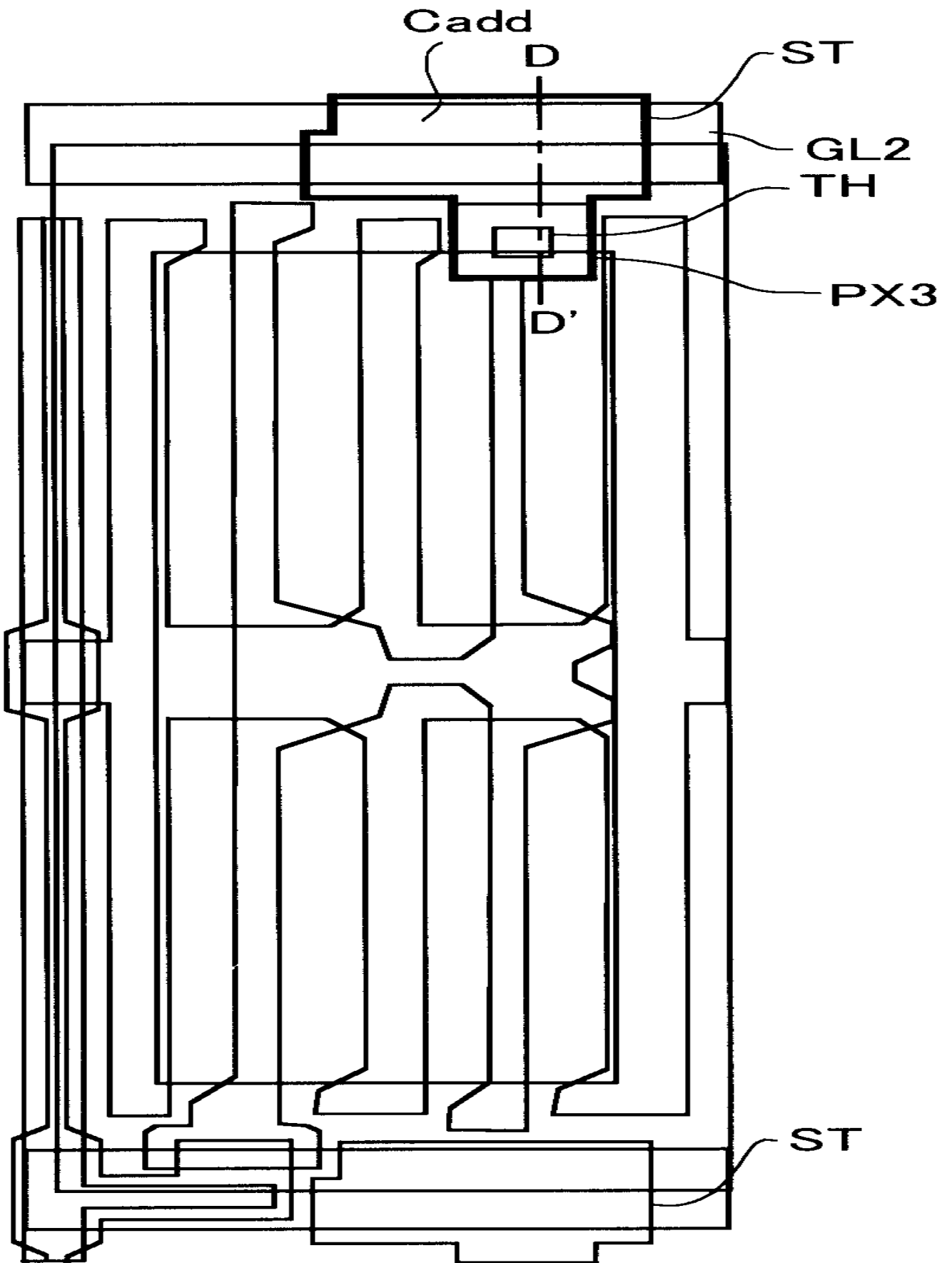
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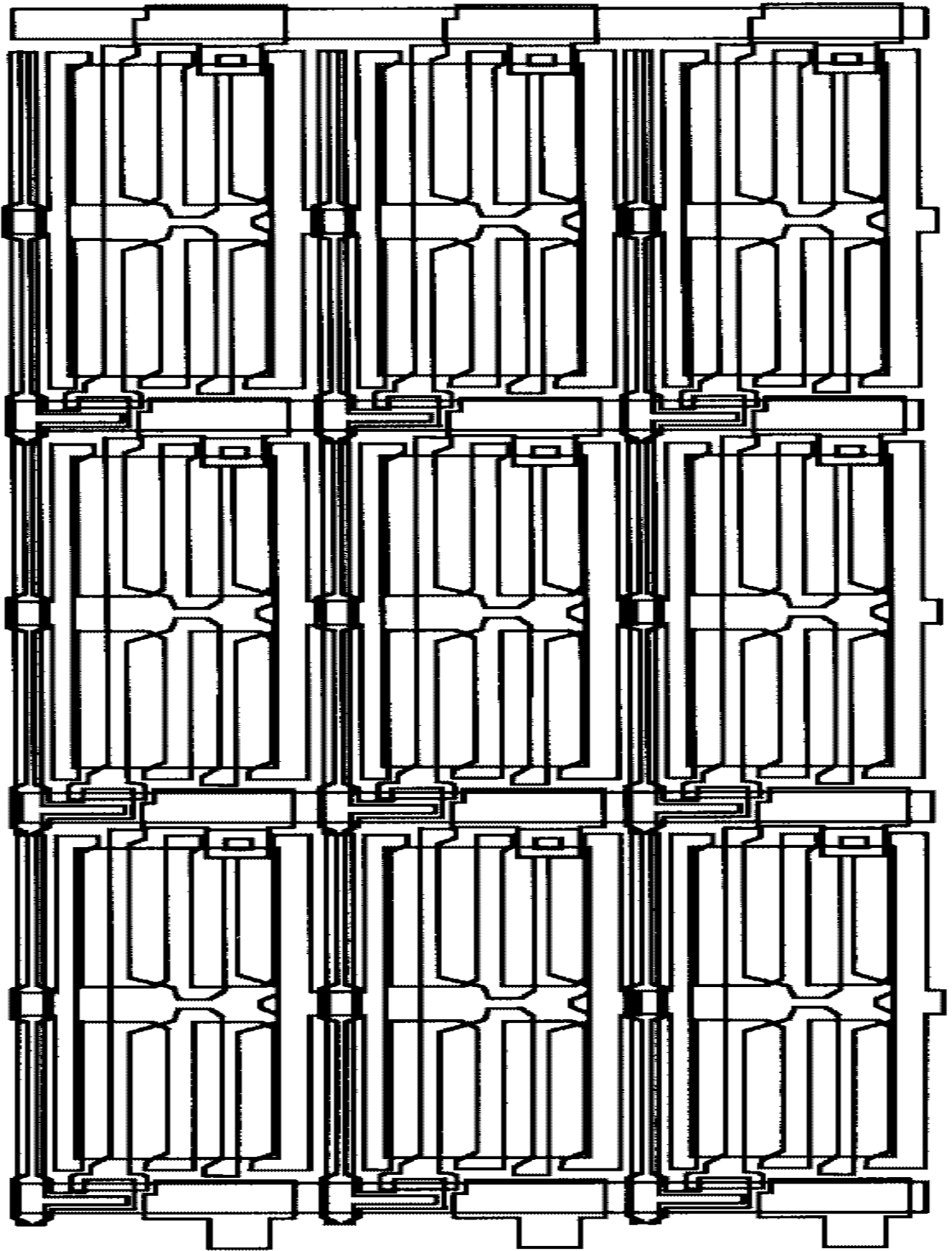


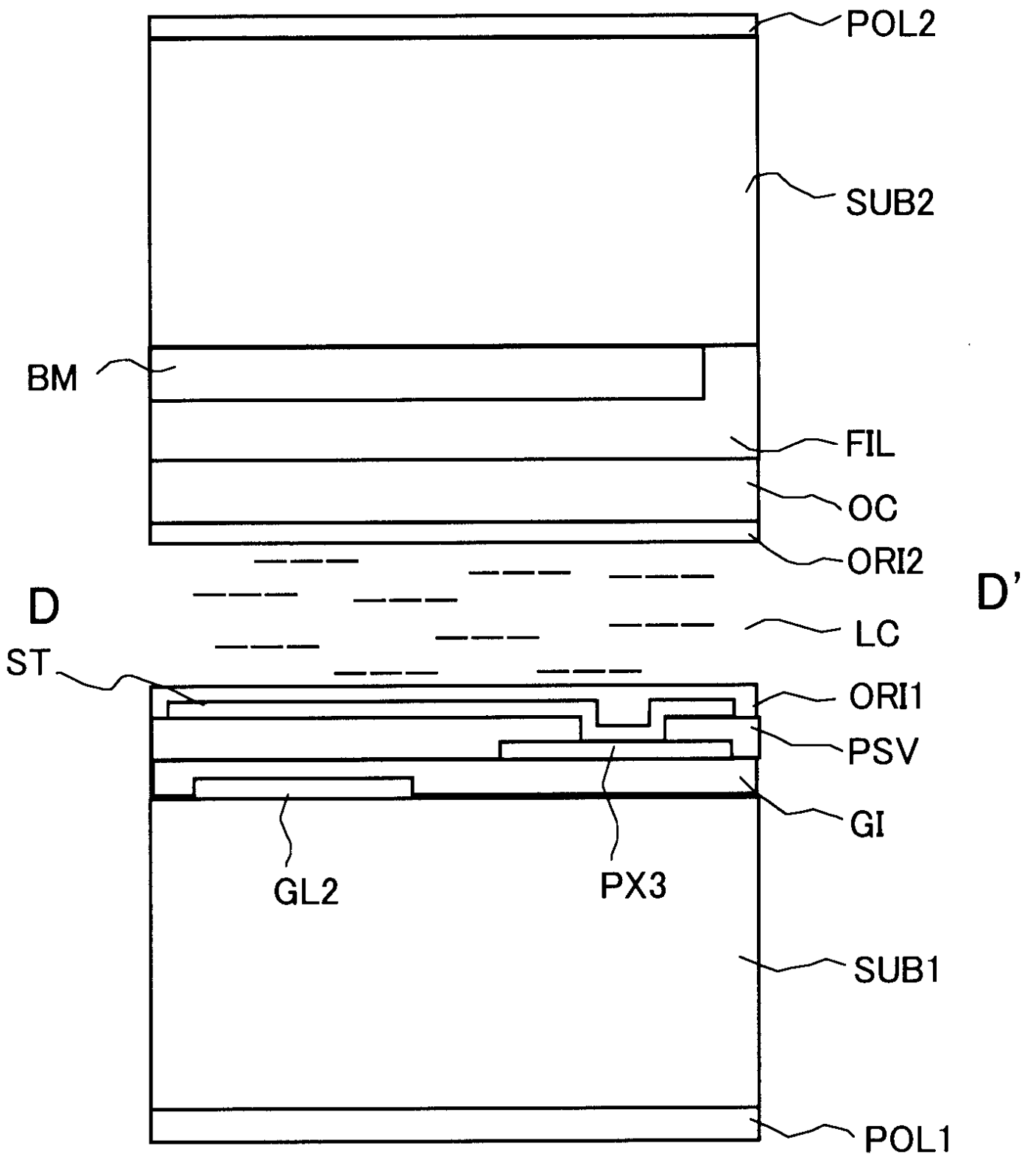




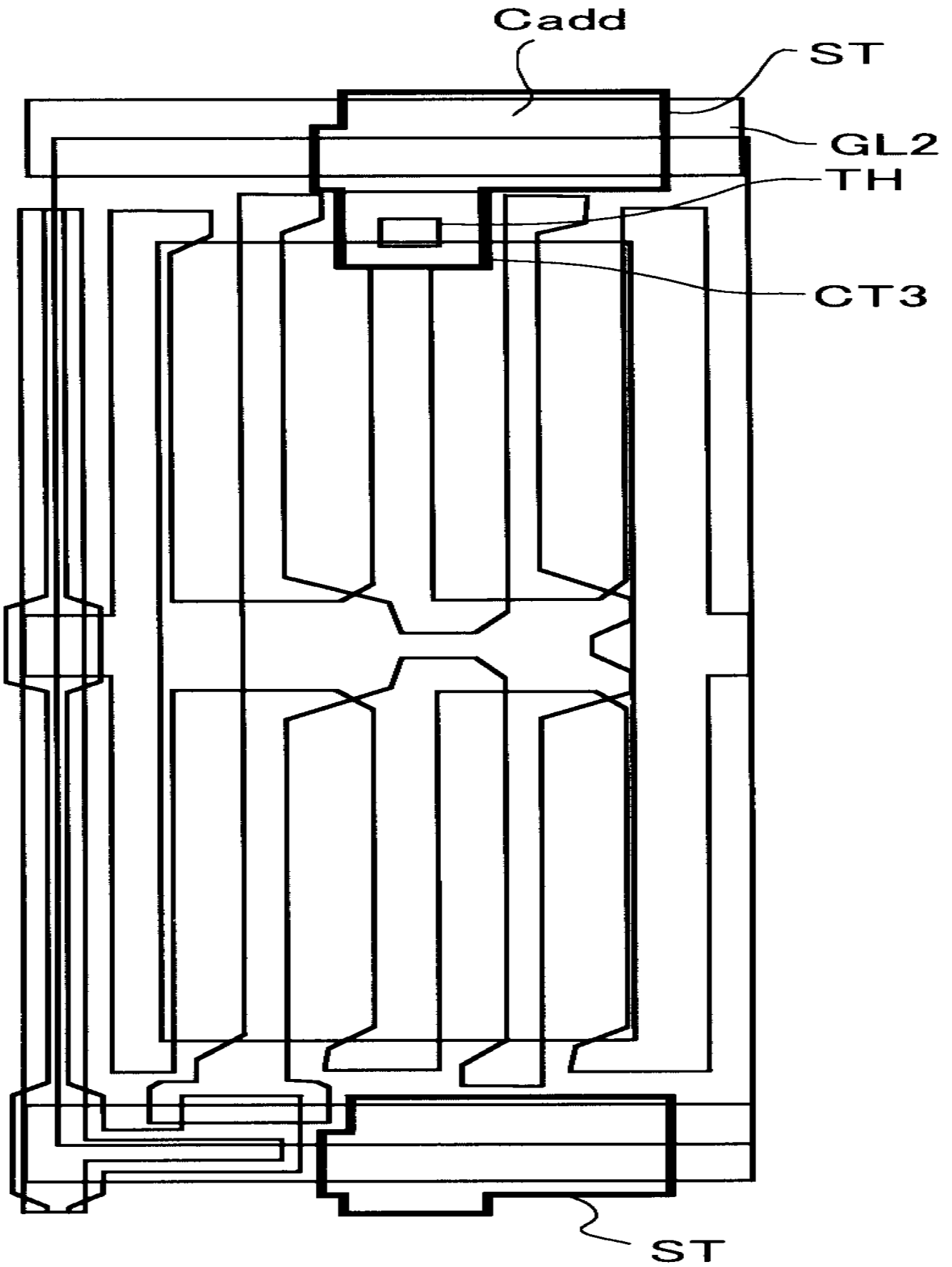
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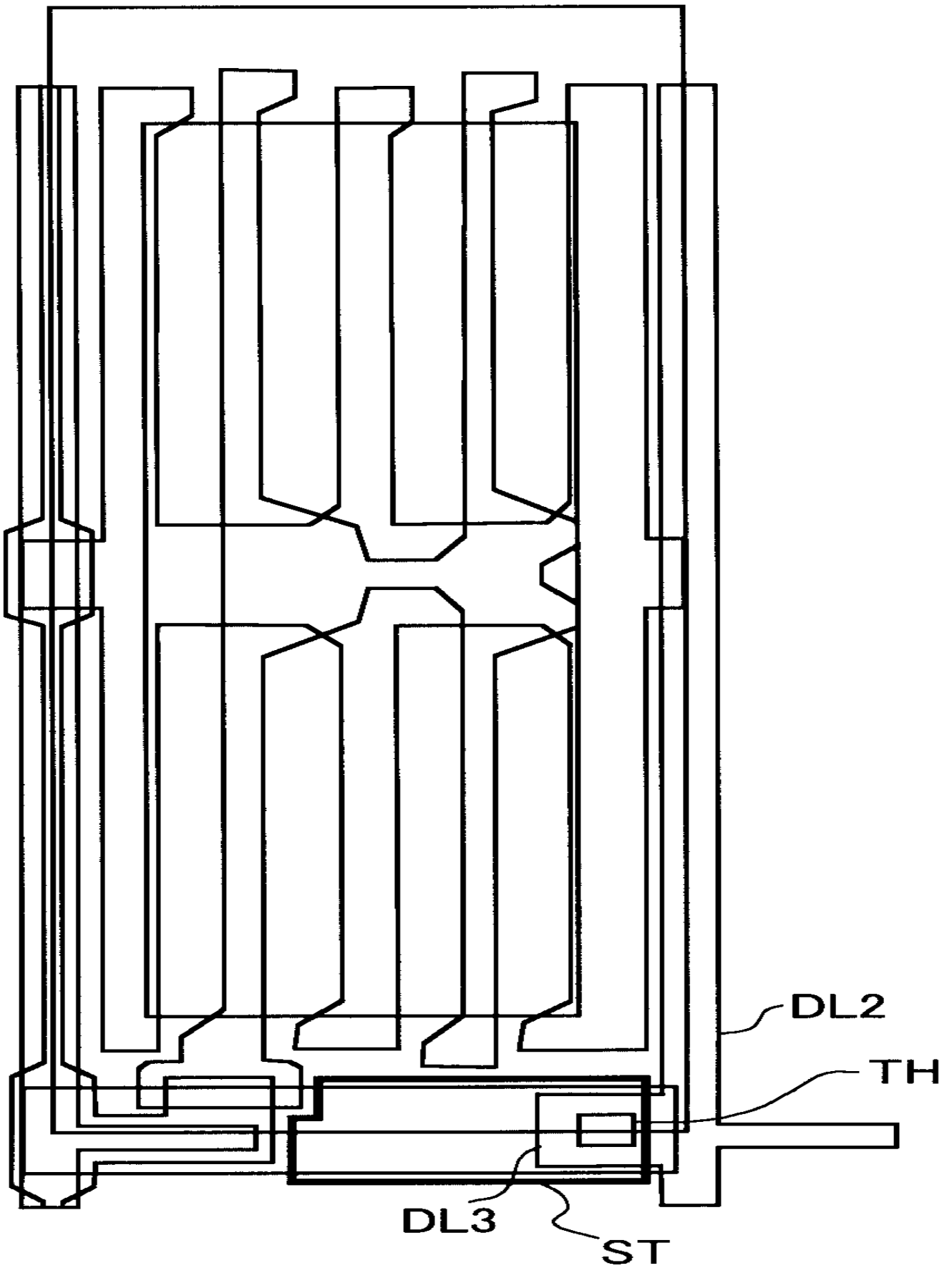




