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(71) 가 가 가 가 4 1-1

(72) 가 가 가 가 4 1-1

가 가 가 가 4 1-1

가
가 가 가 가 4 1-1

(74)

:

(54)

CF LCD CF TFT(2) (14) SiN (14a,
14b), SiO (14c) SiO (14c) (14)
CF (15) CF (15) SiO (14c) 가 ,
CF (15) CF 가 , CF (15) CF
가 , TFT (1)
LCD가 .

1	1	TFT	TFT	.
2	1	TFT	1	.
3	GB	.		
4		.		
5		.		
6		.		
7		.		
8		.		
9	CF	.		
10	OC	.		
11		.		
12		.		
13	CF-on-TFT	LCD	1	.
14	13 B-B	.		
15	2	가		.
16	2	2-1		.
17	2	2-1		.
18	2	2-1		.
19	2	2-1		.
20	2	2-1		.
21	2	2-1		.
22	2	2-2		.
23	2	2-2		.
24	2	2-2		.
25	2	2-2		.
26	2	2-2		.
27	2	2-2		.
28	2	2-2		.

29

2

2-3

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1 : TFT

2 : TFT

3 :

4 :

4a : Al

4b :

5 :

6 :

7 :

8a, 8b :

9a, 9b :

9c : n + a-Si

10 :

11 :

11a, 14a, 14b : SiN

12 :

12a :

13 :

13a : a-Si

14 :

14c : SiO

15 : CF

15a, 15b, 19a, 19b, 19b', 21, 22 :

16 :

17 : OC

18 :

19c :

20 :

가 가 ,

(Thin Film Transistor ; TFT) (Liquid Crystal Display ; LCD) TFT-LCD (1). (Color Filter; CF) 2). CF-on-TFT LCD LCD TFT

13 CF-on-TFT LCD 1 14 13 B-B . TFT (100) (101) (GB)(102) (102) (DB)(104) (103) (103) (102) (104) (104) TFT(105)가 (102) (106a) (107a) (108) 가 (102) (107b) (109) (108) 가 (106b) (109) (103) (109) (111) (107a, 107b) TFT(105) (109) (111) (102) (103)

TFT(105) (Si₃N_x; 「SiN」) (112) (113) (112) (114) , OC (114) CF (113) (OC) (115) (116a) (110) (11) (114) OC (114) (112) (CB)(117) (103) (116b) (115) (112) (111) (112) CF-on-TFT TFT TFT(105) CF (113) SiN (112) CF (113) 가 (112) (111) 가

, TFT SiN CF CF , SiN CF (OH) 가 CF가 , TFT CF CF 가 SiN 가 TFT가 가

2 : 10-39292

LCD LCD , CF LCD 가 , CF-on-TFT

LCD , 1 가 LCD

LCD (SiO_x; 「SiO」) CF LCD (SiO_x N_y; 「SiON」 SiN)
CF SiO SiON

LCD 1 TFT (1) , (18) TFT(2)
(14) SiN (14a, 14b), SiO (14c) , SiO (14c)
) 가 , CF (15) . SiO (14c)
(15) CF 가 , CF (15) CF 가 , CF
(15) SiO (14c) SiON 가

CF LCD , LCD
LCD SiN SiO SiON LCD가 , CF LCD , LCD
SiON SiO

LCD , LCD CF 가 ,
LCD

[1]

1 TFT가 TFT LCD LCD

(1-1)

1-1

1 1-1 TFT TFT , 2 1-1 TFT 1 2
TFT(2)가 TFT (1) ,

LCD TFT (1) , (Al) (4a)
(4)(, 2 1 (Ti), (Cr), (Mo) (4b) SiN (5) ,
(5) (4) (6)(,
2 2) (4) (6) TFT
(1) . TFT(2) (6)
TFT(2)가 (4) 가 (7) (4) 가 , Al (7)

TFT(2) (9a) (8a) n + (a-Si) (11) (10)
(10) , (8a) (6) , TFT(2) (9b) (10)
(12) (6) (10) 가 (11) (8b) (5) (1)

1) a-Si (13) (13) (9a, 9b)
TFT(2) (11) (4)
(5)

TFT(2) SiN (14a, 14b) SiO₂ (14c) (14) (14)
CF (15) CF (15) (12)
(7) (5) (16) (14)
(15a, 15b) (15a, 15b) CF (15)
OC (17) OC (17) ITO(Indium Tin Oxide)
(18) (18) CF (15) (15a)
OC (17) (14) (19a) (12)
가 (18) OC (17) (14) (19b)
(16)

TFT (1) CF (15) (15a) TFT(2) CF (15)
(14) (3) SiN (14a, 14b) SiO₂ (14c)
SiO₂ (14c) OH 가 TFT (1)
(14) SiO₂ (14c) CF ()
15) SiO₂ (14c) (14) CF (15)
CF (15) CF (14)
(15a, 15b) CF

SiO₂ (14c) (14)
가 (14) 가 가 SiO₂ (14c)
SiN (14a, 14b) (18) 가 (14) TFT(2)
(12) (18), 400nm 가 S
200nm 20nm
iO₂ (14c) 3nm SiO₂ (14c)

(14) SiN (14a, 14b) SiN (14b) SiN (14a)
Si (Si) 가, > SiN (14)
a, 14b) Si H SiN Si N 가, > Si Si-H
(14) (14)

TFT (1) 3 12 3 6
4 5 7 8
9 CF 10 OC 11 1 2
12 3 12

(3) SiO_x (4) Al Al 3
130nm Ti Ti
70nm (3) 200nm
Al , Al (Nd), (Si), (Cu), Ti, (W), (Ta), (S)
c) 1 2 , Cr, Mo, Ta, W
Ti, Ti

a) (4b) 가 (4) 1 3 Al (4)
(7) (4) 2 (7)

on) 가

(7) 400nm SiN (11a) CVD (5), a-Si (13a) CVD (5) 30nm

(7) (11) SiN (11a) 가 (5), a-Si (13a) SiN (11a) (3) (4)

(7) (11) 4 SiN (11a) 가 (5) 2 (4)

(11) a-Si (13a) CVD 30nm (11) 6, n + a-Si (9c) 1

(9c) 2 Ti)/Al(Al)/Ti(Ti) (6), (10), (12), (20) Ti(20

nm/ 75nm/ 40nm . n + a-Si (9c) (20) Ti Cr, Mo, Ta, W a-Si (13a)

(20) 6 n + a-Si (9c) 3

(9c) a-Si (13a) 가 (8a, 8b) (9a, 9b) (10) (12) (16) TFT(2)가

(13) 2 (6) (3)

5nm SiN (14a, 14b), SiO (14c) (14) CVD (14) 180nm, 20nm, 20nm, 가 a-Si

VD UV 17가 180nm, 20nm 5nm SiO , N₂O , N₂+O₂ , SiN (14a, 14b) C

SiO (14c) 5nm 3nm 20nm , SiN (14a, 14b) ,

Si 1 SiN (14a) , 2 SiN (14b) ,

Si-H 가, >

CF 8 (14) 9

CF (15) CF (15)

가 170nm

가 (KOH) CF (15) CF (15) (12)

CF (15) (14) CF (15) 2

(16) (14) TFT(2)

가 가

CF , TFT 가 CF

TFT

TFT

CF (15) (15a, 15b) CF (15) (14)

SiO₂ (14c) , CF (15) , CF

OC (17) 9 CF (15) , 10

OC (17) CF (15) , 140 가 ,

OC , KOH OC (17) . OC (17) (5), (14)

, OC (17) 10 , CF (15) (15a) (15b)

(21) OC (17) 2 (16) 가 ,

OC (17)

10 OC (17)

(21) , 11 , OC (17) 가

(22) , (21) (14) , (12)

(16) , 2 (16) 가 , (14)

(22) , OC (17) (12) (14)

가 , (16) , OC (17) (14) (19a)

OC (17) (16) 2 (14) (19b)

(14) SiO₂ (14c), SiN (14b, 14a) , SiO₂ (14c)

가 3nm 20nm , SiN (14b, 14a) Si Si-H 가

(14) (22)

(19a) CF (15)>OC (17)>SiO₂ (14c)>SiN (14a)

(19b) , (19a) C

F (15)>OC (17) SiO₂ (14c) SiN (14a)

11 OC (17) (12)

(19a) ITO

70nm , ITO

(18) , 12 (19a) (12) (19b) I

TO (16) (18)

150 230 , 200 TFT (1)

TFT (1) TFT(2) , TFT (1)

LCD가

(1-2)

1-2

1-1 , (14) SiN (14a, 14b) SiO₂ (14c) , TFT (1)

(14) SiN (14a, 14b) SiON SiO
(14c) , 가 3nm 20nm , SiO (14c) 가 가 . SiON (14) SiO
(14c) , SiON (14a, 14b) CVD , a-Si SiON SiO (14c)
, , N₂O , N₂ + O₂ , O₂ , UV
, SiN (14a, 14b) SiON
SiON
, SiN 1-1, 1-2 2 SiN 가 가 .
SiN 3
, LCD TFT , TFT CF SiN SiN
SiO SiON CF 가 SiO CF CF
, CF
, SiO SiON , 2 SiN , Si Si-H
, , 가 TFT
TFT , CF LCD가 , CF , TF
T 가 , LCD LCD 가 , 가 CF
CF (HMDS)
FT , CF-on-TFT TFT , CF-on-TFT T
, CF-on-TFT SiN SiO 가 SiN SiON
, 가 ,
, CF-on-TFT TFT , SiN 3000nm , O
C , TFT 3 , TFT 가 가
, TFT , SiN SiO SiN SiON
[2]
15 2 29 , TV, ,
2 , 가 가 , 가
, 3% 10% , TFT
CF-on-TFT 가 . CF-on-TFT TFT
15 TFT (100) 3 15 , TFT ((102)(15 1 (104)
100)) , (102)

05) (102, 104) TFT(105)가 15 , TFT(1
 (104) (108) , (108) (108) (110) ((
 (110) , (102) (108) (109) .
) (102) (104) .
 (117) (102) (113) CF (113)
 , CF (113) (115) .
 (115) CF (113) (116a) (110)
 가 , (115) CF (113) (116b) (11)
 8) (110) (116a) (118) (116b) (116b) (11
 TFT (100) , 가 $20\mu\text{m} \times 20\mu\text{m}$.
 , (110) (116a) 가 가
 , (118) (116b) 가
 .
 CF (113) (가) 가 , .
 , CF (113) () , 가 .
 , ,
 , CF (113) (116a, 116b)
 . $20\mu\text{m} \times 20\mu\text{m}$, $28\mu\text{m} \times 2$
 $8\mu\text{m}$ (110) (115) 가 , (116a) (116a)
 (116b) (118) (115) ,
 (116b) (116b) ,
 (116a, 116b) .
 , 가
 , CF-on-TFT .
 , CF-on-TFT
 ,
 2-1 2-3 .
 (2-1)
 2-1 16
 21 7 TFT (1) R TFT (1) 3 16 A-A TFT (1) 1
 .
 17 (b) 16 B-B TFT (1) 16 , TFT
 (1) (3) (4) (5) (4)(16 1
) , (6) (4) (6) (4, 6)
 (6) TFT(2)가 16 17 (6) , TFT(2)
 (4) (4) , (4) (((5)
 (13) (4) (13) (11)
 (11) (10) (12) (7) (10)
 (6) (7) (4)
 (4) (7) (5) (16)
 CF (15) 17 (a), (b) CF (15) TFT(2)
 (6) , CF (15) (18) .
 (18) CF (15) (19a) (12)
 가 , (18) CF (15) (19b) (16)
 . (12) (19b) , 16

TFT (1) 가 , 2 2 가
가 가 , 2 (19a, 19b) (4)
가 가 2 , 2 가 가 () ()
(= /) 0.5 가 가 ()
 $600\mu\text{m}^2$ (1
9a, 19b) $10\mu\text{m}$ $40\mu\text{m}$, (116a, 116b)
 $20\mu\text{m}$, $20\mu\text{m}$, 17 , (19a, 19b)
, (19a) 가 $10\mu\text{m}$ 가 $40\mu\text{m}$,
 $375\mu\text{m}^2$ 가 $400\mu\text{m}^2$ 6% , (19b)
(7) (7)
(16) (19b) 가 .
, .
, .
, 18 21 , (a) 16 A-A 18 21 TFT (1)
, (b) 16 B-B (3) , TFT (1) 100nm (Al) 18 (a), (b)
50nm (Ti)
(4) (7)
, .
, .
, 350nm (SiN) (5), 30nm a-Si (13a) 120nm Si
N , (4)
, SiN , 19 (a) (11)
, .
75nm Al 20 (a), (b) , 30nm n + a-Si , 20nm Ti ,
(10), 40nm Ti (11) (6)(20) , (16)
TFT(2)가 .
, 가 R() (JSR) $3.0\mu\text{m}$.
3) 100mj (3) 100 μm ()
(19a, 19b) (19a, 19b)
(19a, 19b) (19a, 19b)
a, 19b) 0.25 , $10\mu\text{m}$ $40\mu\text{m}$, (19
가 가 18 μm , 가 48 μm
(=18 μm) 1
28 μm , (19a, 19b) (=48 μm) 1 28 μm
가 , (19a, 19b) (3)
, .
) 0.5 가 (= /
 $600\mu\text{m}^2$
, 230 40 , 21 (a), (b)
(12) (16) (19a, 19b) CF (15)(R)
(19a, 19b) 가 10 μm 4
0 μm , (19a, 19b) ,