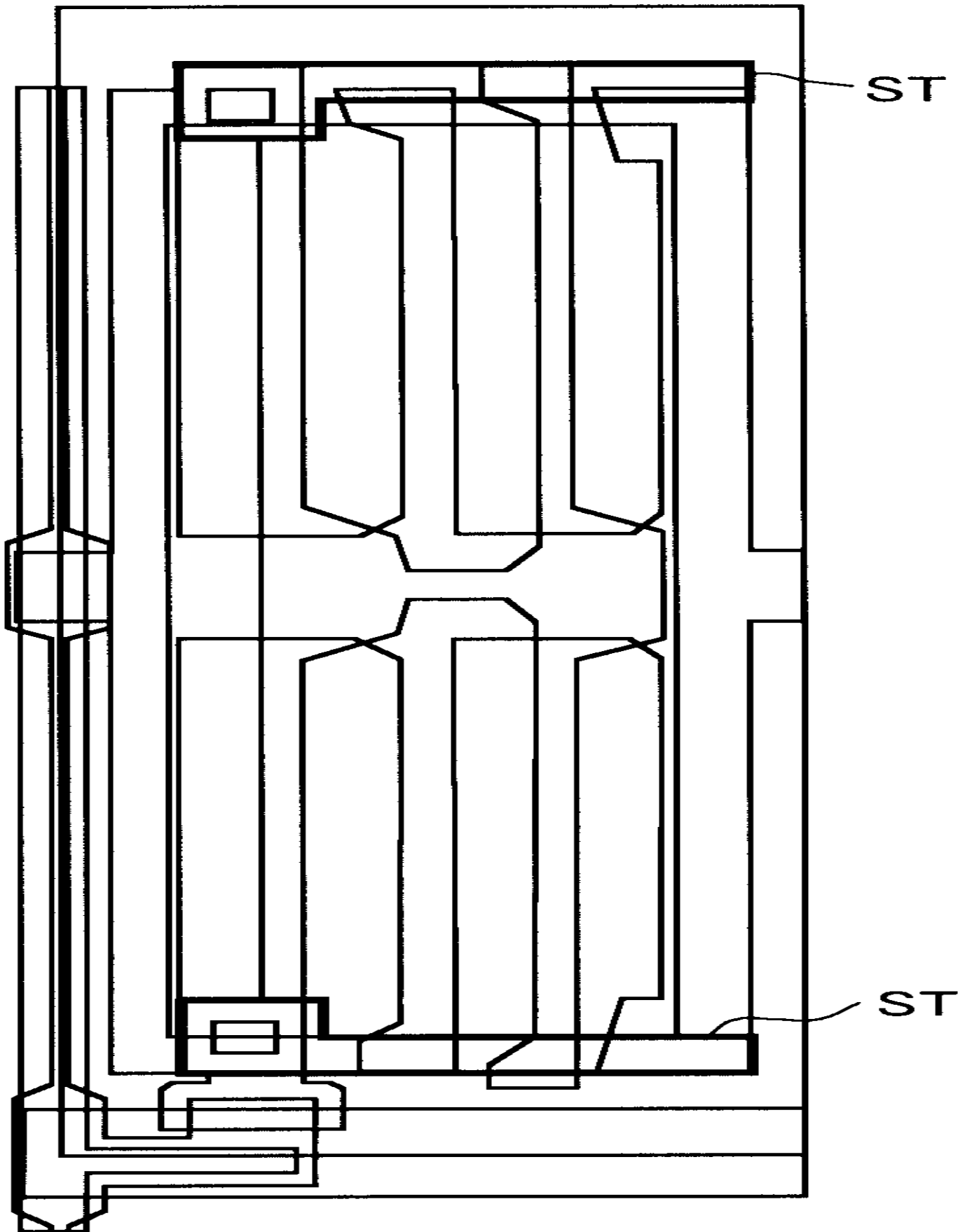


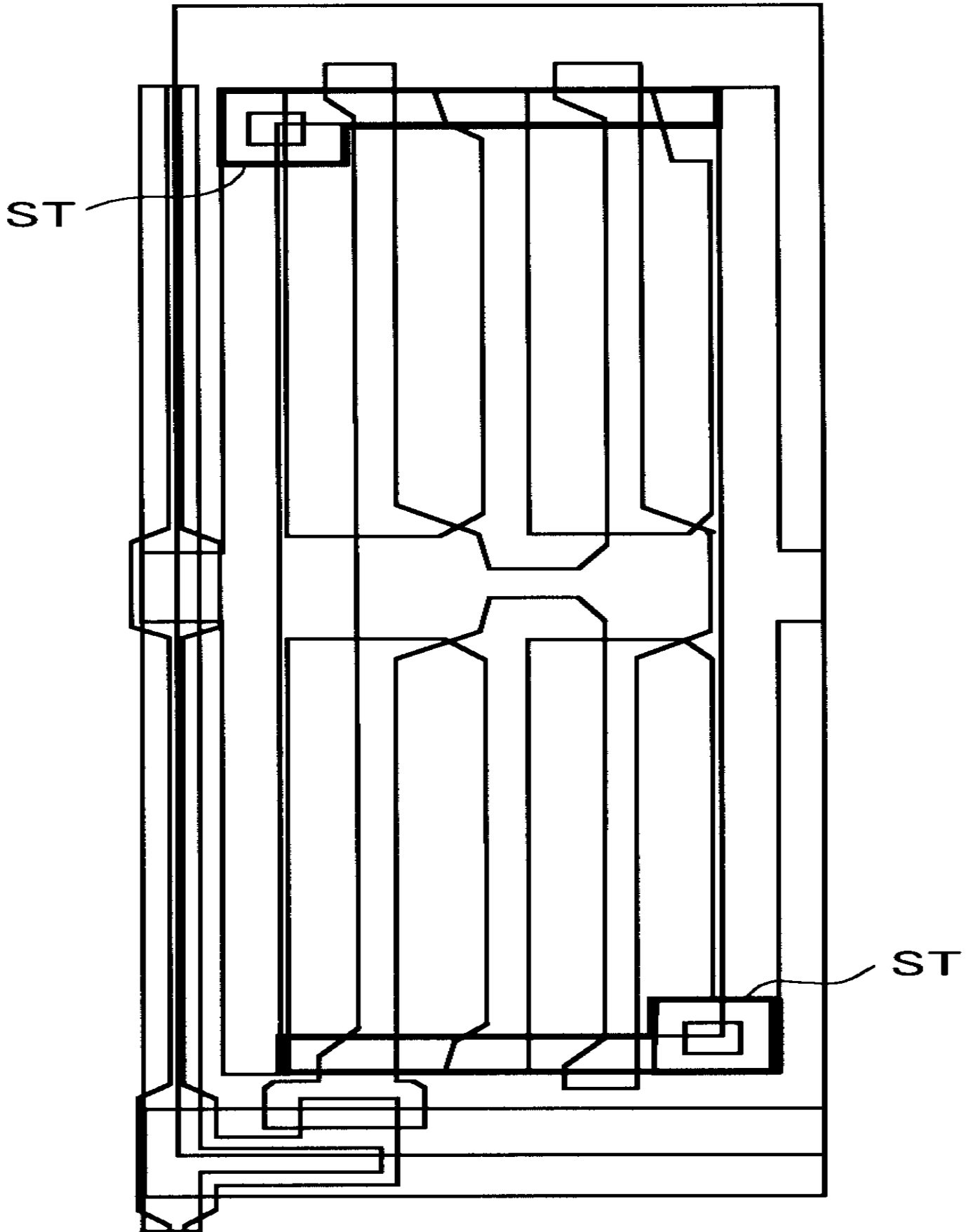
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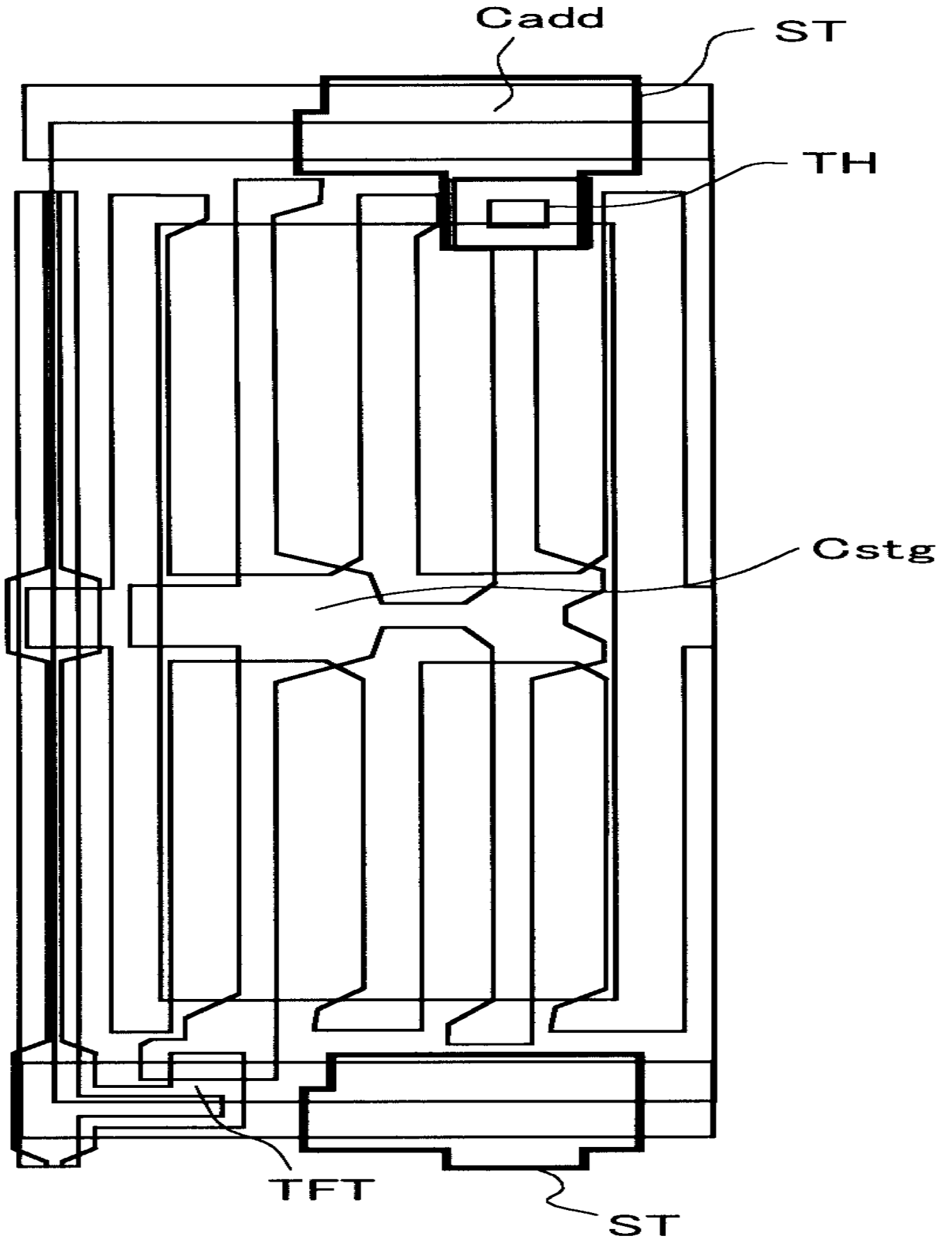


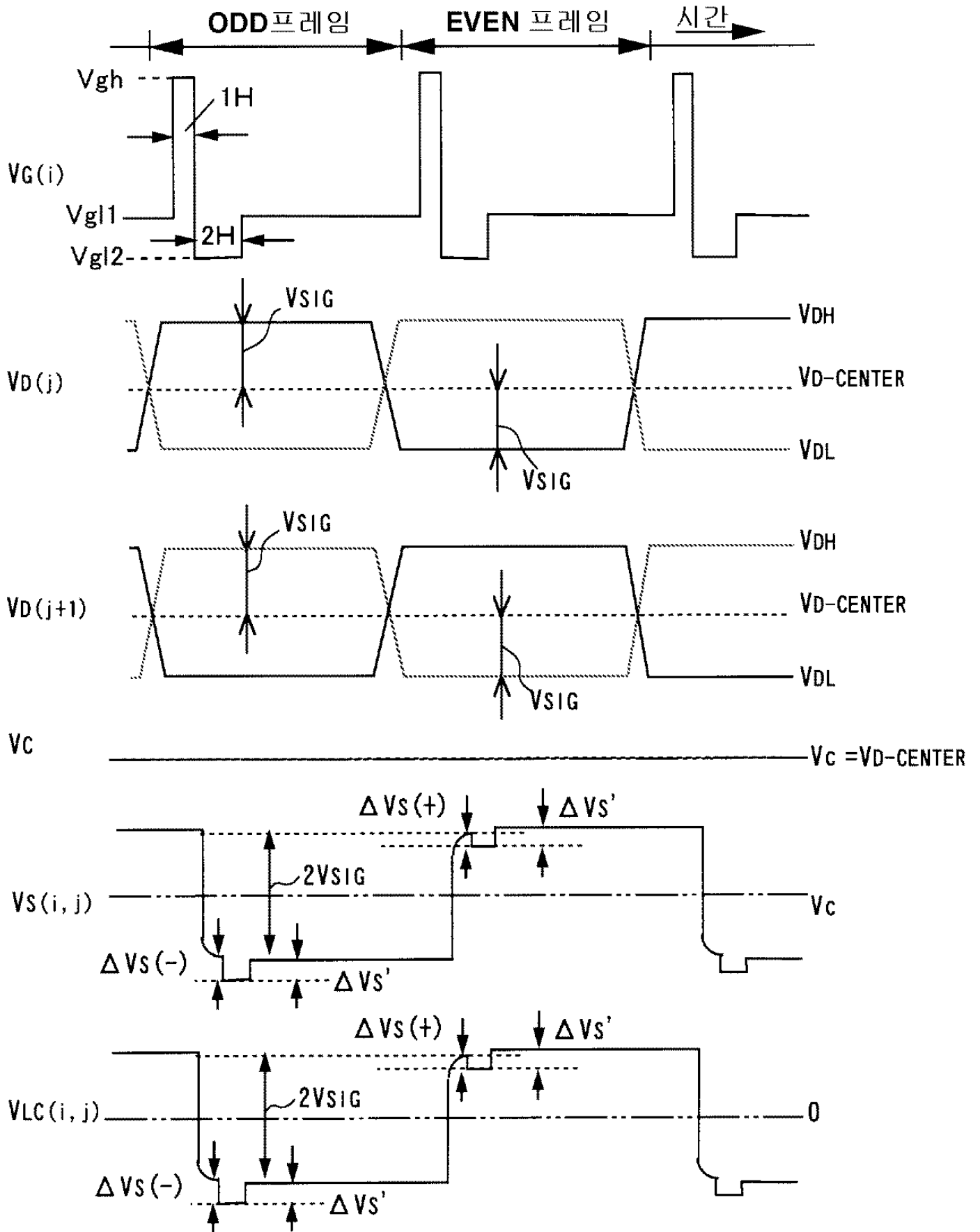
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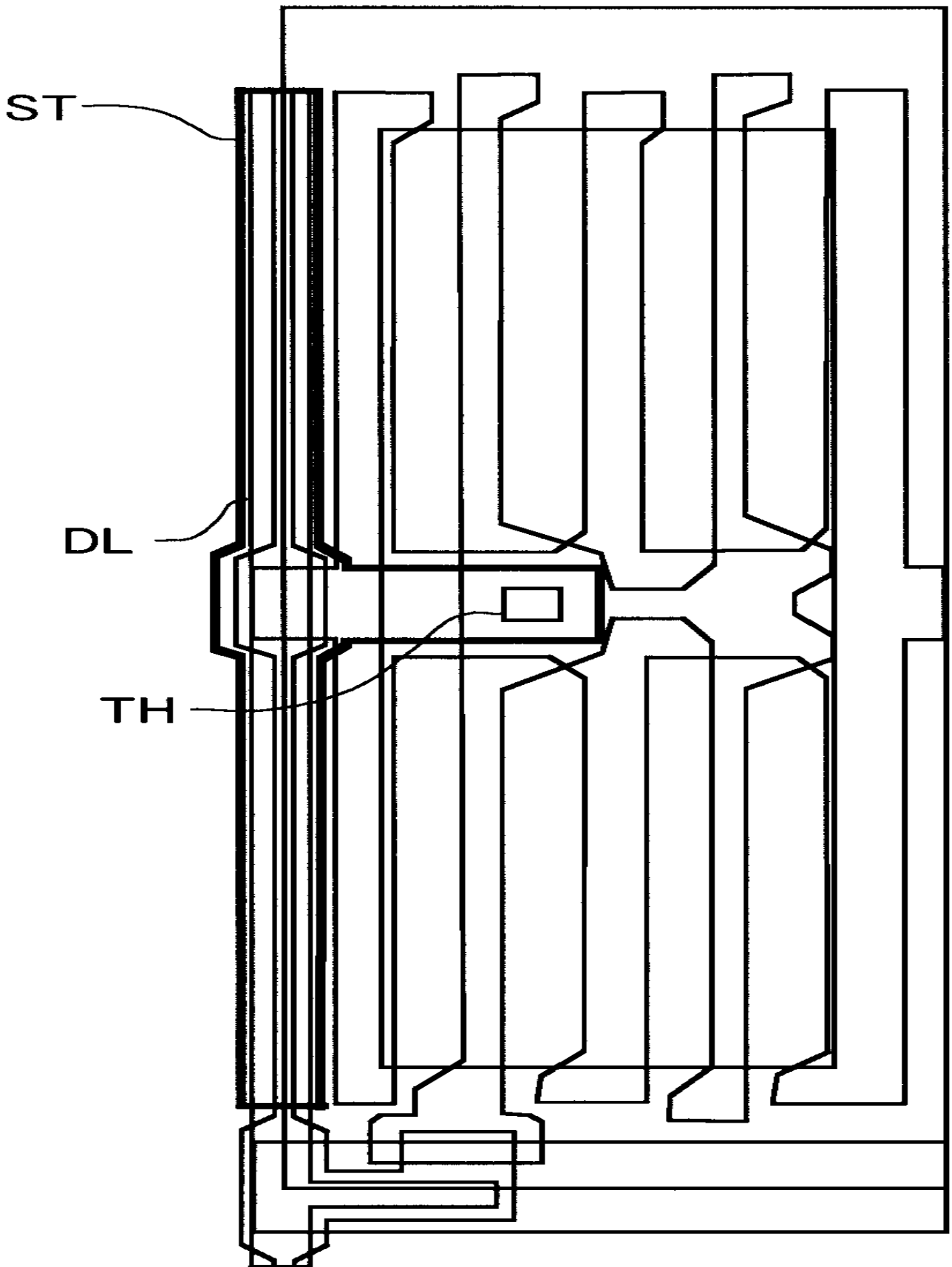