가, 가 B() 3.0 μ m, (3) (3) (19a, 19b) (19a, 19b) (19a, 19b) (12) (16) (19a, 19b) CF (15)(B)

가, 가 G() 3.0 μ m, (3) (3) (19a, 19b) (19a, 19b) (12) (16) (19a, 19b) CF (15)(G)

CF (15) 70nm ITO CF (15) (19a, 19b) 17 (19a, 19b) (12), (16) (18)

가, CF (15) (19a, 19b) 가 CF-on-TFT

, 16 (19a, 19b) (4) 2 (19a, 19b)

, (10), (12) (6) / CF (15)(R, G, B) 5(R, G, B) TFT(2) CF (15)(R, G, B) CF (15)(R, G, B) CF (18)

(2-2)

2-2 22 TFT (1) R 23 (b) 22 B-B (3) (4) (5) (4) (6) (4, 6) TFT(2)가 (4) 22 23 (6) (5) (11) (10) (4) (6) (7) (12) (12a) (16) CF (15) TFT(2) CF (15) (19c) (16) CF (15) 10 μ m (19c) CF (15) (19c) 22 TFT (1) OC (17)

OC (17) (18) (18) CF (15) (19c)
 , OC (17) (19d) (16) .
 (19d) 8 μ m .
 (18) (12a) (12) (16) ,
 (19c) (19d) (19d) (7) (19c) (19c) (19d)
 , .
 , 23 28 , (a) 22 TFT A-A 23 TFT (1)
 , (b) 22 B-B (3) , TFT (1) 100nm (Al) , 24 (a), (b)
 , (3) , (4) (7) 50nm (.
 Ti) , 350nm (SiN)(5), 30nm a-Si (13a) 120nm Si
 N , .
 , iN , 25 (a) (11) . S
 , 26 (a), (b) 30nm n + a-Si , 20nm Ti ,
 75nm Al (10), 40nm Ti (12) (6)(26 (16) (16)
 , (12) (12a)(26)
 . TFT(2)가 .
 , 가 R 1.8 μ m ,
 (3) 100 μ m (3)
 100mj (19c) (19c) (19c)
 (19c) (19c) 18 μ m , (19c) 10 μ m
 28 μ m , (19c) (19c)
 가 , (19c) (3)
 , 230 40 (19c) CF (15)(R) 27 (b) (16)
 9c) 10 μ m , (19c) (1
 , .
 가 , 가 B 1.8 μ m ,
 (3) (3) (19c) (19c)
 (3) (19c) (19c)
 (19c) (16) (19c) CF (15)(
 B) , .
 가 , 가 G 1.8 μ m ,
 (3) (3) (19c) (19c)
 (19c) (19c)
)(G) , (16) (19c) CF (15

19d) , CF (15) , 2.0 μ m , (17) , (17) ,
 28 , CF (15) (19c) OC (17) OC (17) ,
 8 μ m (19d) .
 70nm ITO 23 (19d)
 CF (15) , CF (15) (19d) , (19d)
 (16) (18) .
 (7) , CF (15) (19c) ,
 CF-on-TFT .
 (10), (12) (6) /
 CF (15)(R, G, B) , / CF (15)(R, G, B) CF (15)(R
 , G, B) . TFT(2) CF (15)(R, G, B) (18)
 , CF
 , OC CF CF (18) , CF OC
 (2-3)
 2-3 29 29 TFT
 (1) 3 (12) (16) (12a) 2-2 가
 2-2 OC , 2-1
 29 (16) (18) (19b)
 , 2-1 (19b') (19b) 가 ,
 (19b) , 2-2
 (19c) .
 () , CF (15)
)(R, G, B) , 가 (B) ,
 (19c) 가 , (G)
 가 (19b') ,
 가 ,
 , (3) ,
 , TFT CF가 , CF
 () CF
 가 (가 CF , CF
 CF , CF
 , CF
 , RGB , CF
 , CF ,

가 가 .

1

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(1)

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(2)

1

,

가 3nm 20nm

.

(3)

1

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2

(4)

1

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가

가 가

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가

(5)

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(6)

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2

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(7)

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가 가 , 가

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(8)

7

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(= /) 0.5

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(9)

7

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600μm²

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(10)

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(11)

10

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,

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(12)

10 11

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(13)

7 12

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(14)

13

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(15)

7 14

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가

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(16)

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, 7 15

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iON , LCD , CF SiO SiON . LCD , CF SiN SiO S
 , SiO SiON , SiN LCD LCD .
 LCD LCD .

(57)

1.

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2.

1 ,

가

가

,

가 가

3.

4.

5.

가 가 , (角) 가

6.

5

(= /) 0.5

7.

8.

7

9.