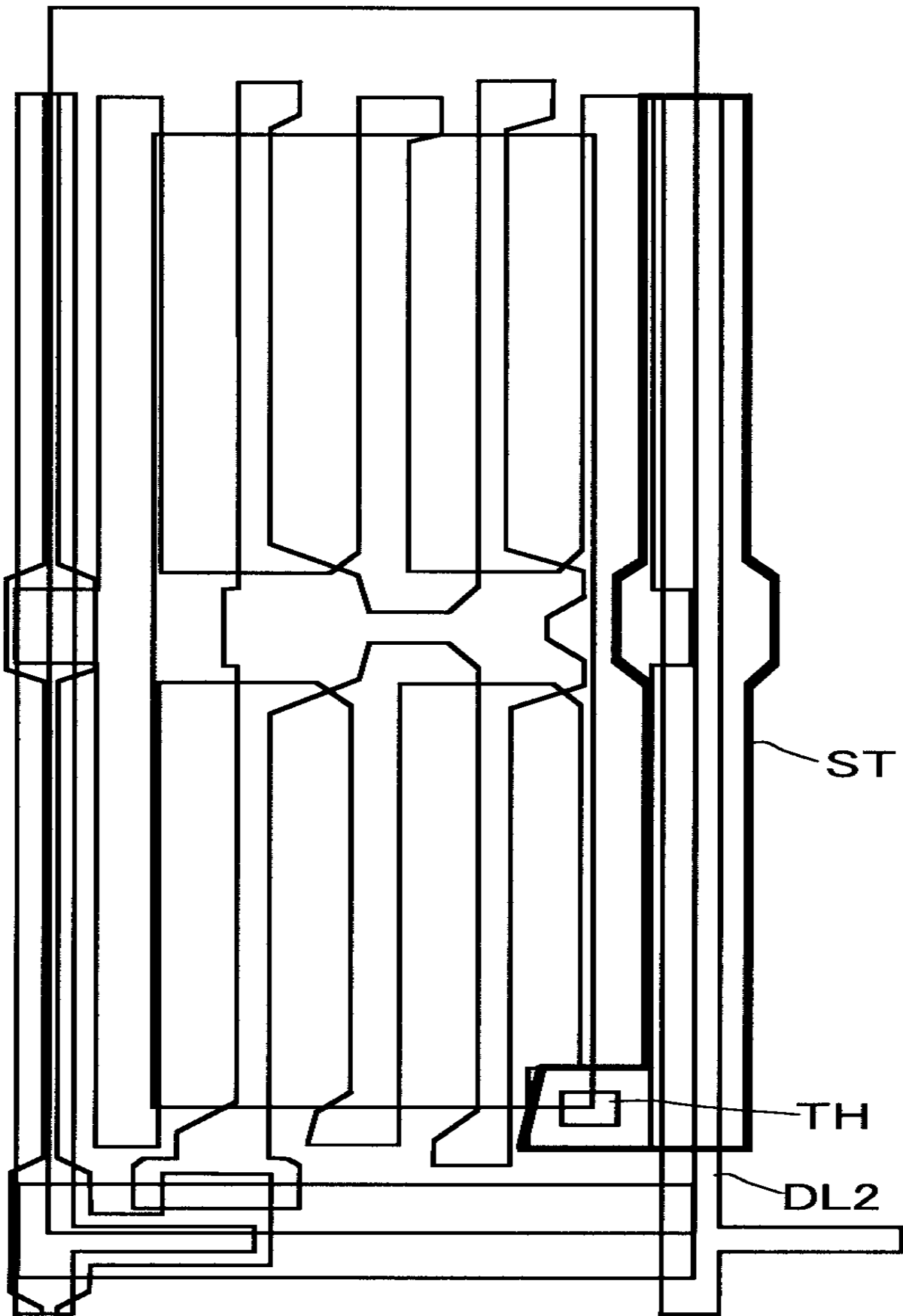


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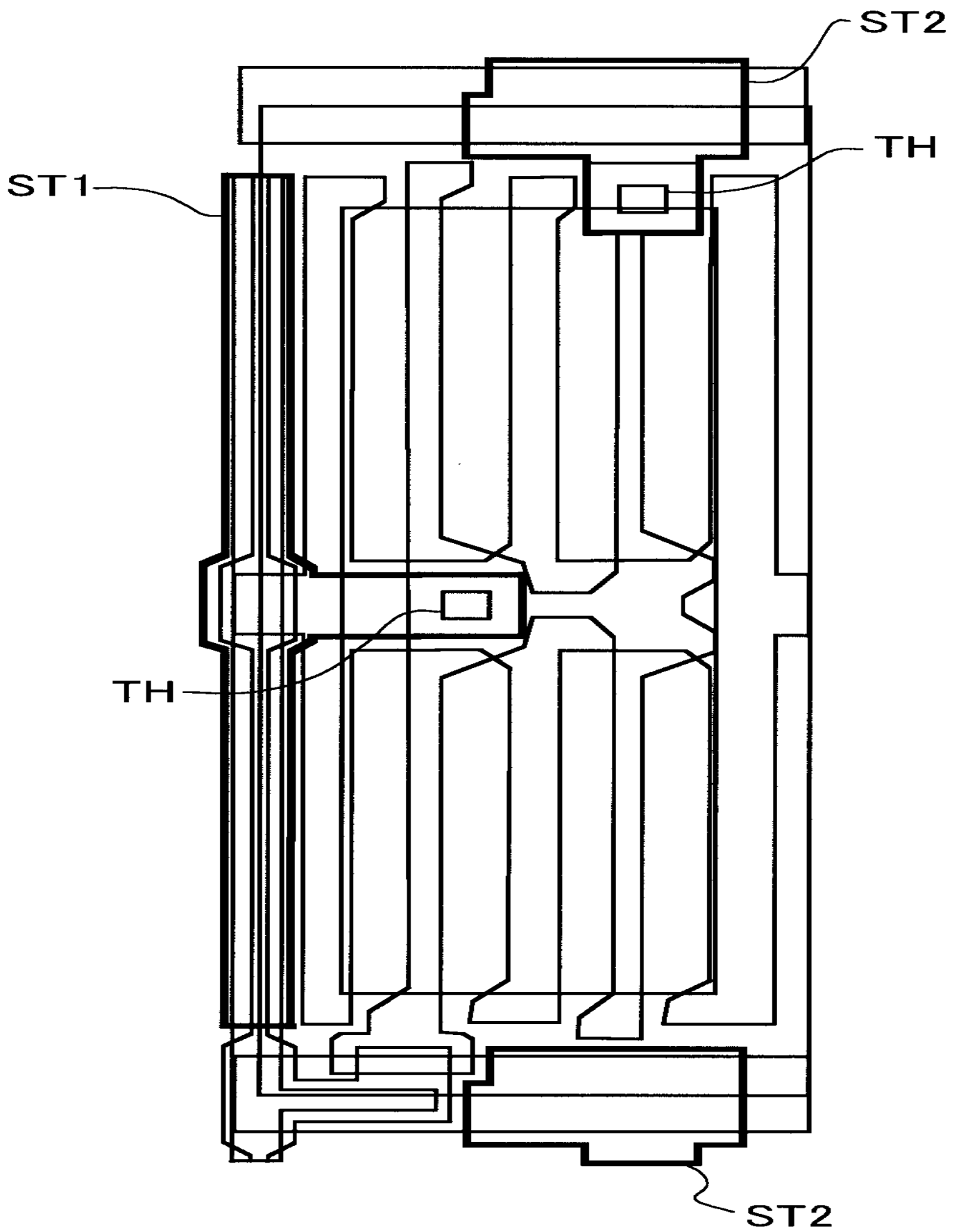




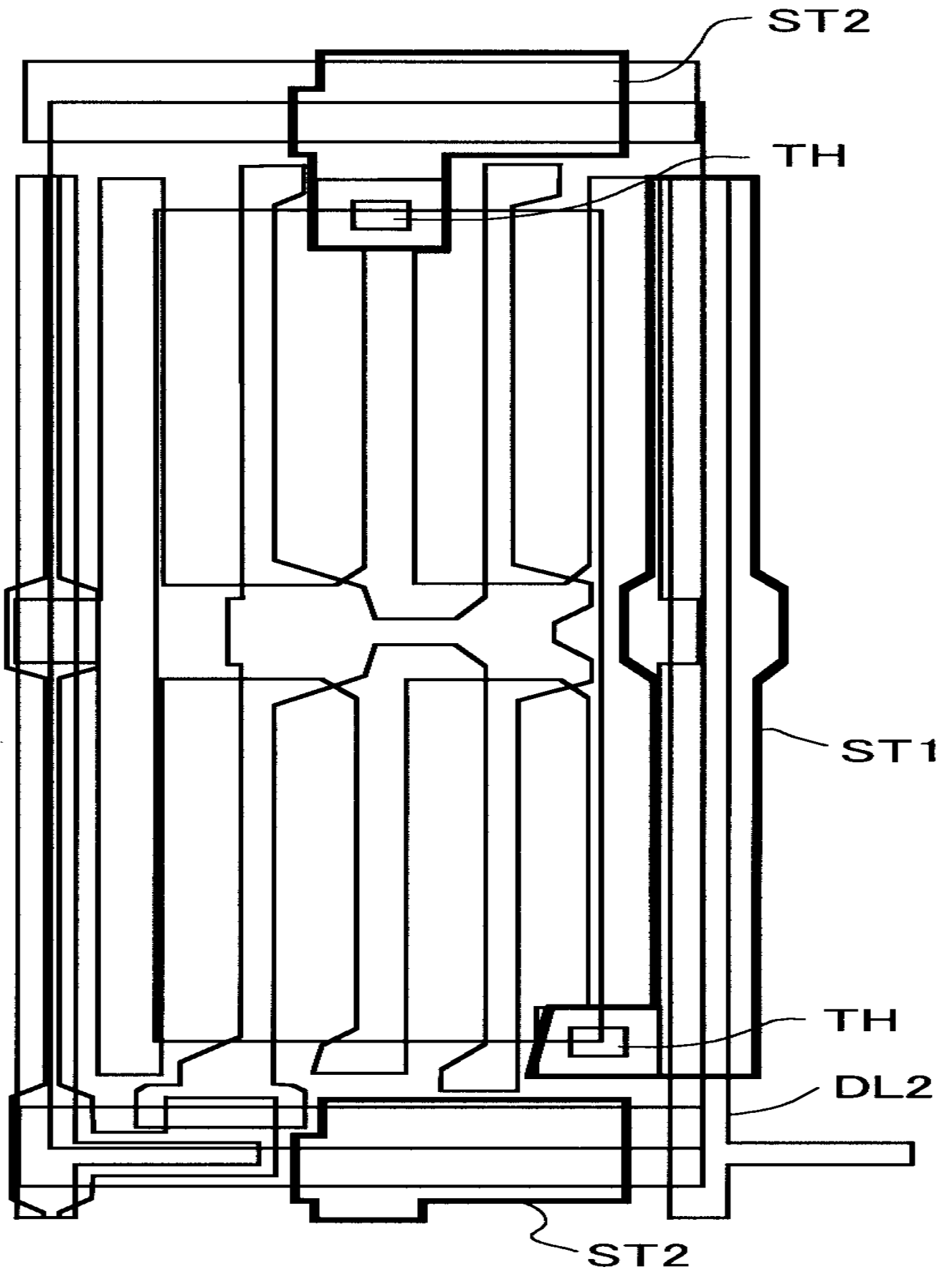




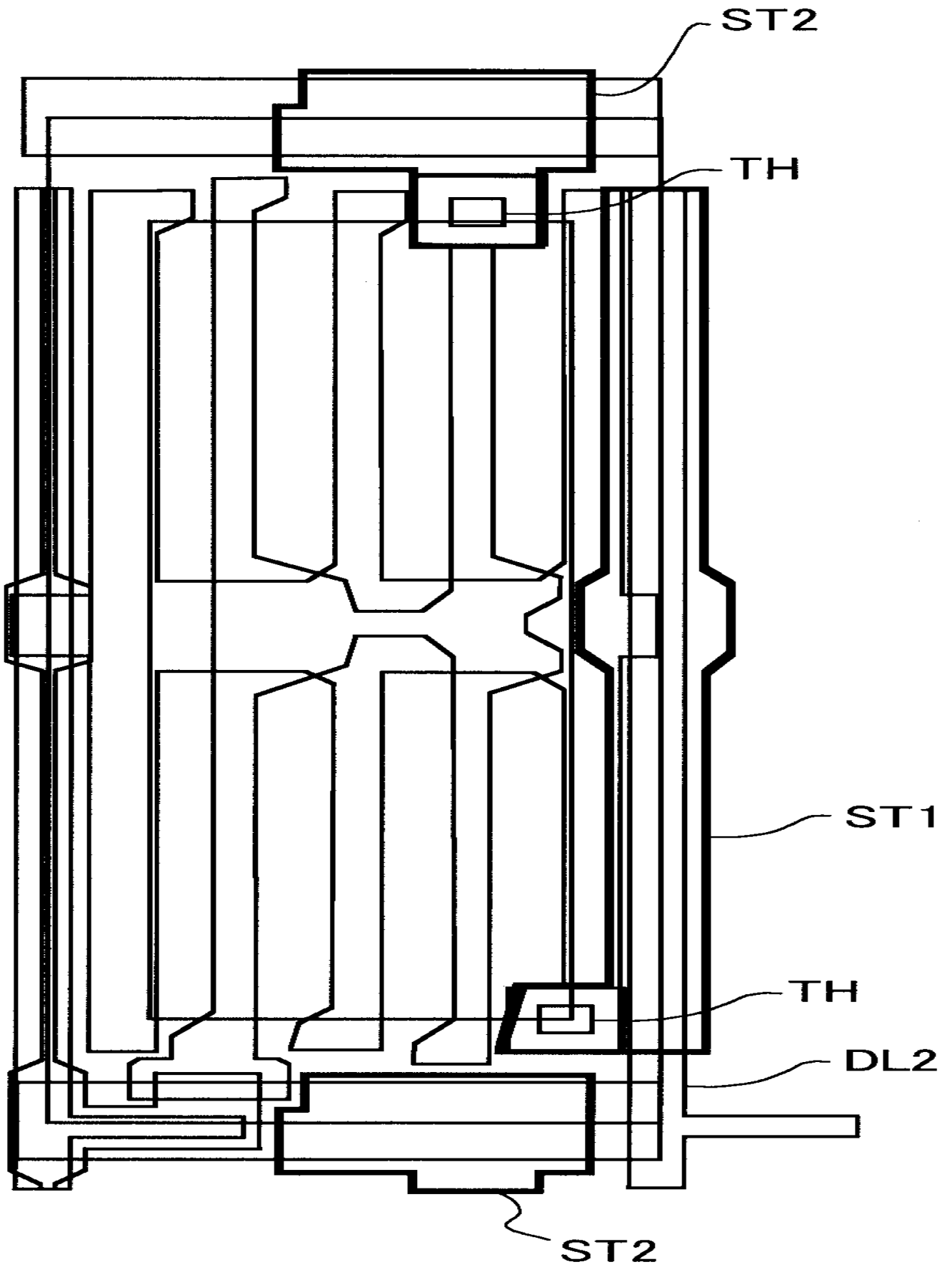
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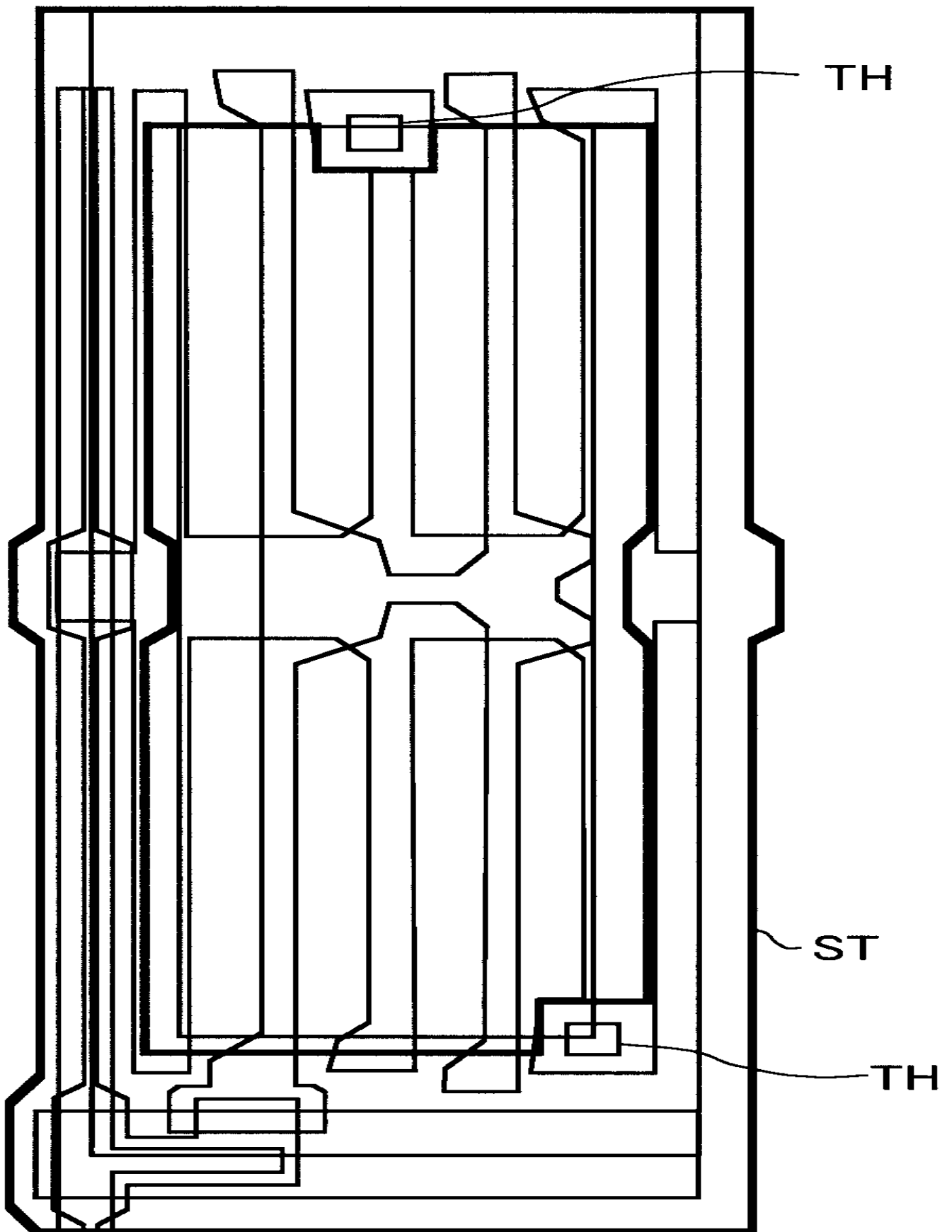


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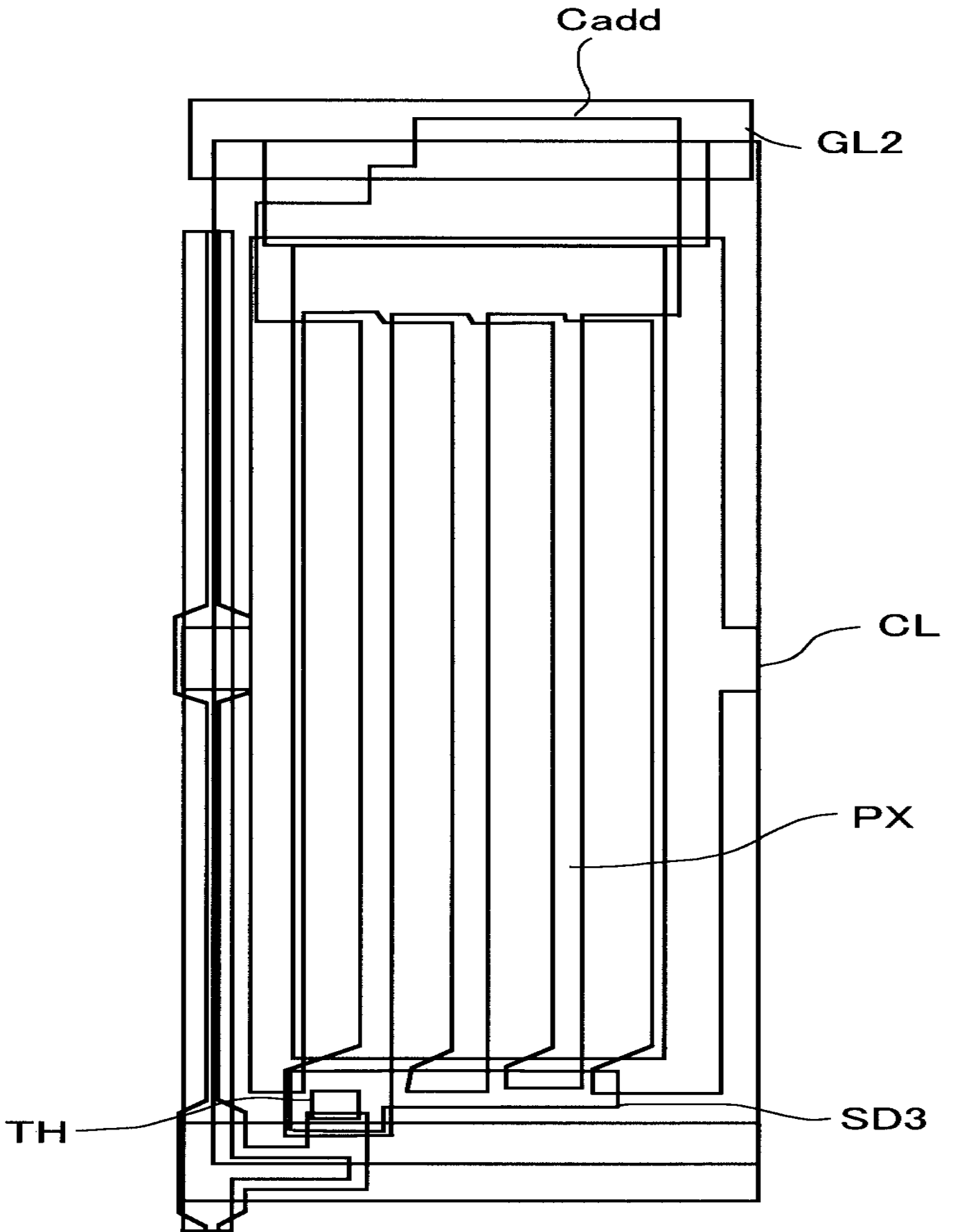