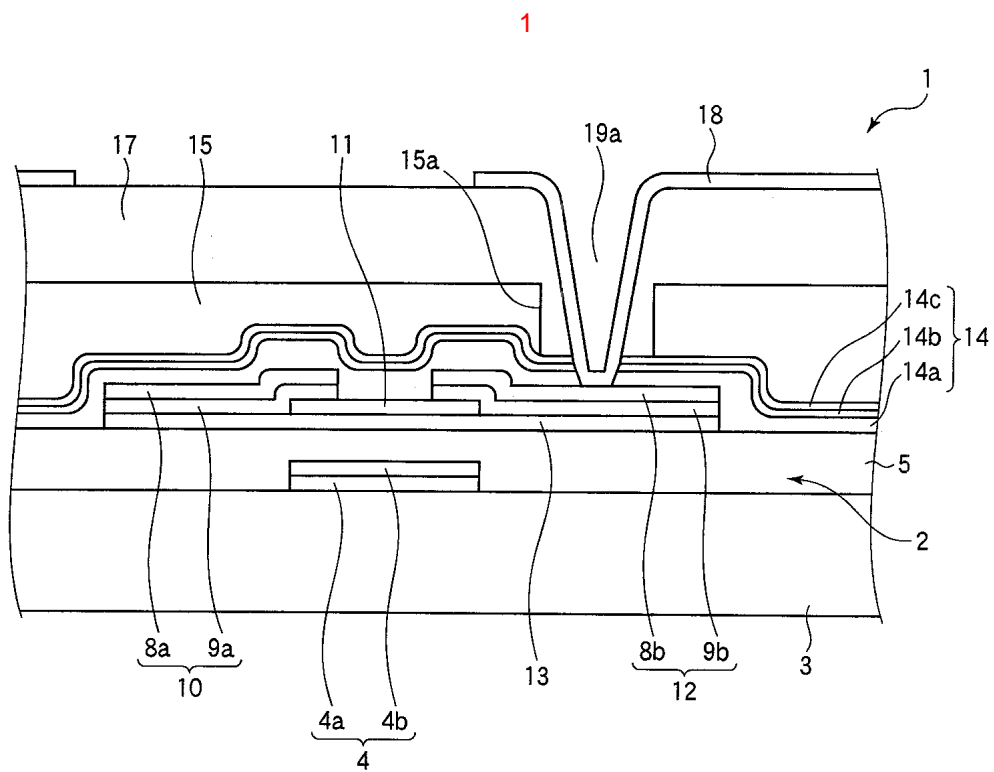
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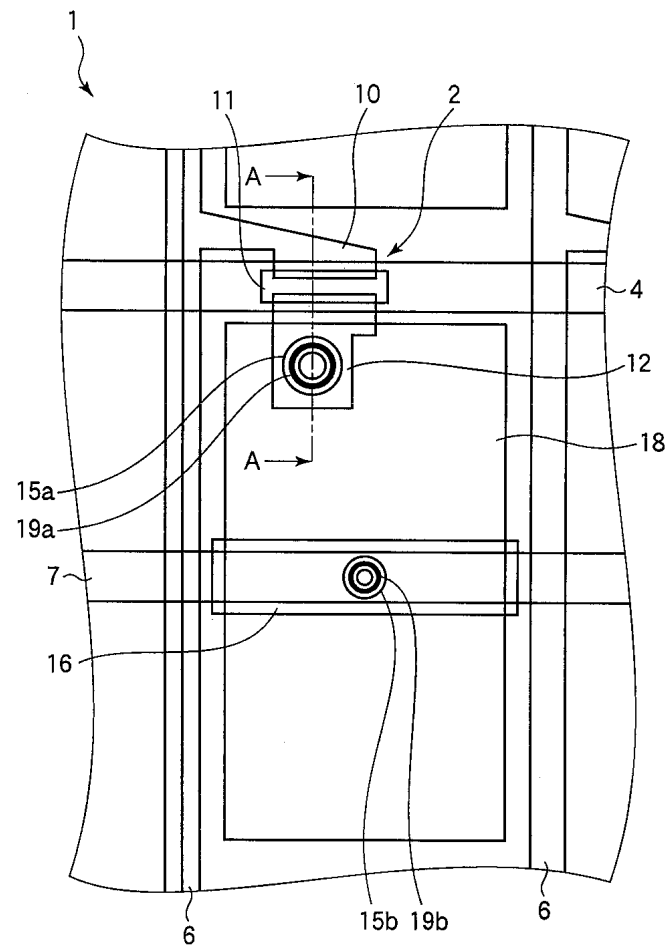
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9

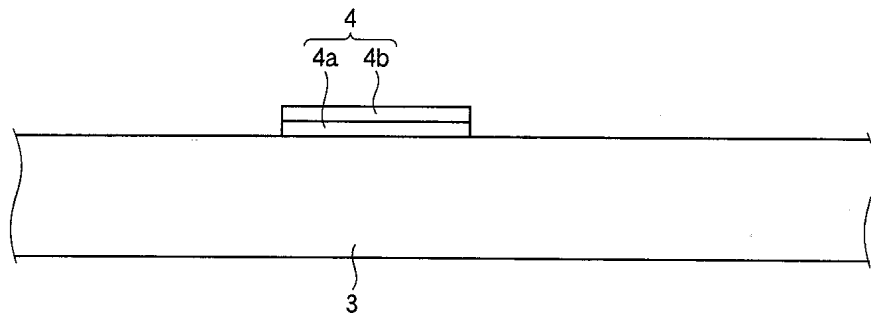
가



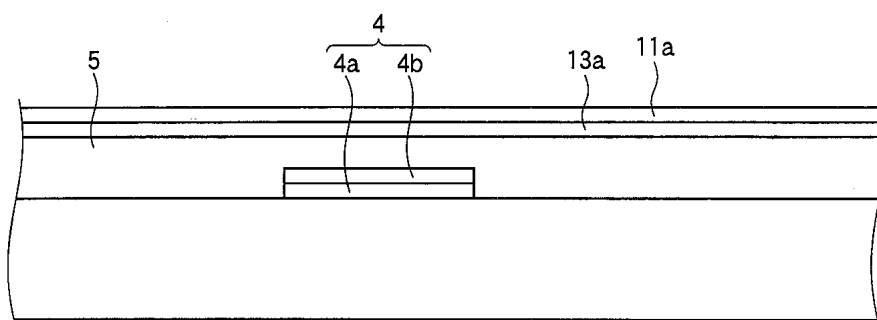
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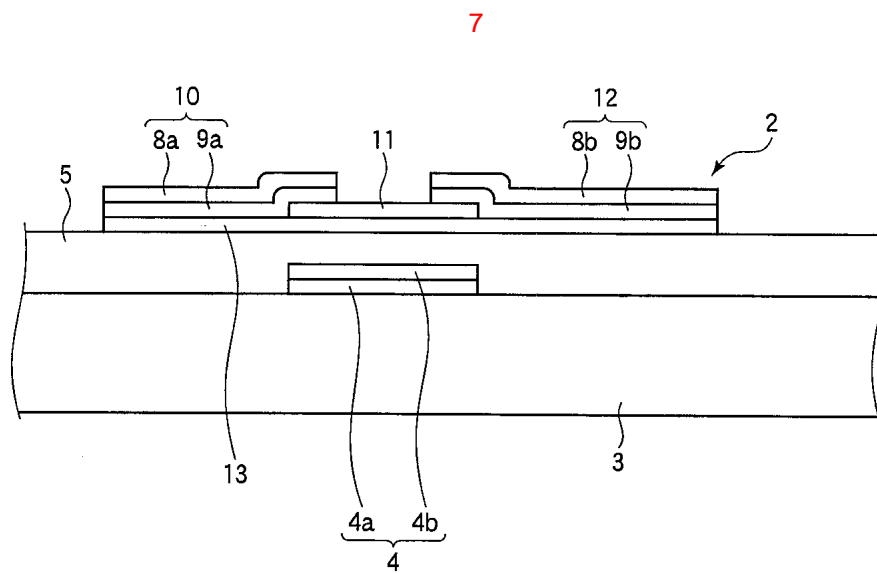
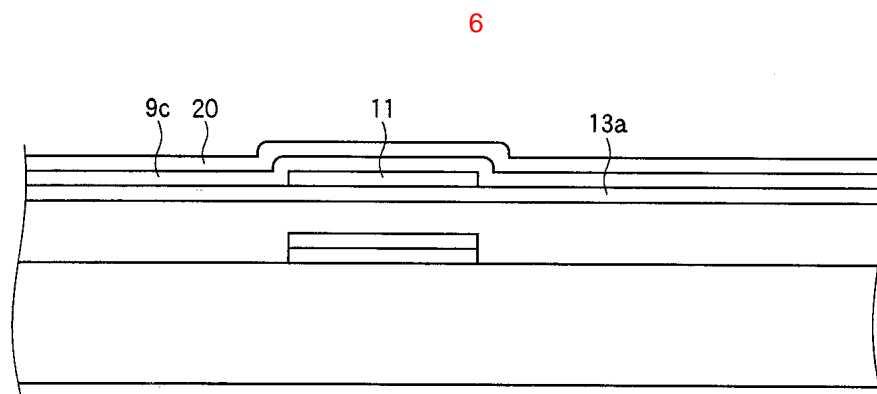
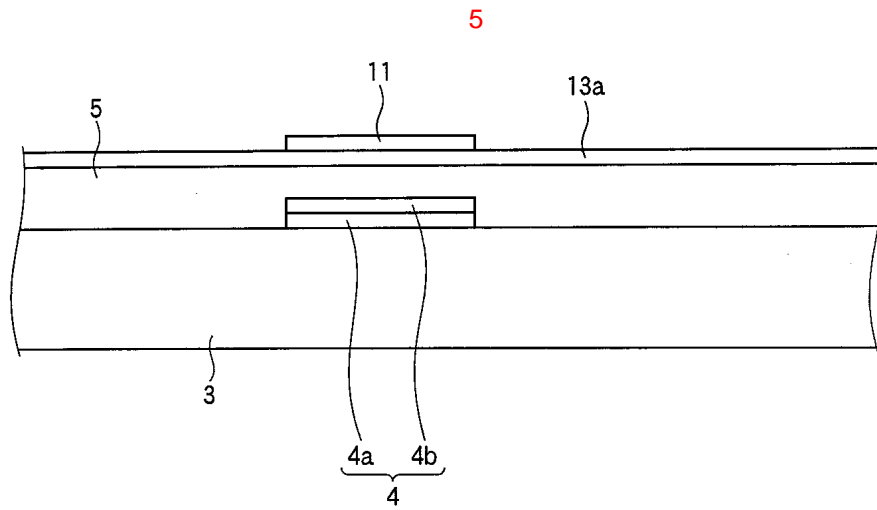


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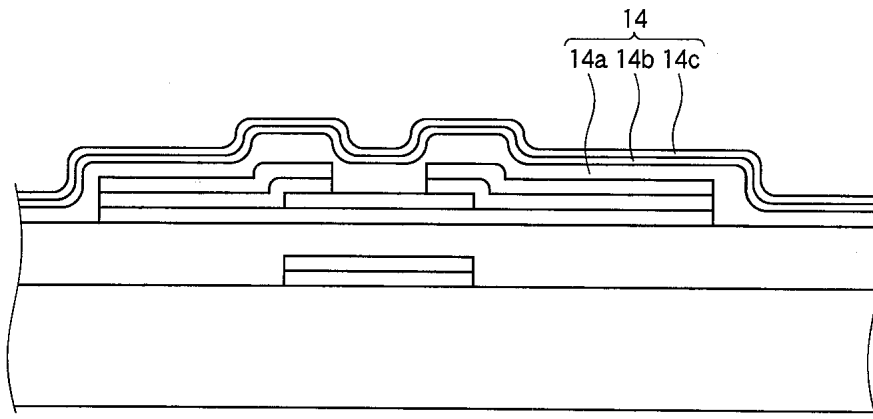


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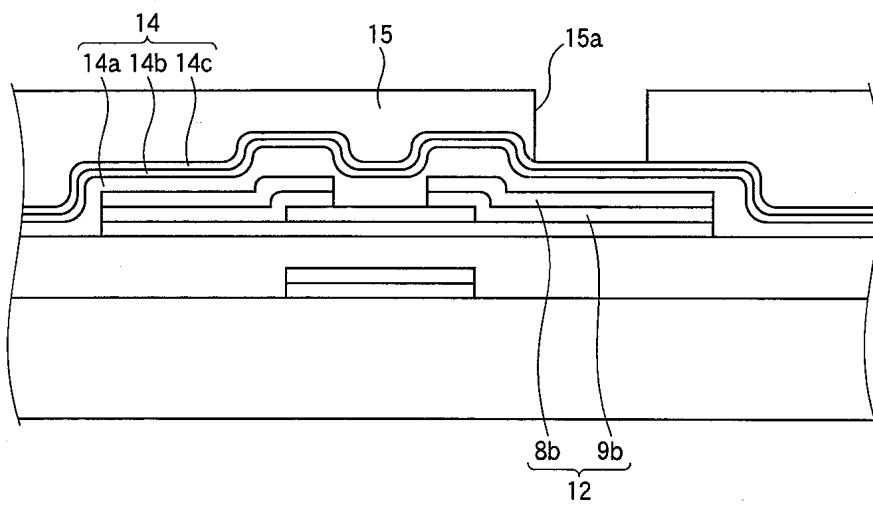