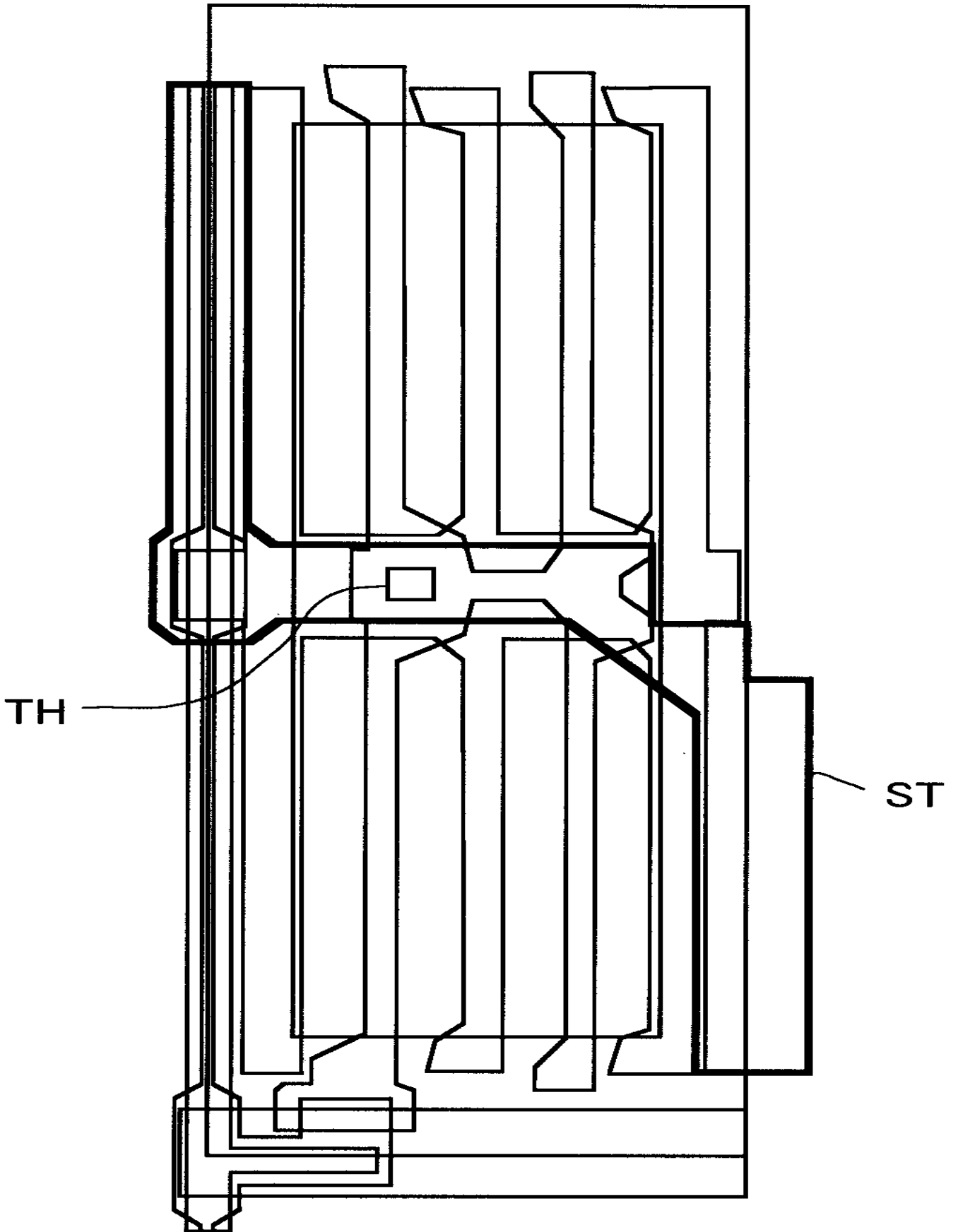
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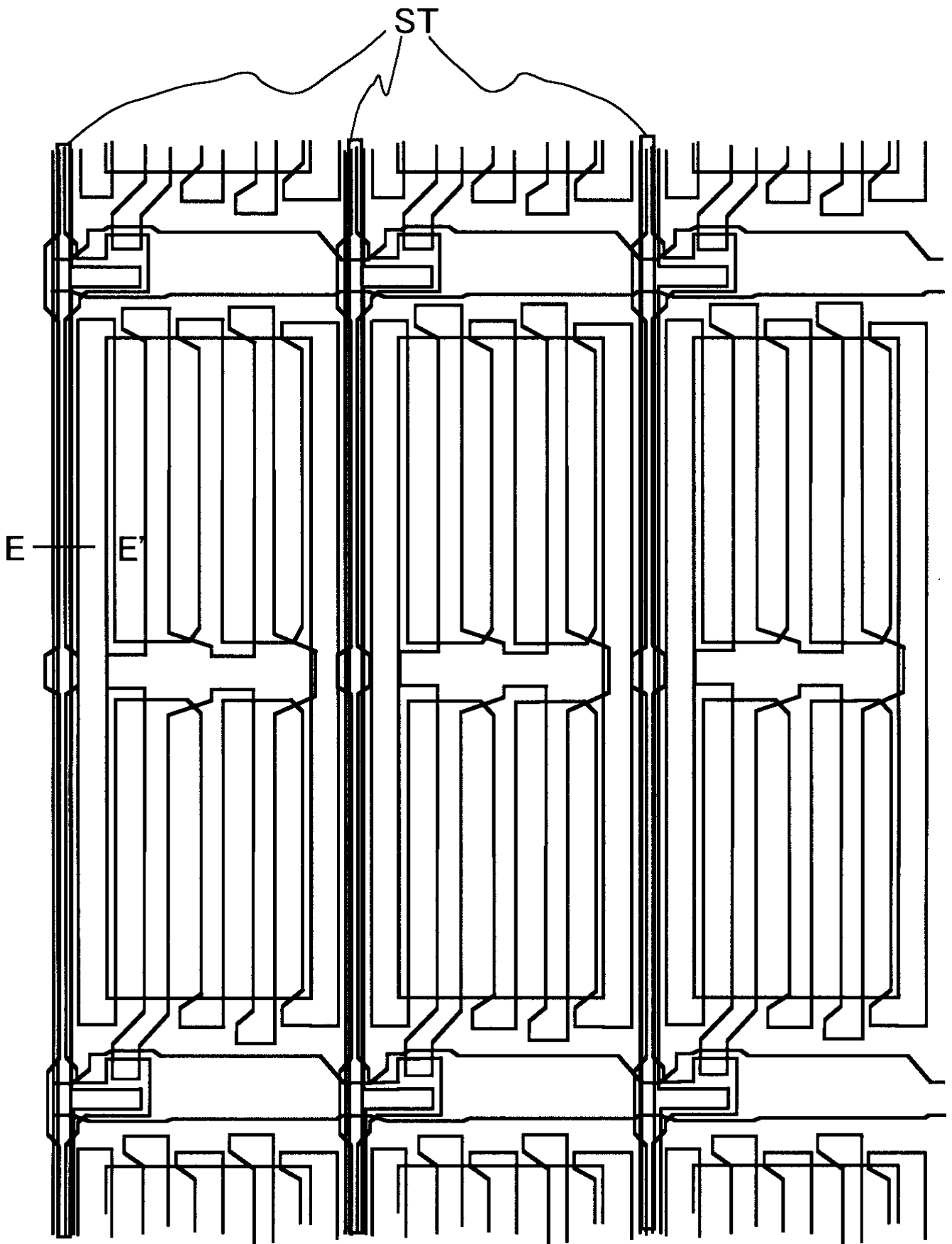




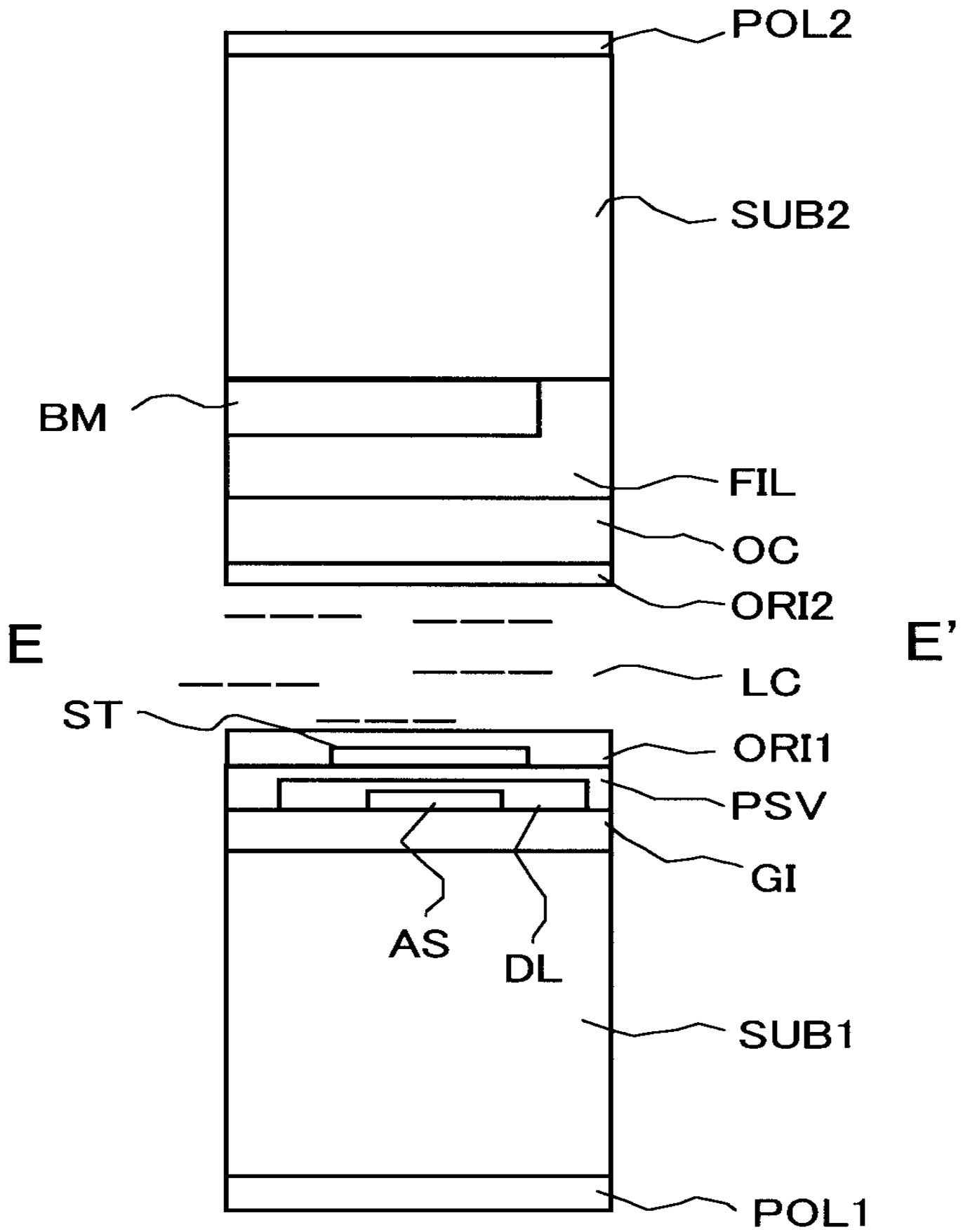
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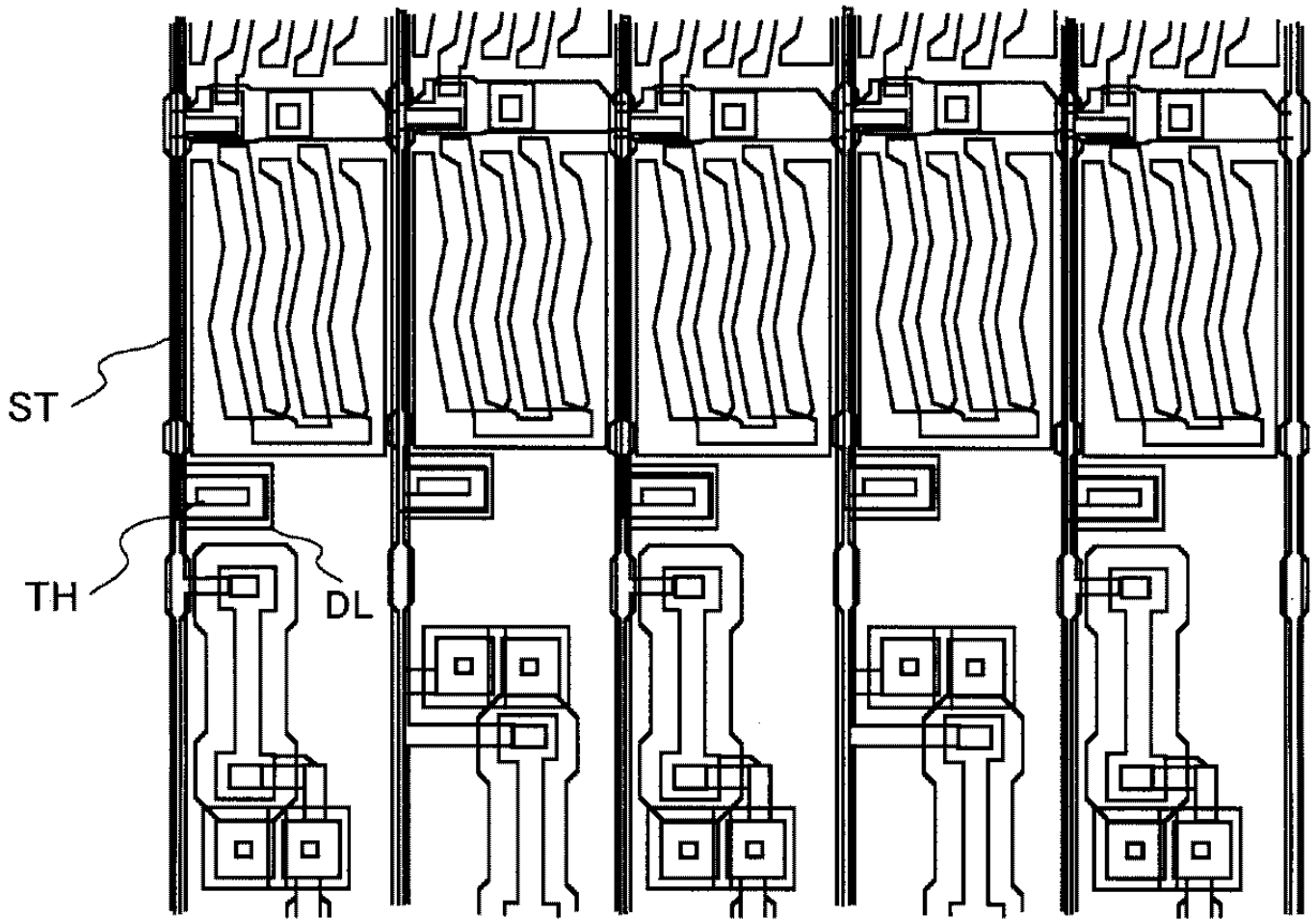


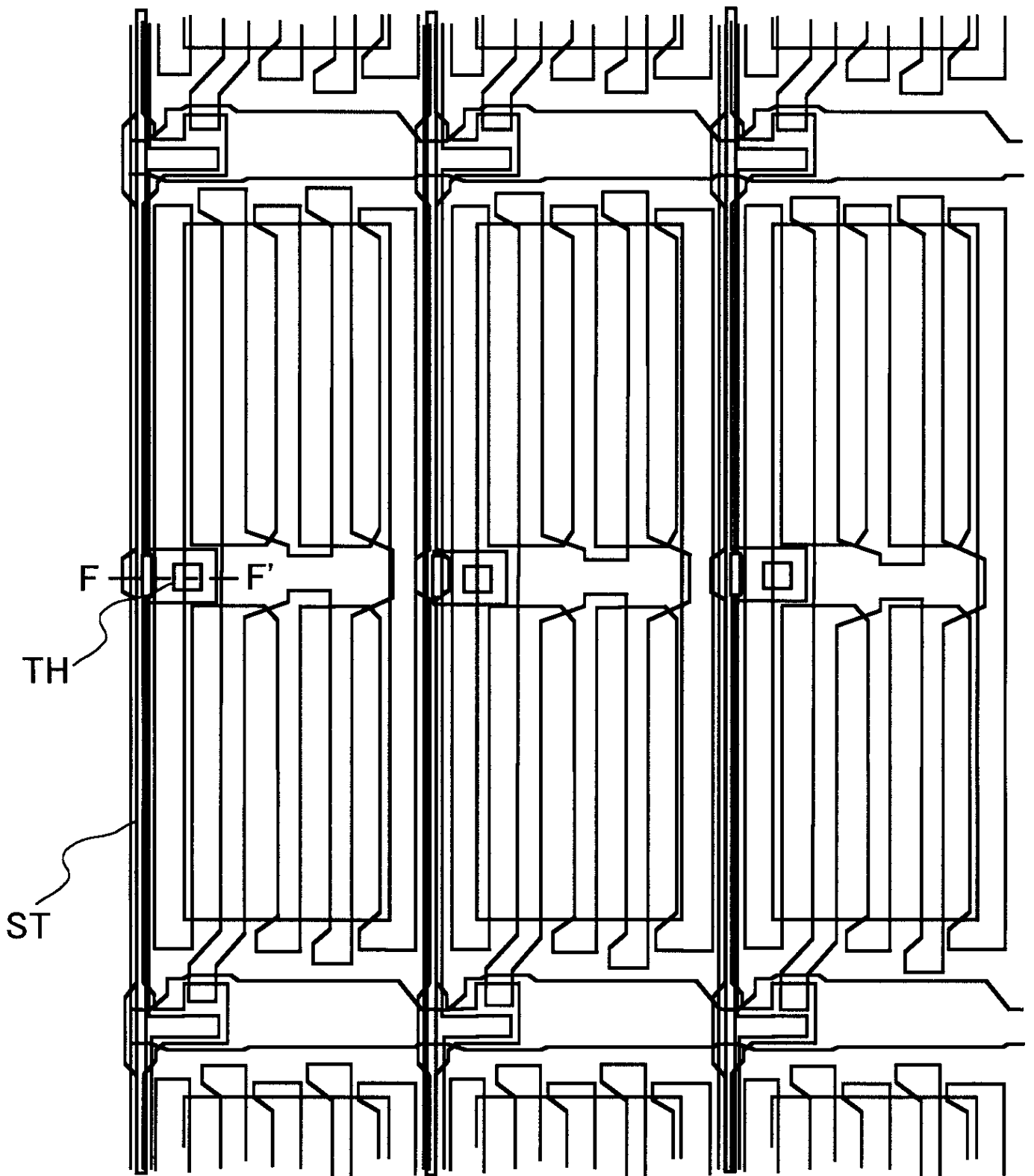




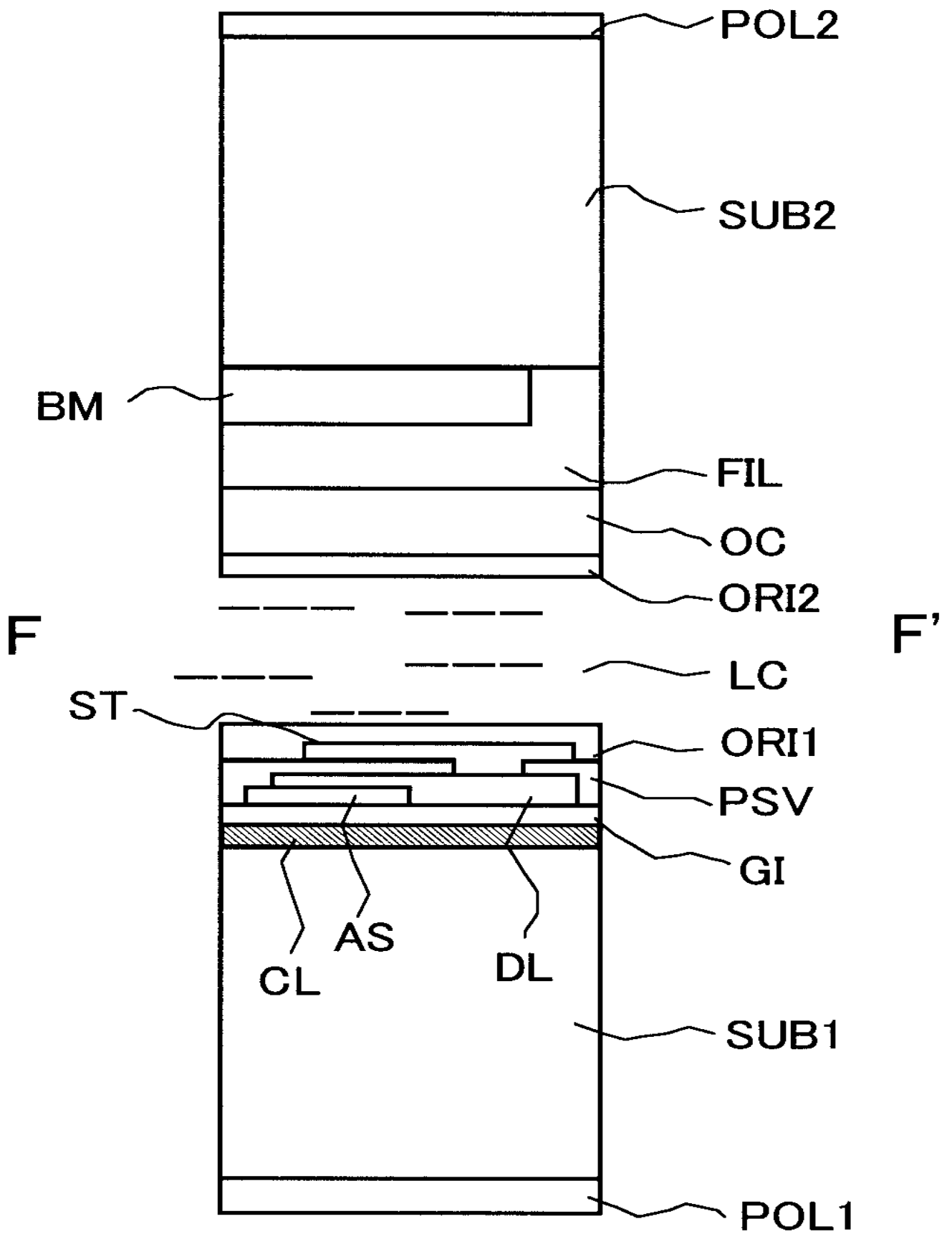
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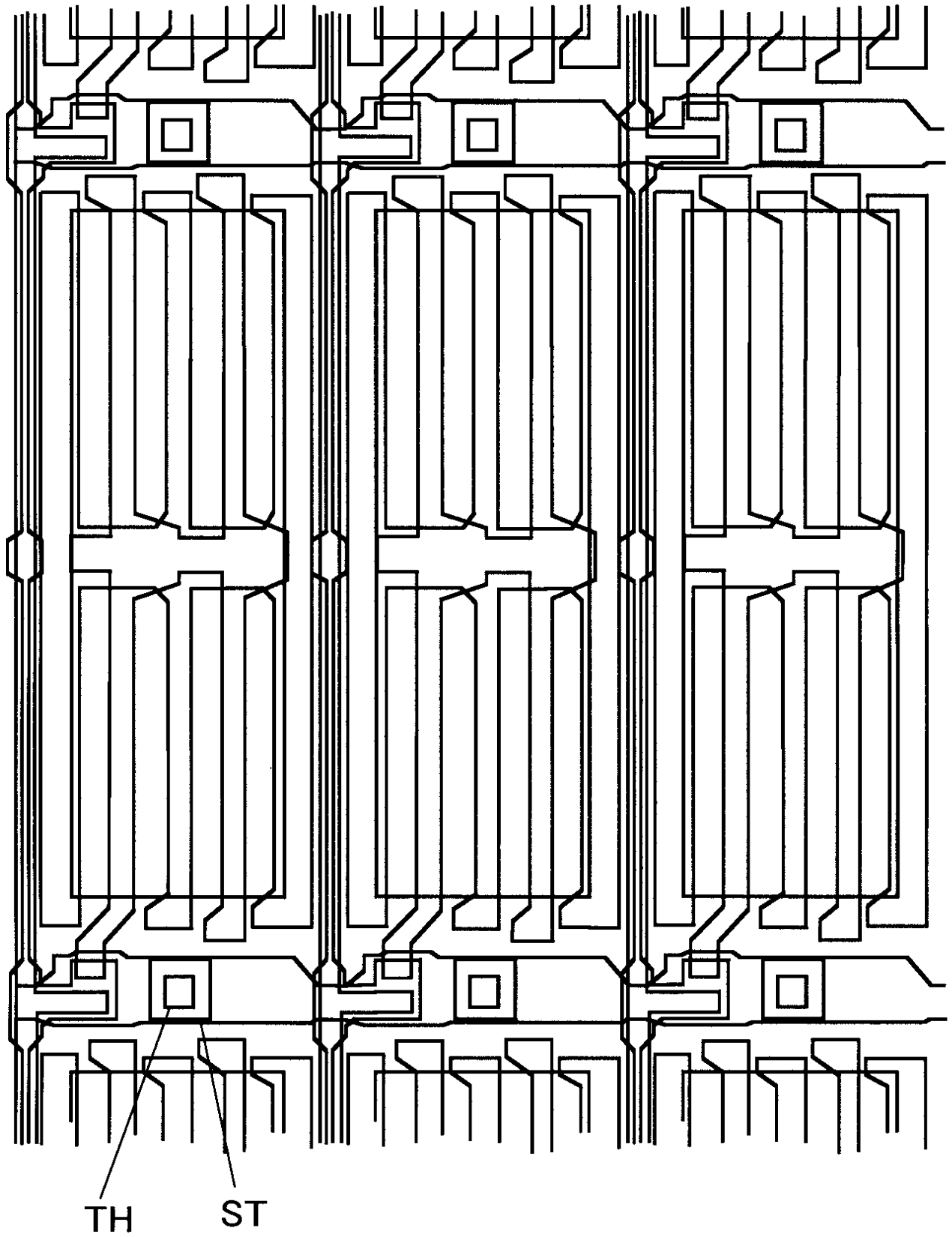


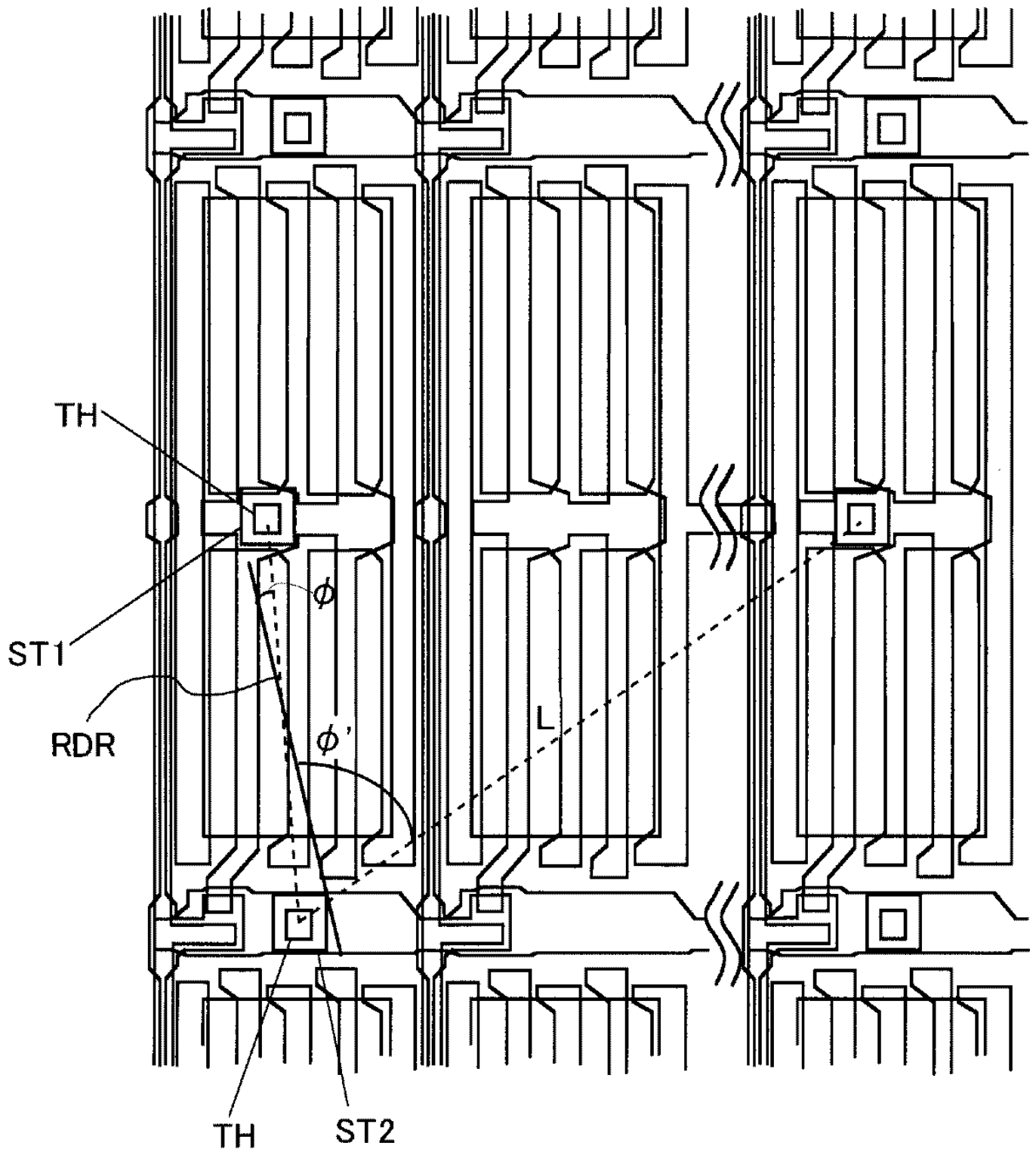


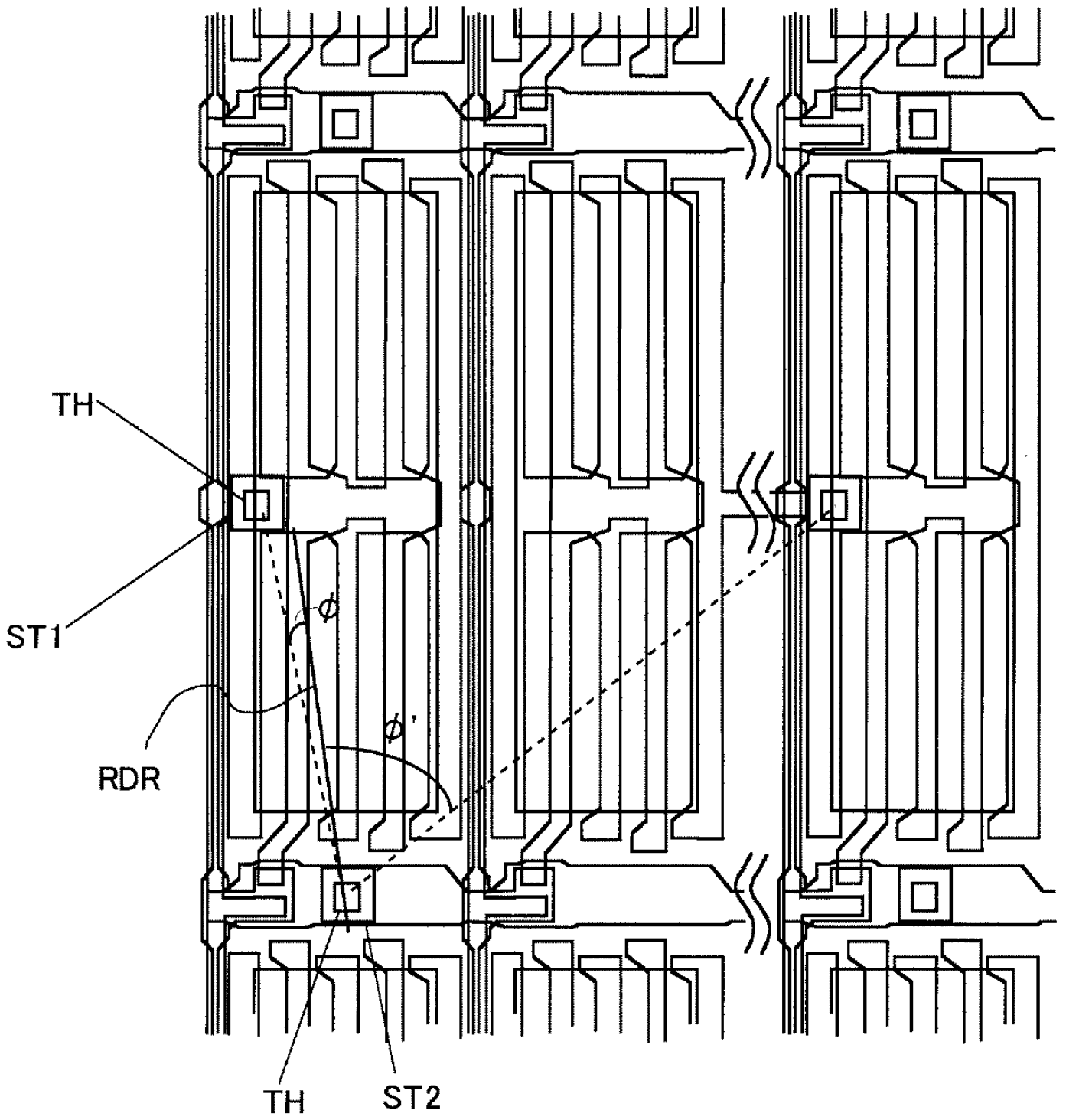


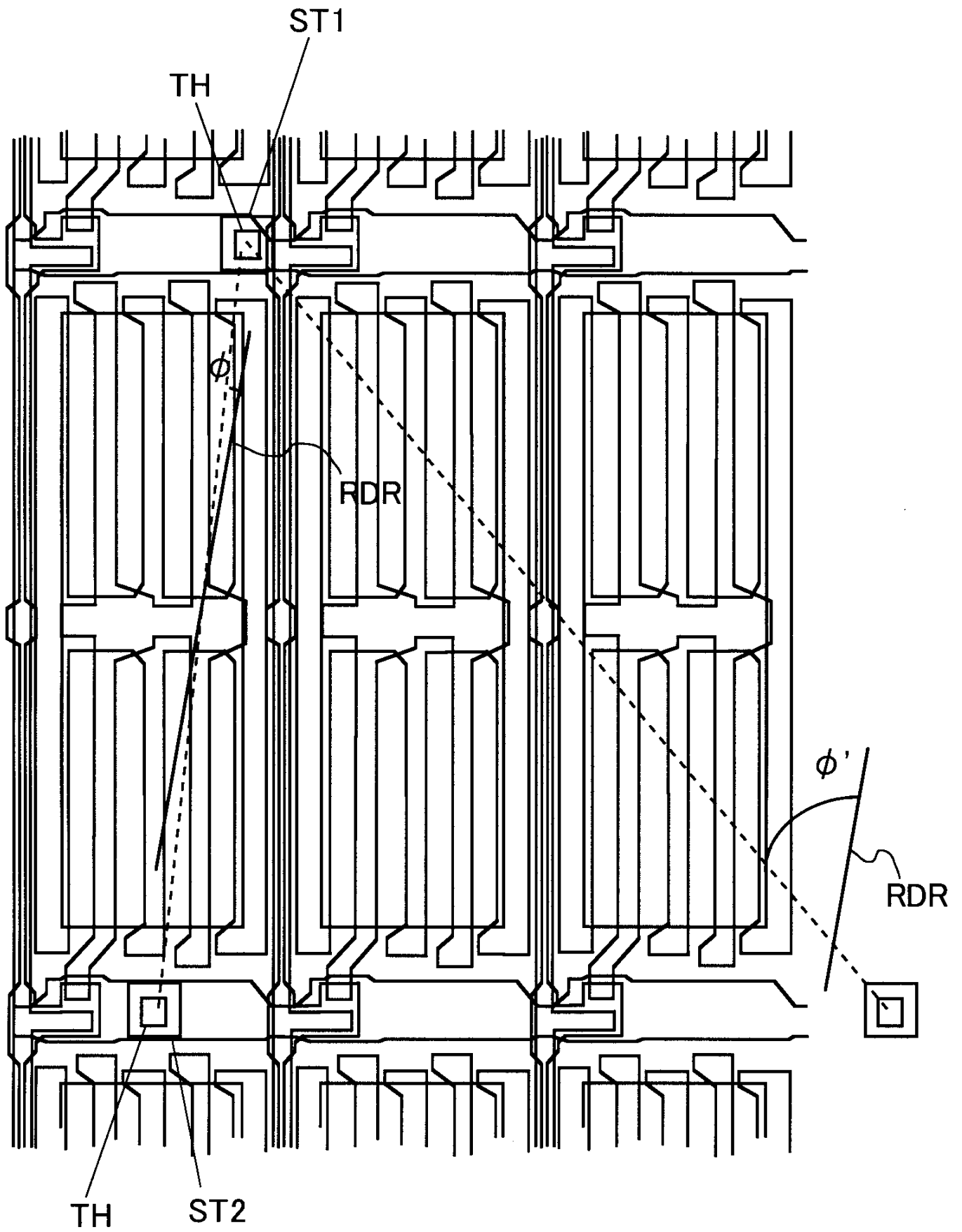
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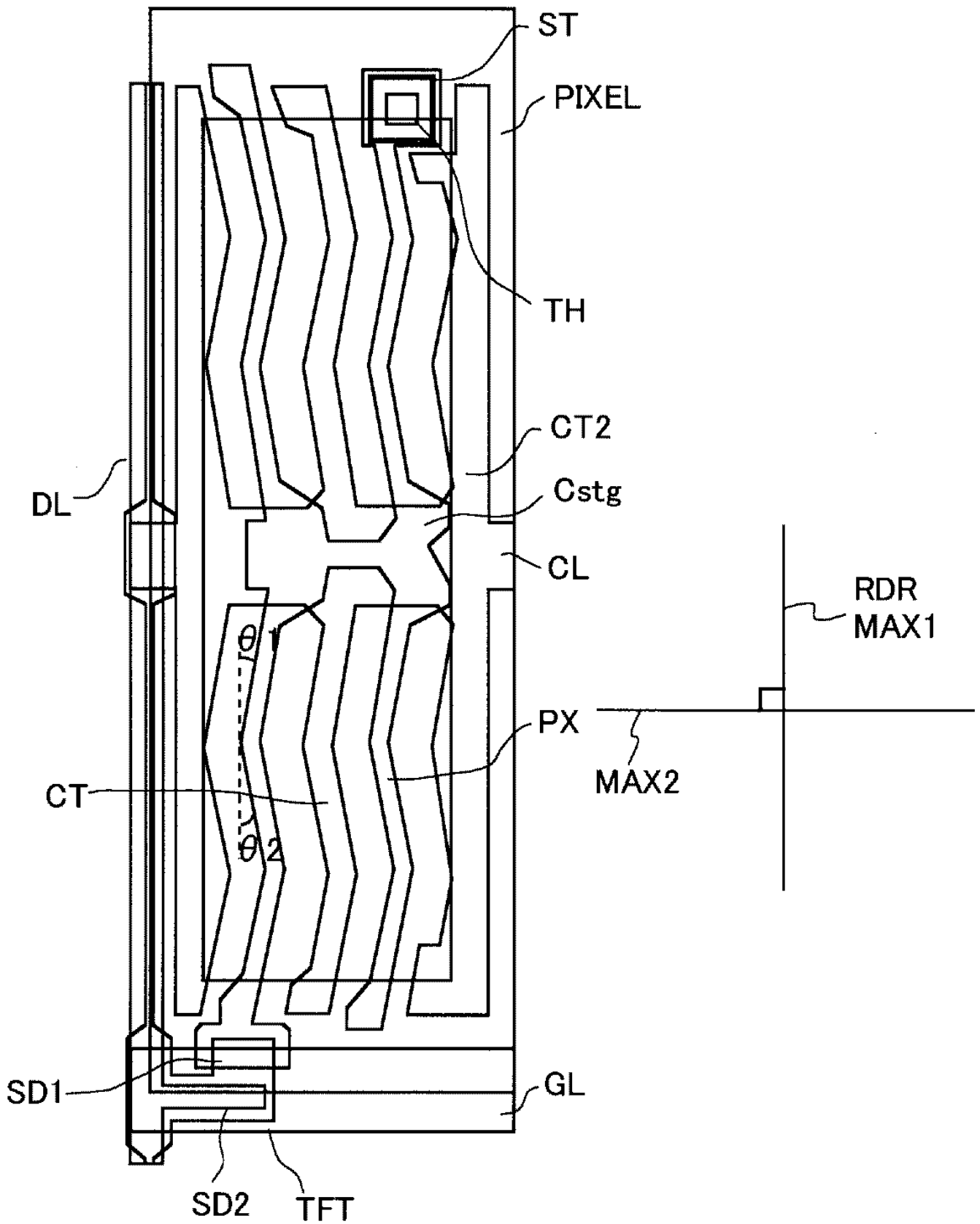