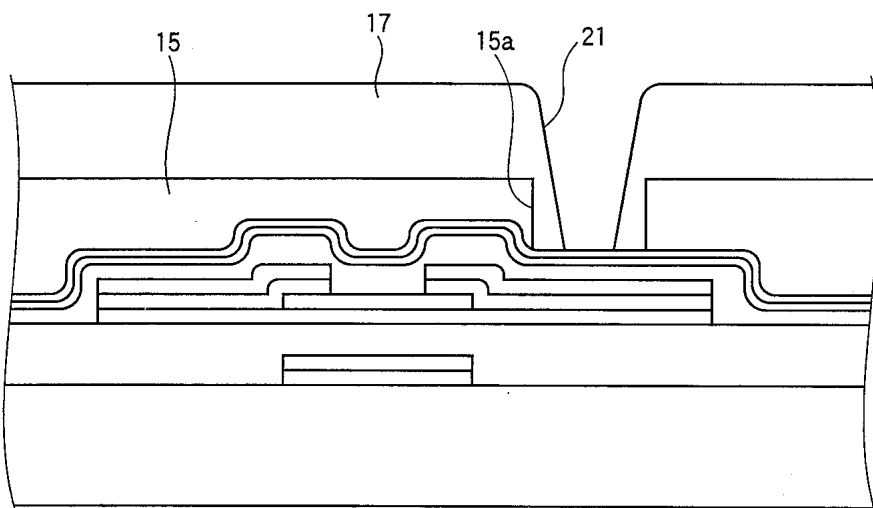
8



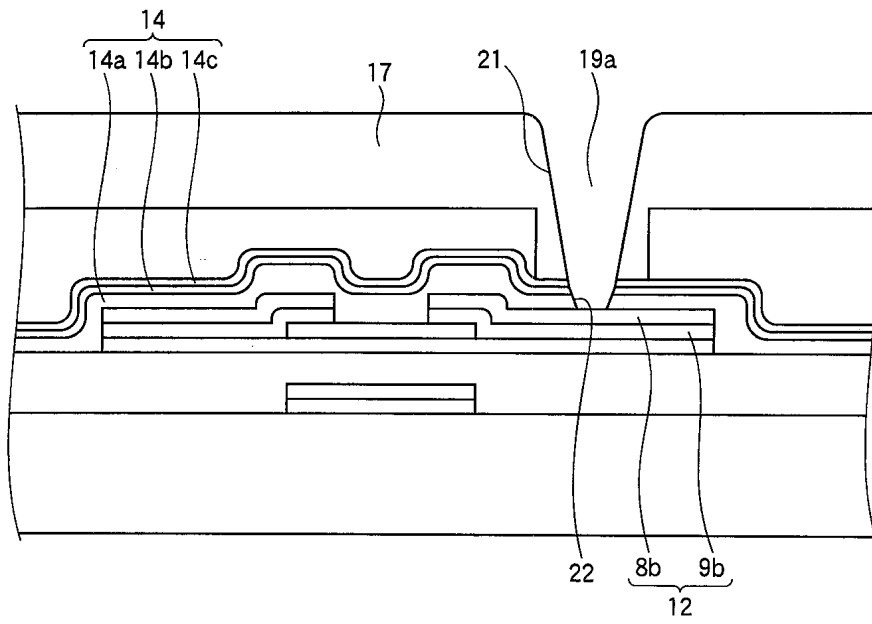
9



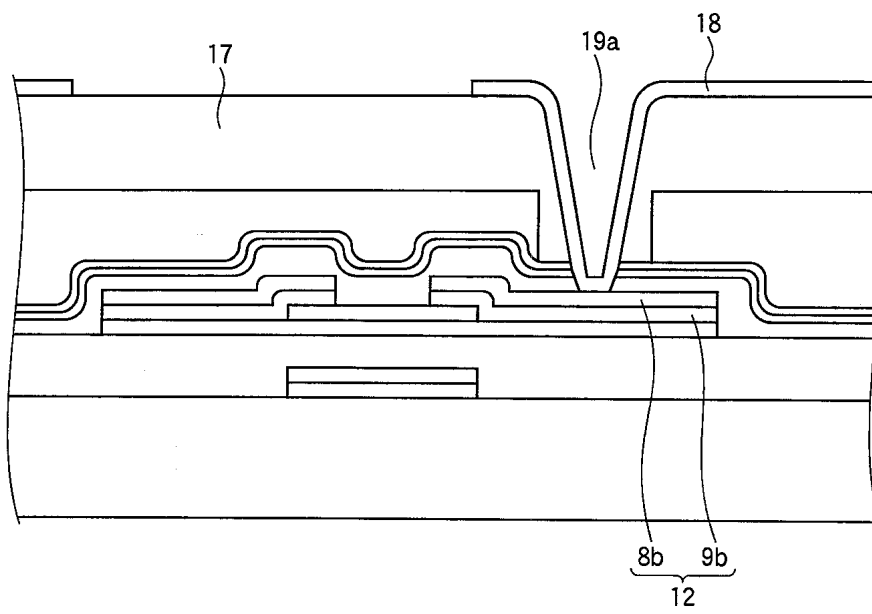
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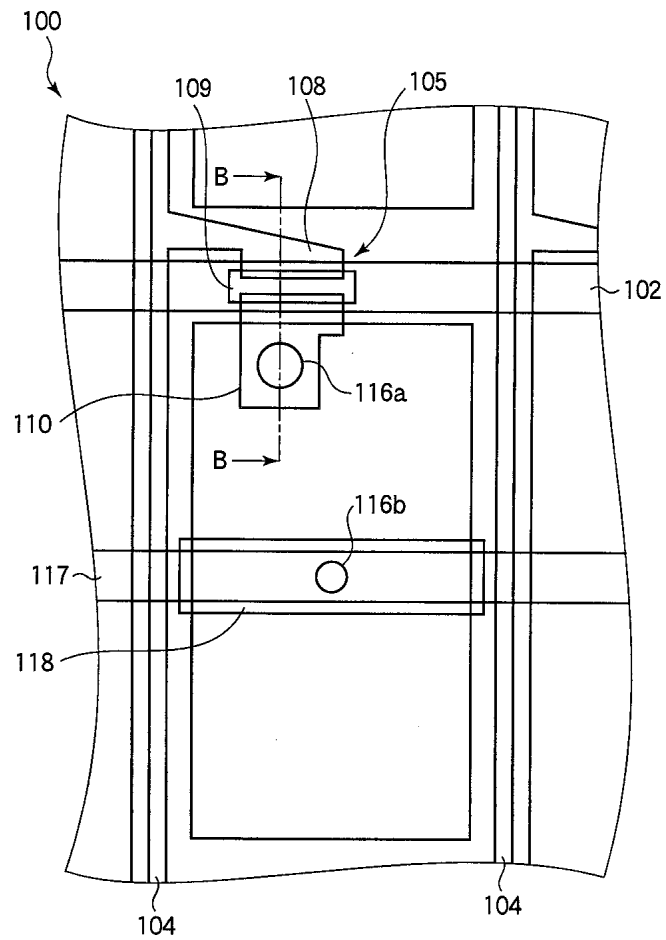
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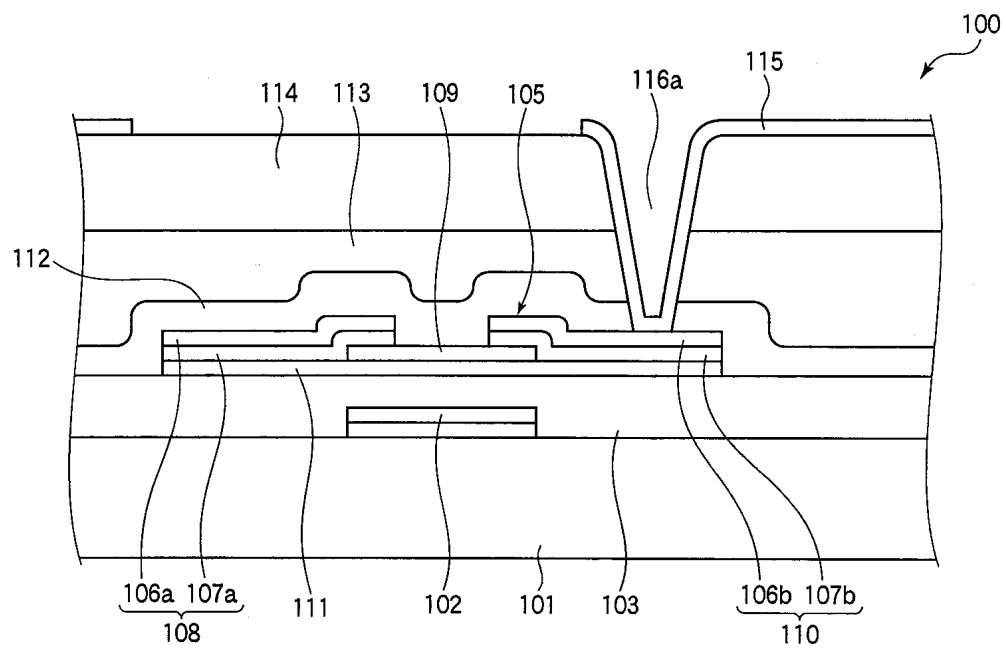
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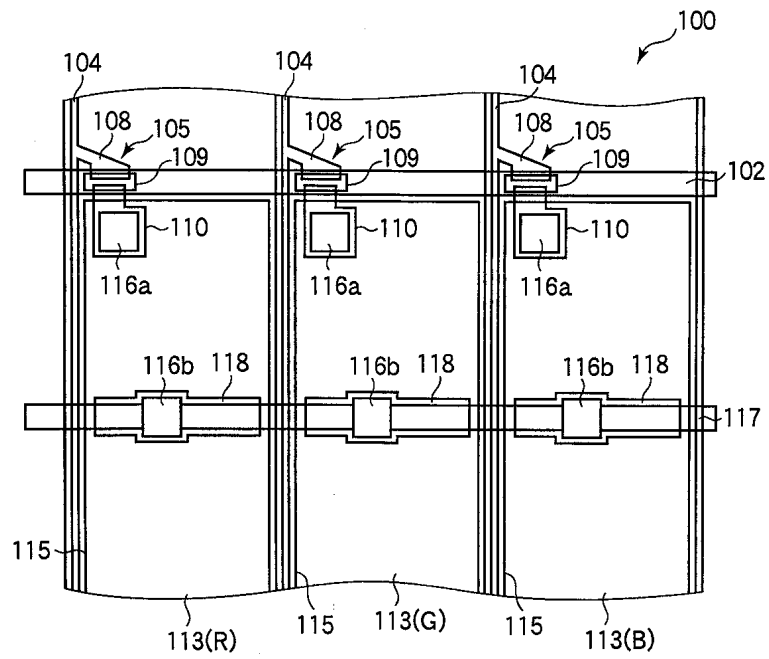
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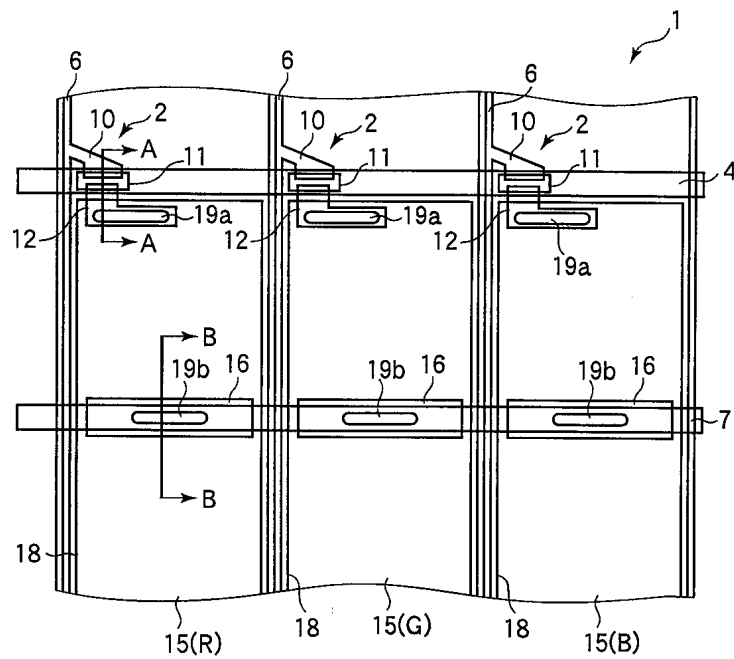
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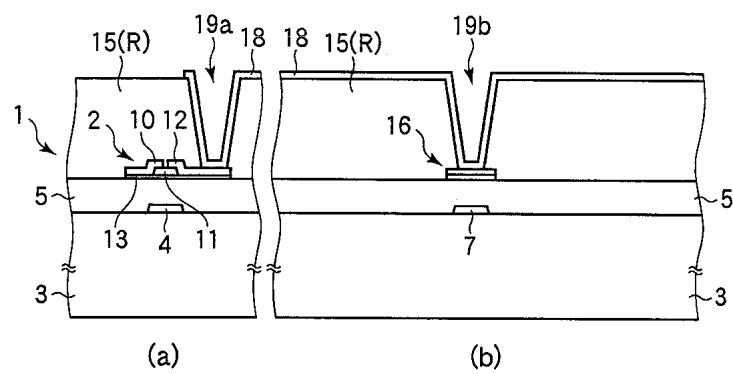
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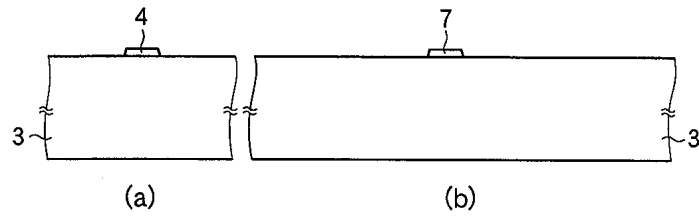
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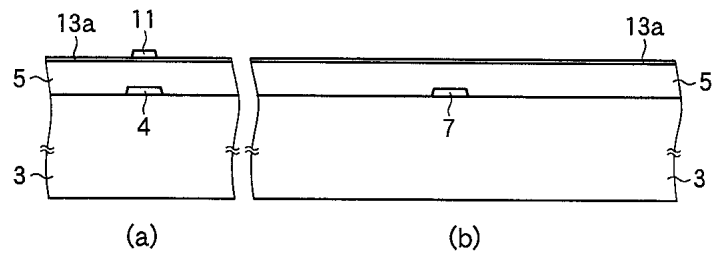
17