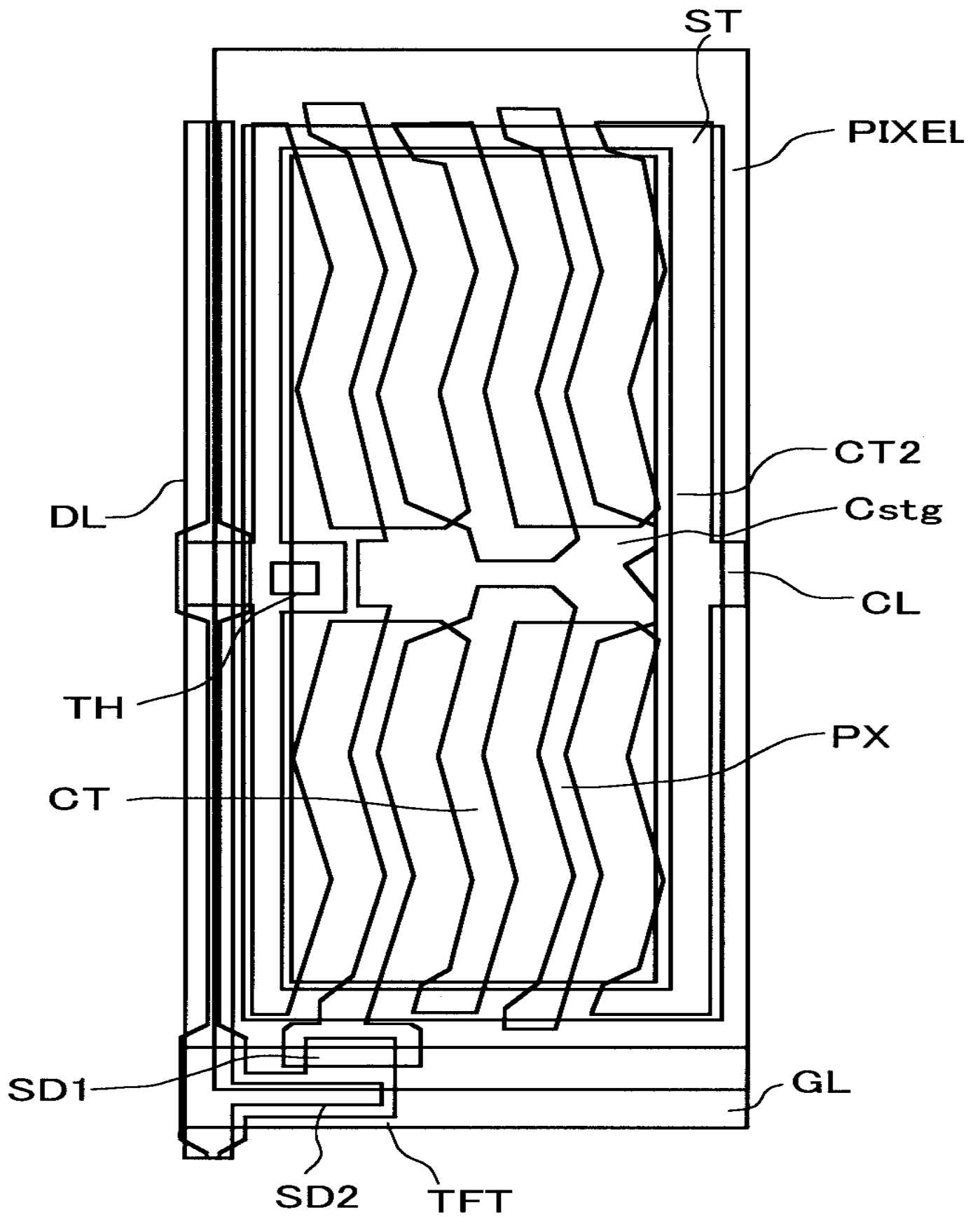




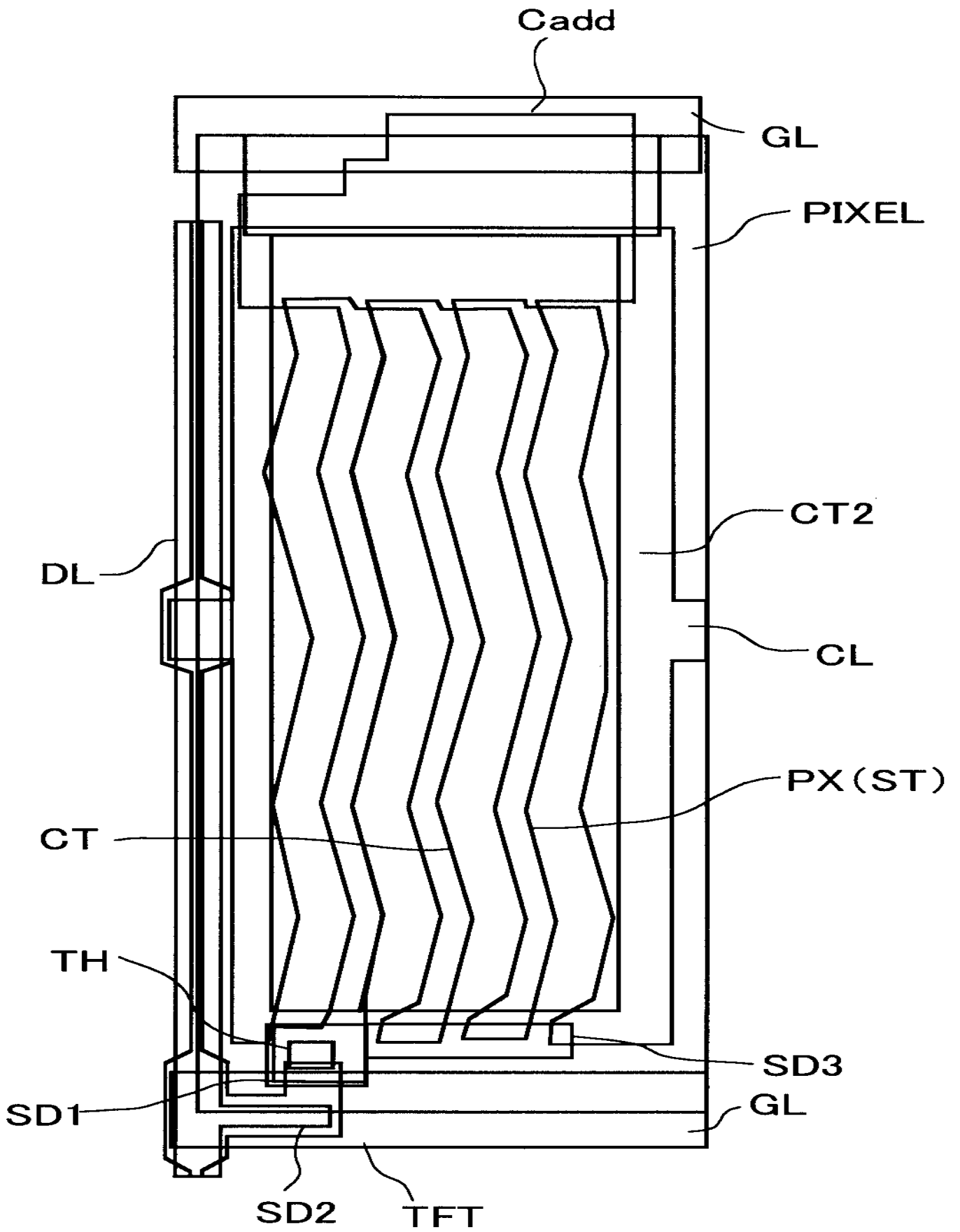


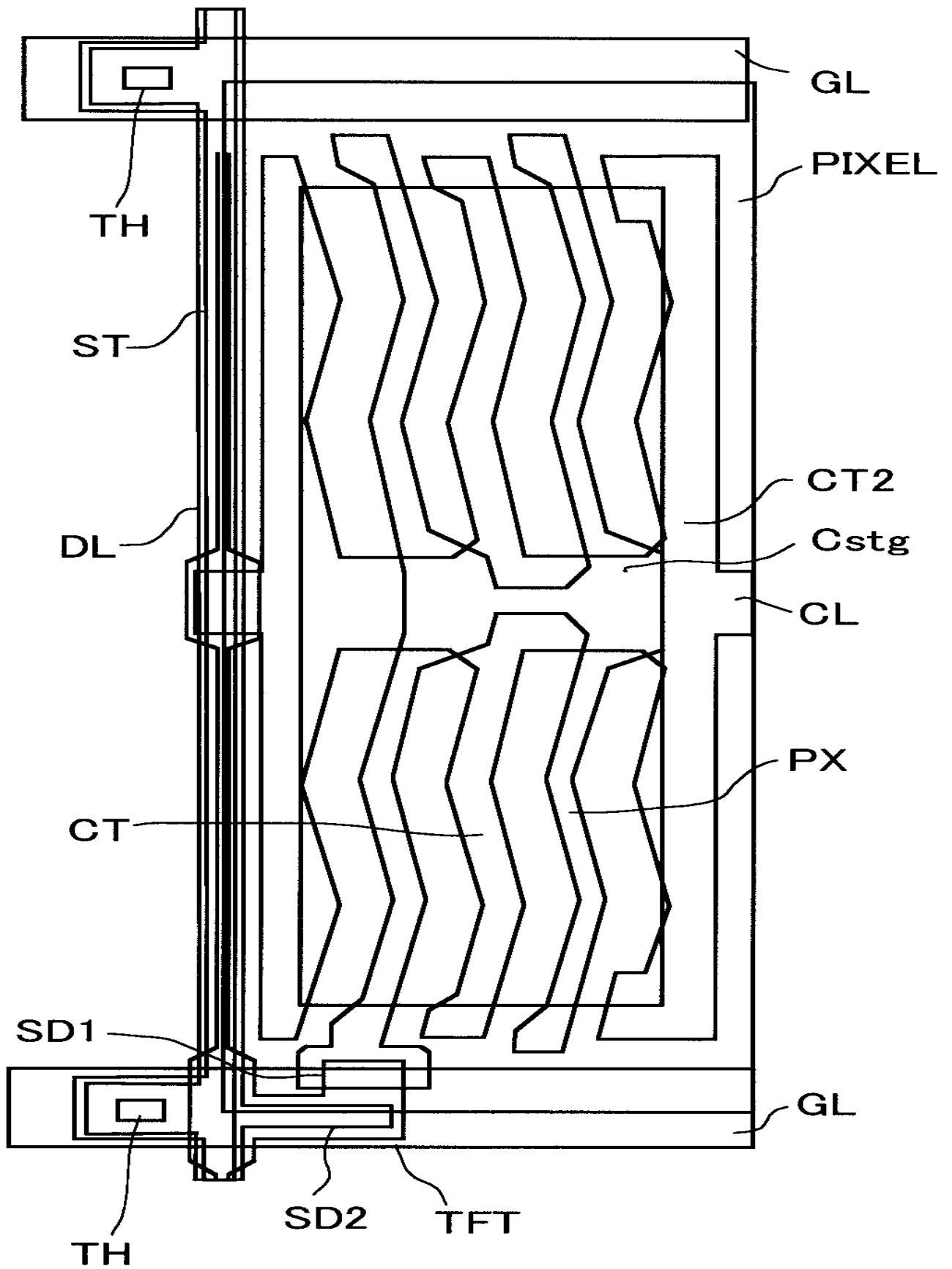




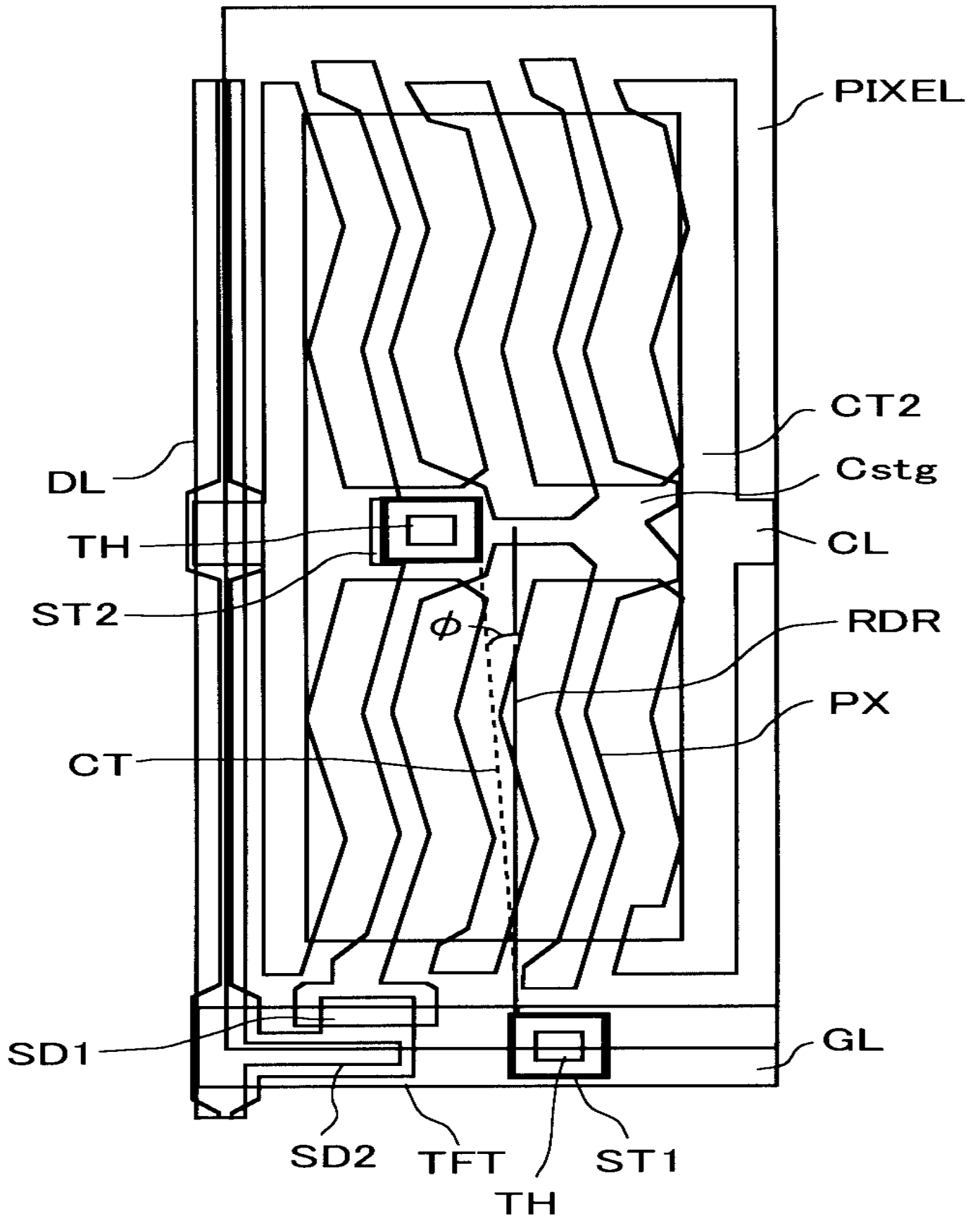


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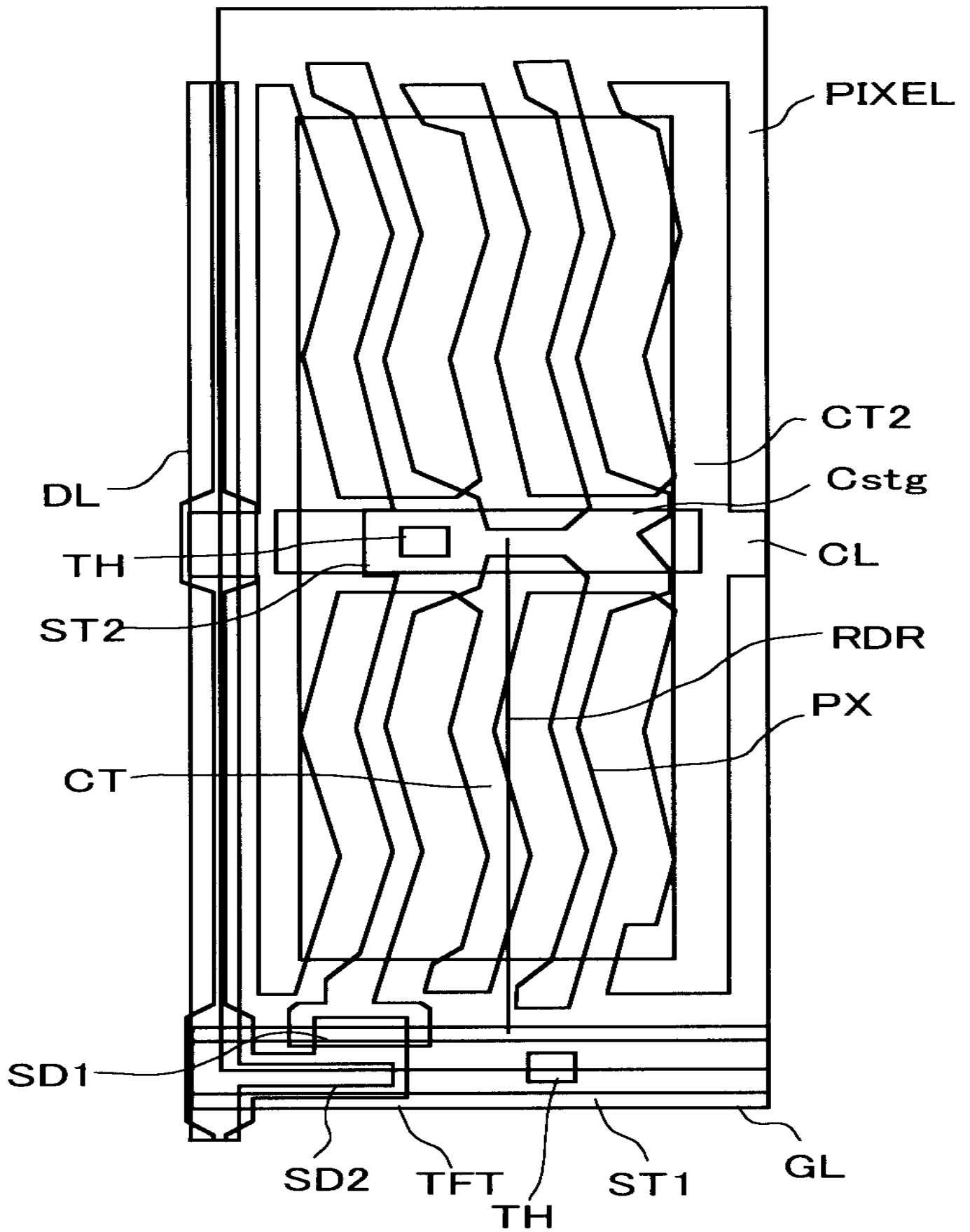


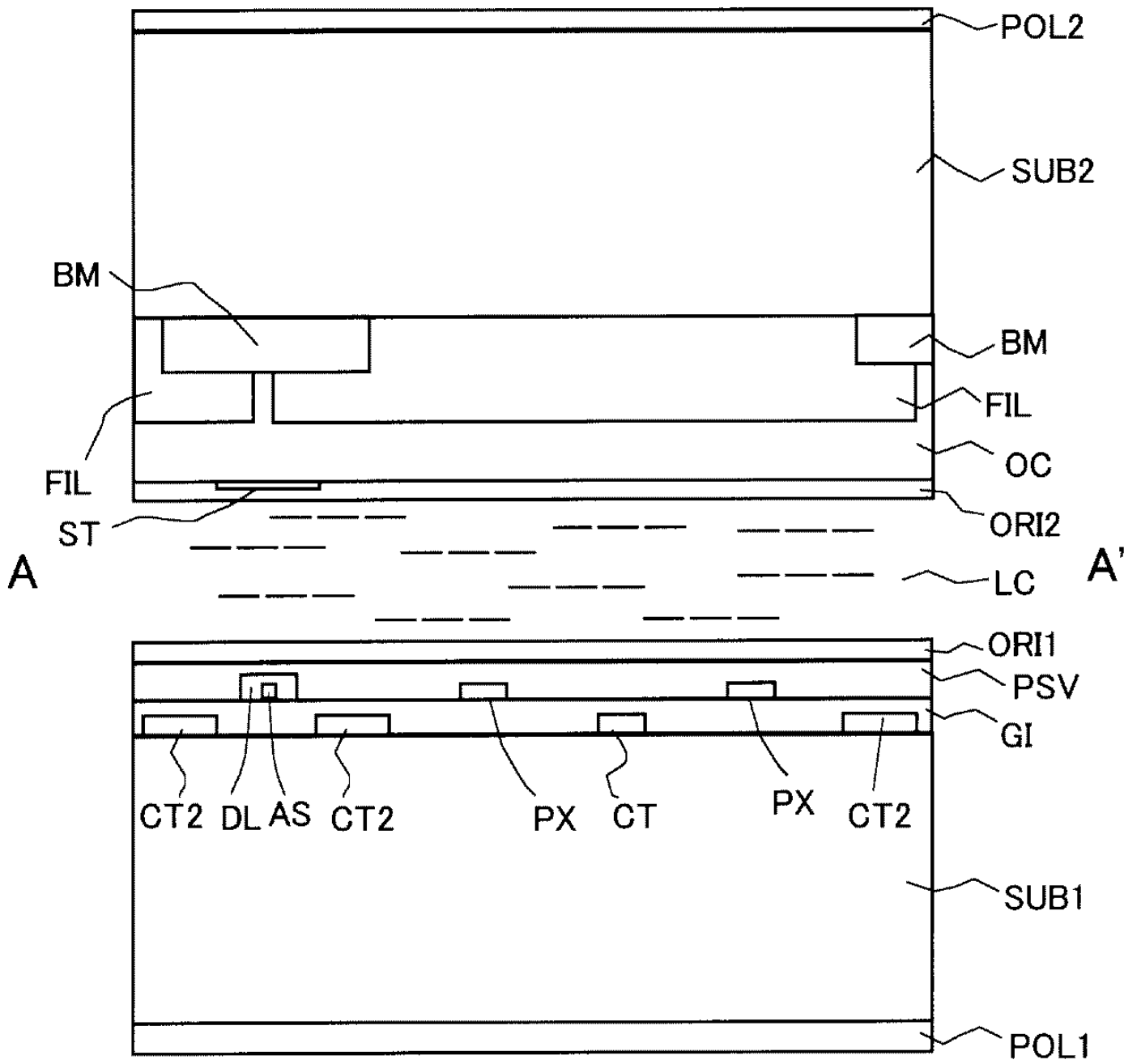


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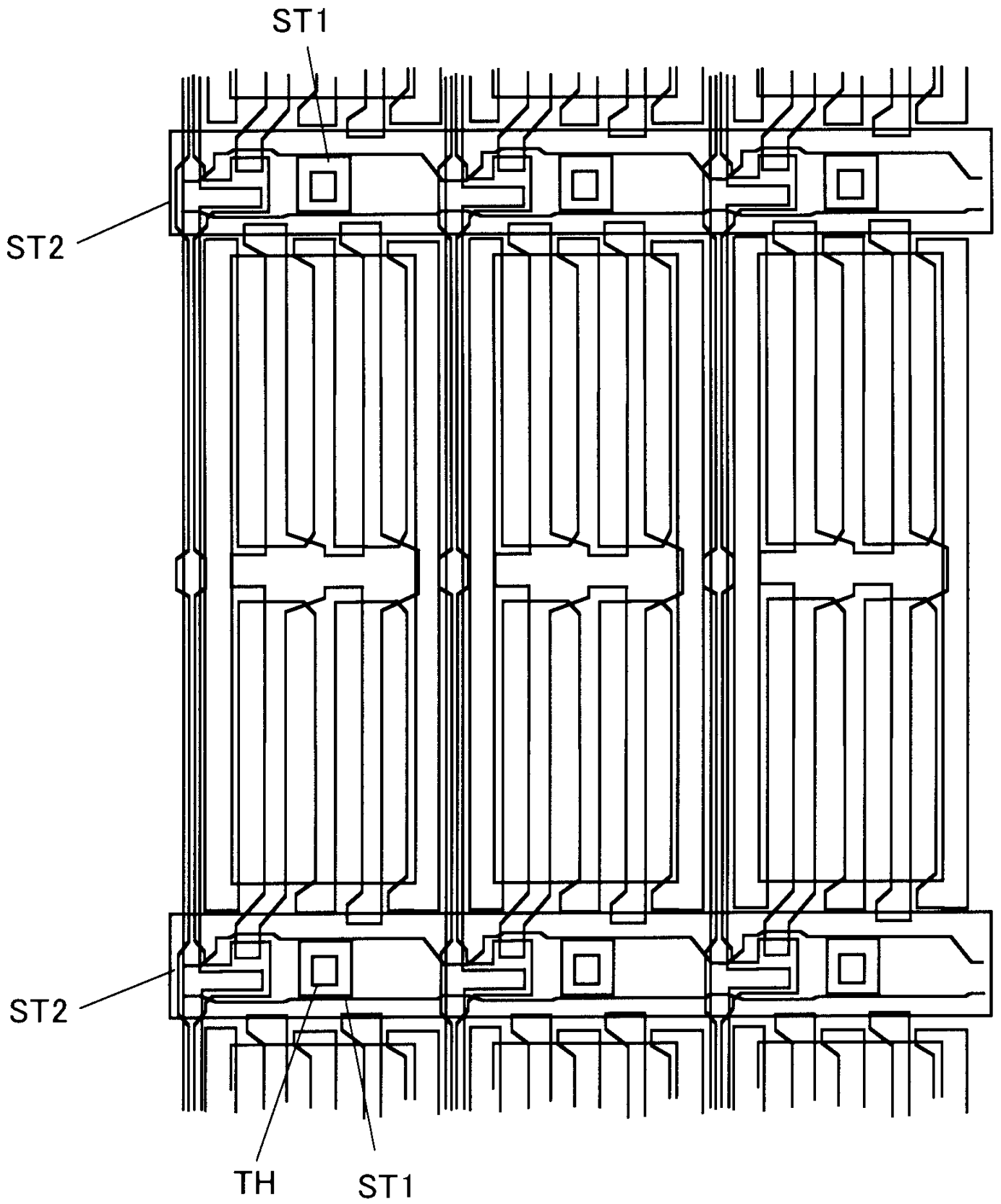


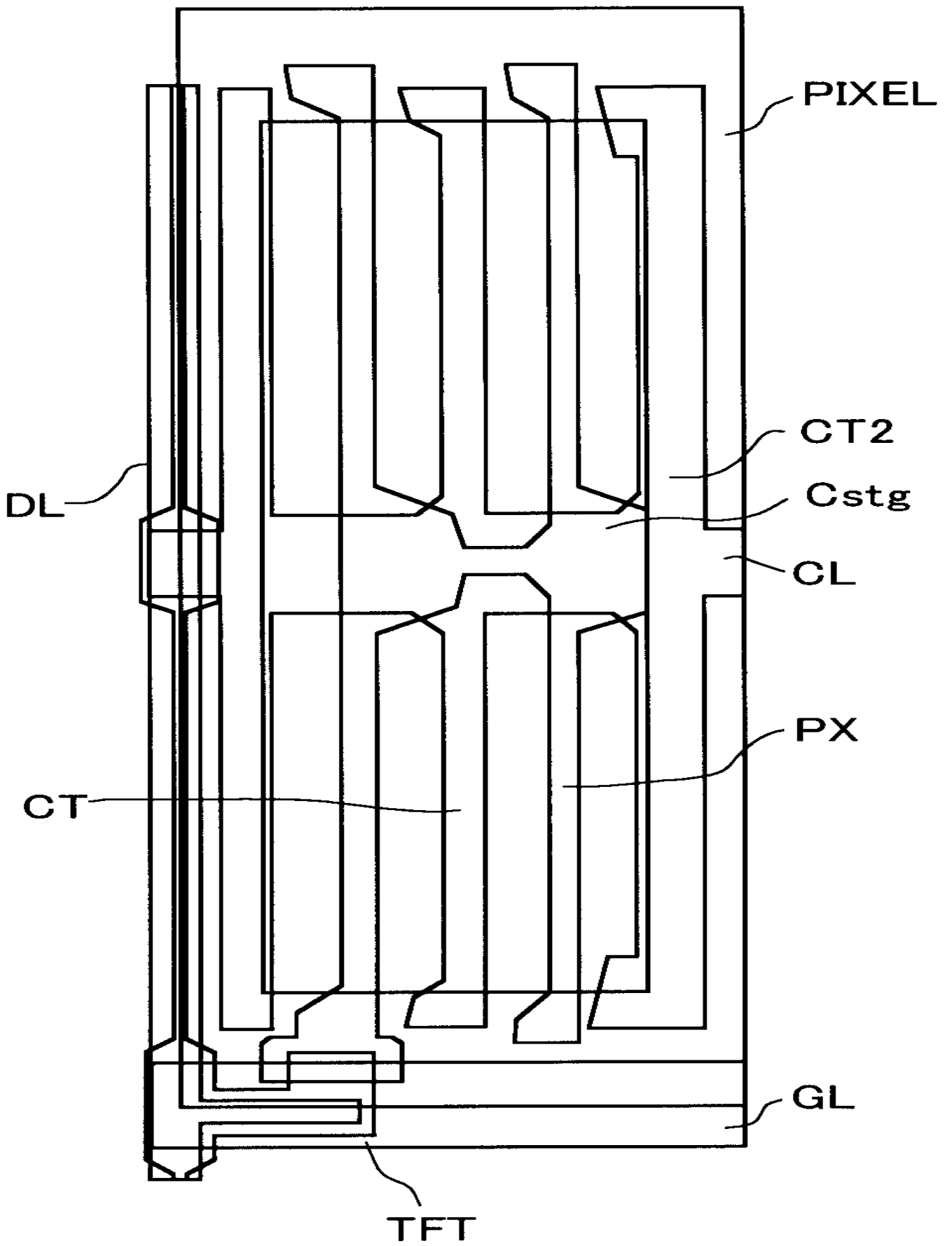


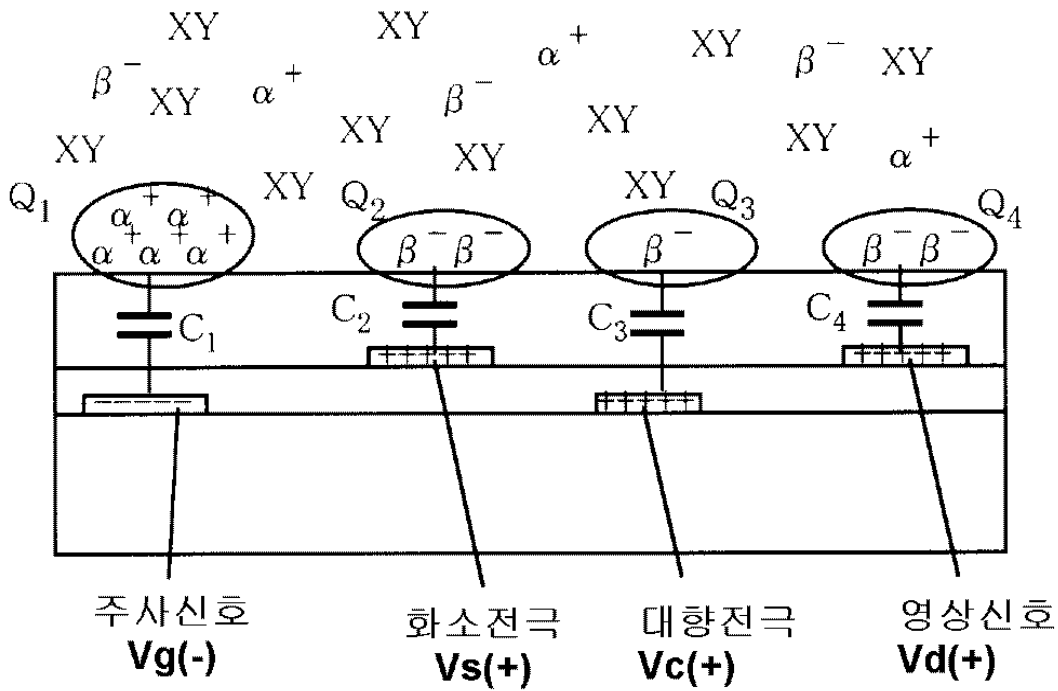




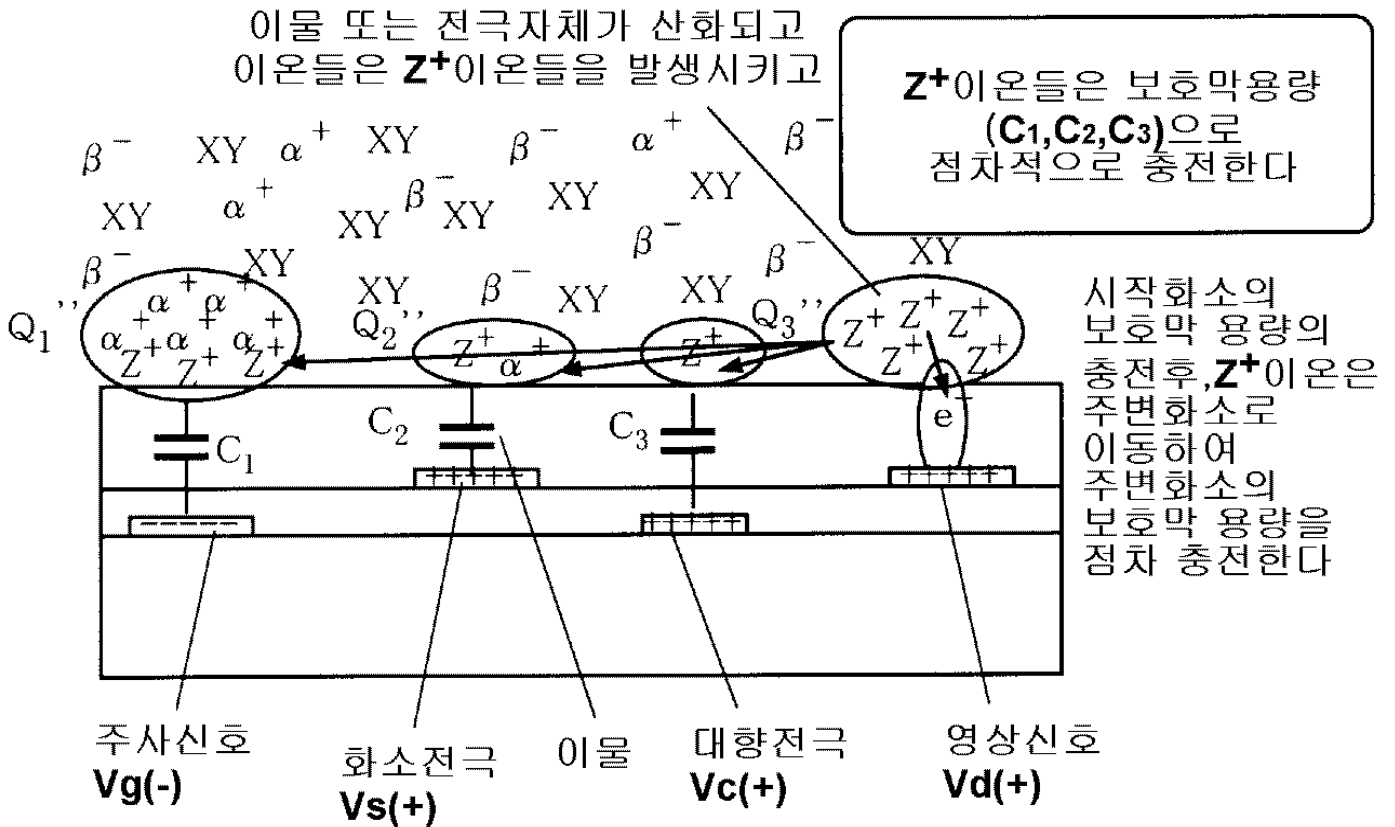
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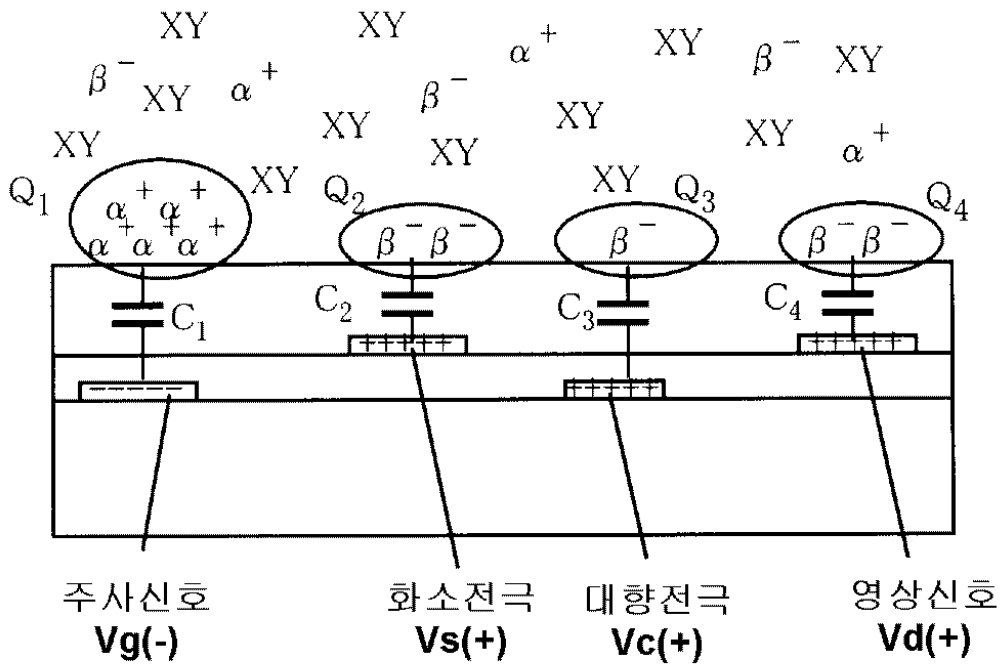




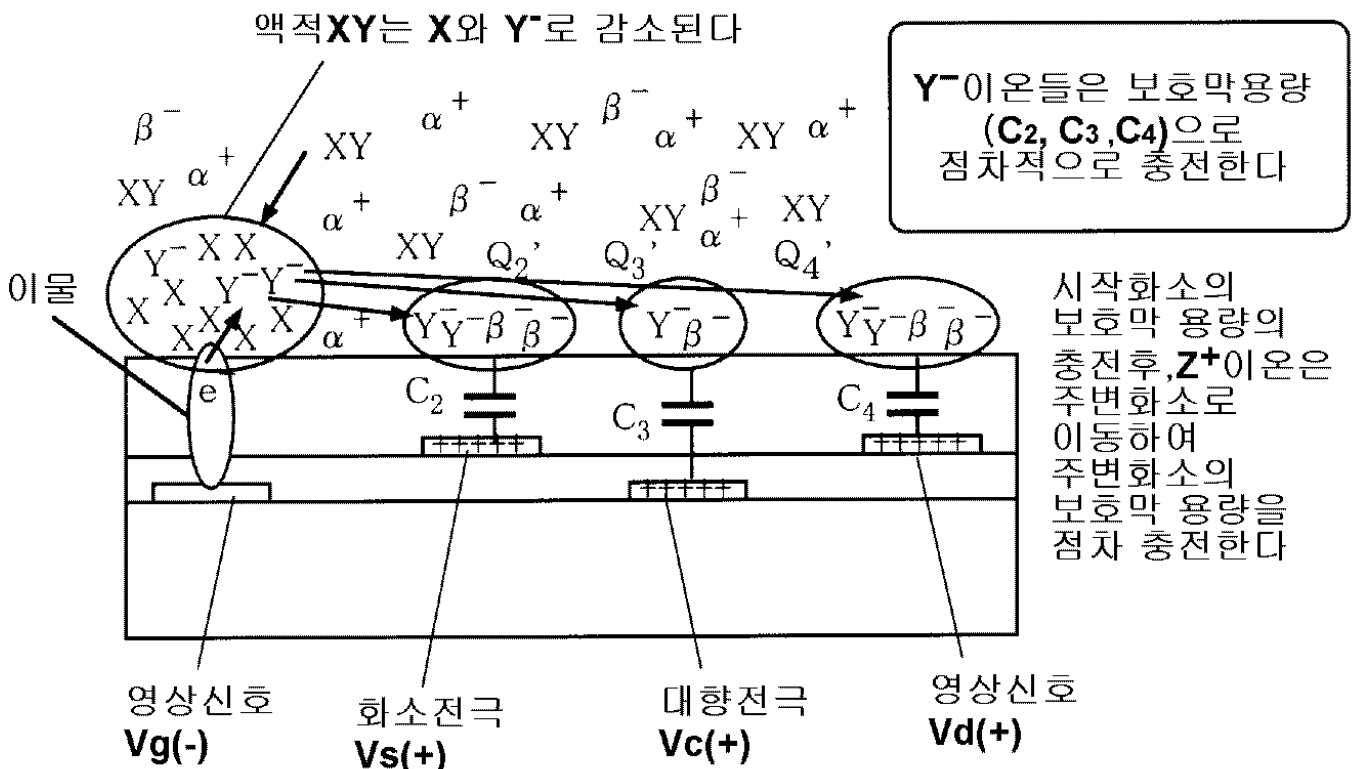
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(B) 비정상부분

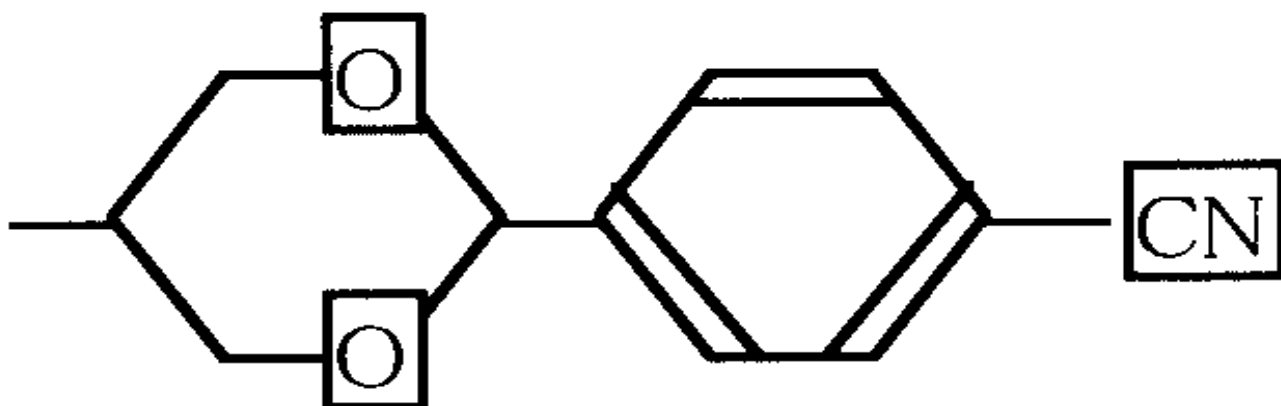
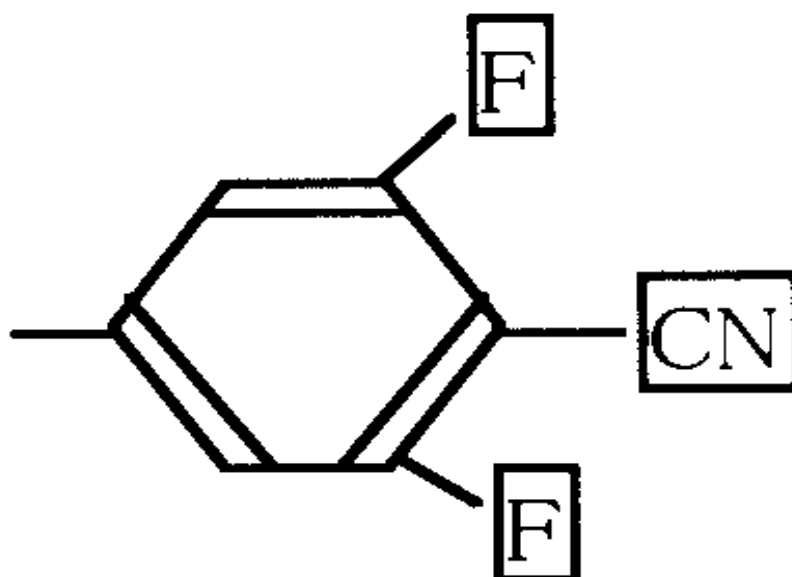
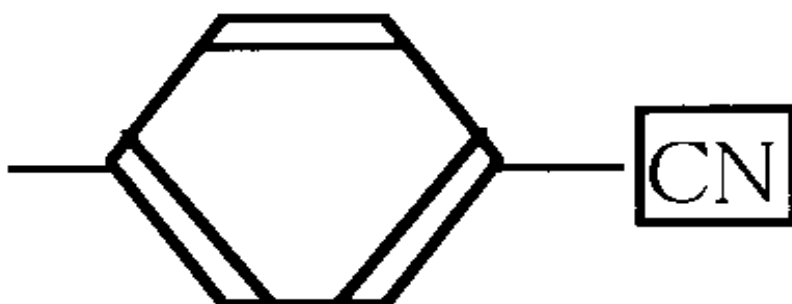


(A) 정상부분

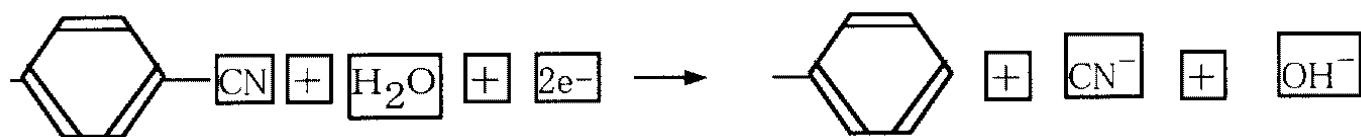


(B) 비정상부분

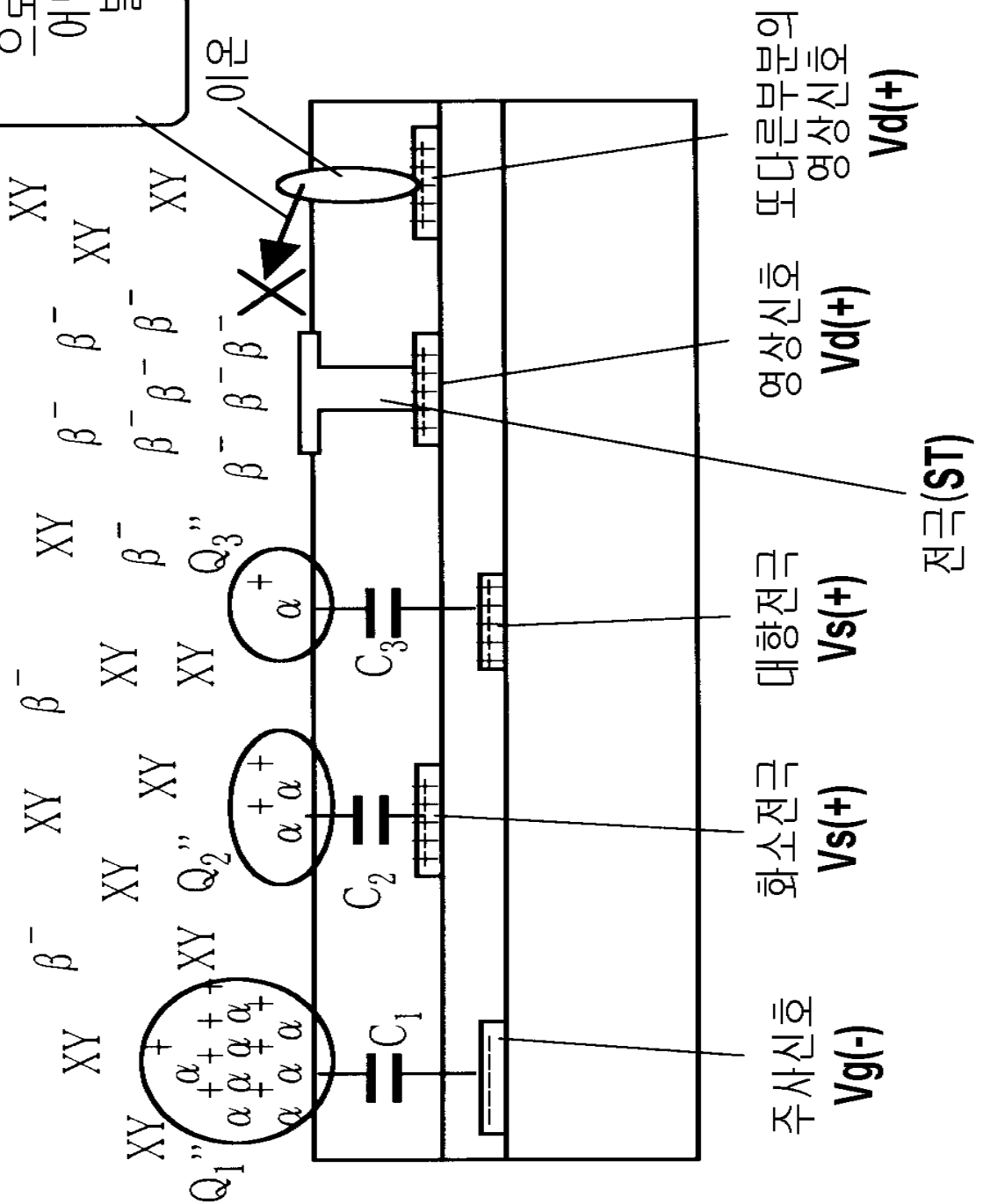
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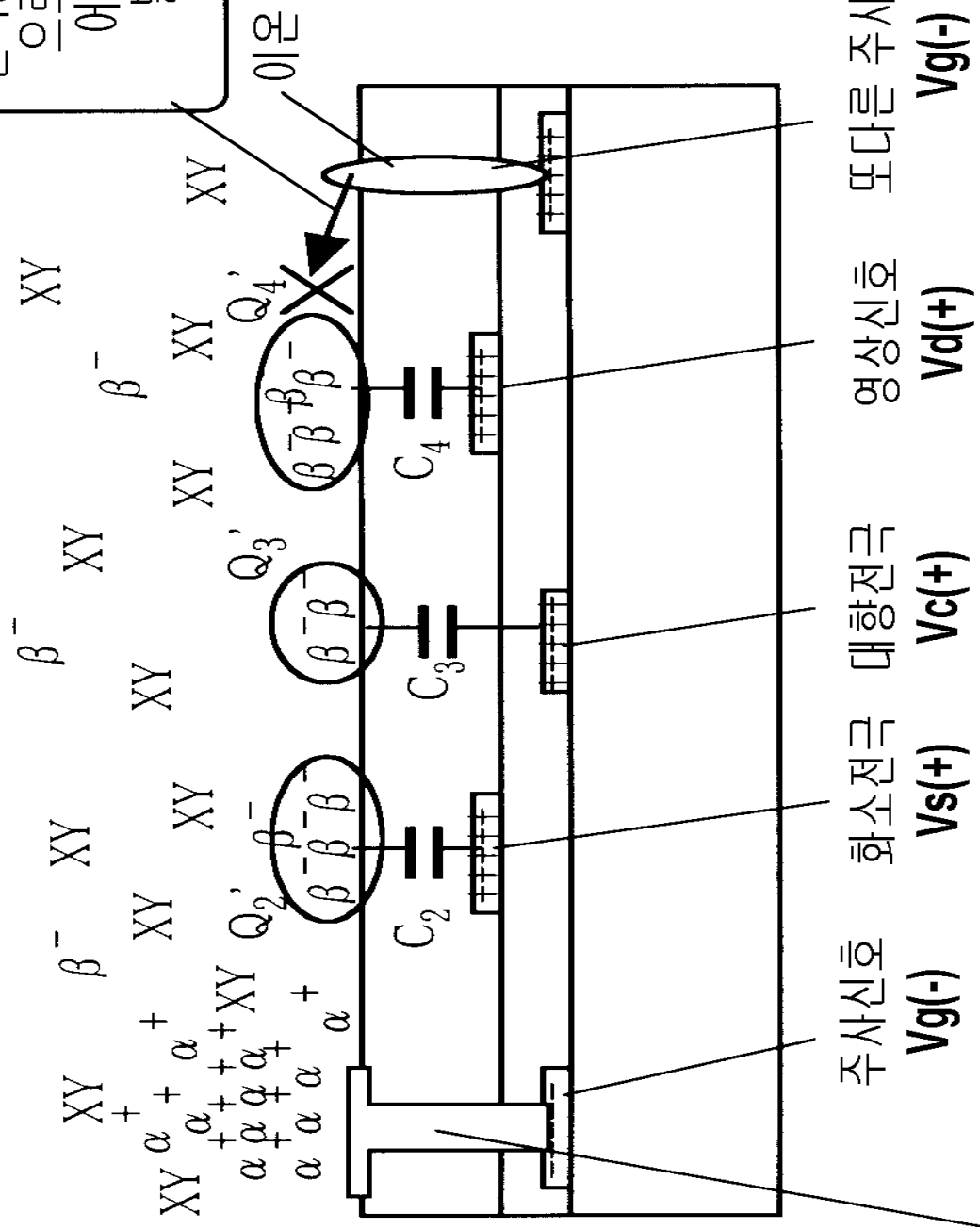
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보호막용량(C1, C2, C3)가  
전극(ST)에 의해 Vd 전압  
으로 충전되기 때문에  
어떤 새로운 전류도  
발생하지 않는다



보호막용량( $C_2, C_3, C_4$ )가  
전극(ST)에 의해  $V_d$  전압  
으로 충전되기 때문에  
어떤 새로운 전류도  
발생하지 않는다



전극(ST)

专利名称(译)	液晶显示器		
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摘要(译)

本发明涉及具有改进的批量生产性的宽视角，并且具有高可靠性的液晶显示器作为液晶显示器的高清晰度。如果具有宽视角的面内切换模式的液晶显示器继续通电并且显示，则产生黑色散射点图案（色散点污染）。并且使用在面内切换模式中具有低电阻率的液晶。因此，液晶中的杂质在显示器之间流动。它设置了防火固定类型，它变成银色污渍或残留物（粘贴）发生在指示器的末端部分。用于指示图像的第一电极组和腹侧分组压盖形成在侧面的基板中，其中为了防止这种多个像素形成在液晶层上，夹在一对基板和液晶显示器中其中多个像素在基板的一侧形成为基质相。并且，在保护膜的不同侧基板和基板之间的阴极的一侧构成的第二电极和保护膜的阳极形成在液晶侧，第一电极组和腹侧分组的压盖或两侧或液晶之间提供在多个像素内形成至少1个布线的显示器。