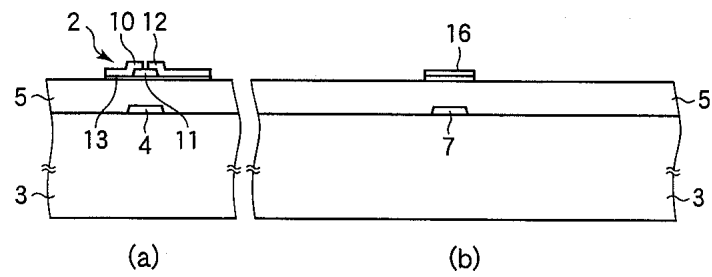
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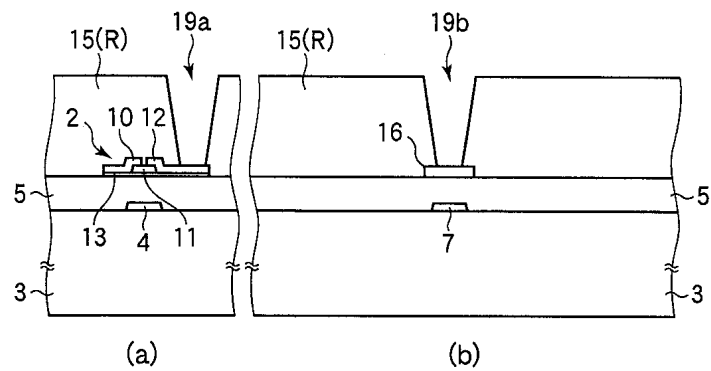
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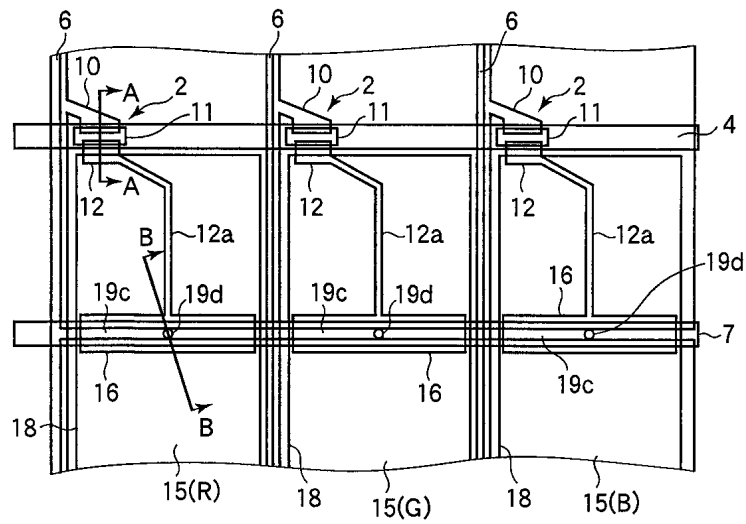
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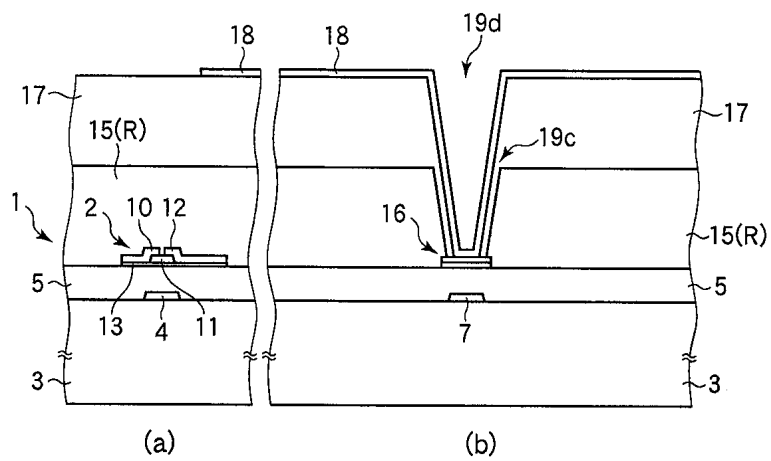
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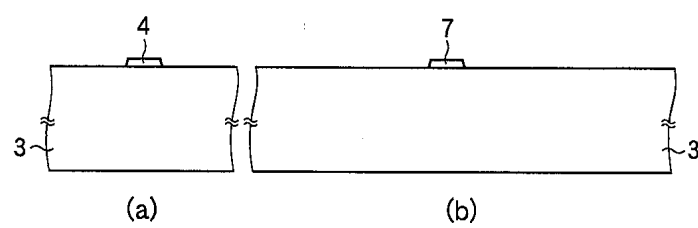
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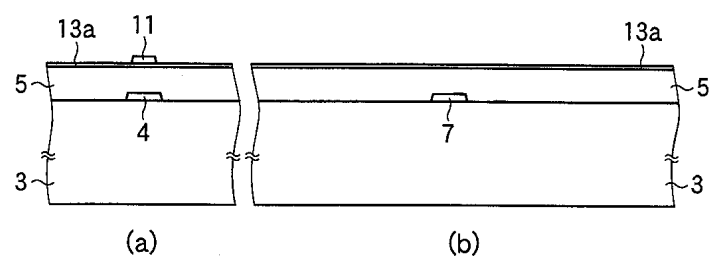
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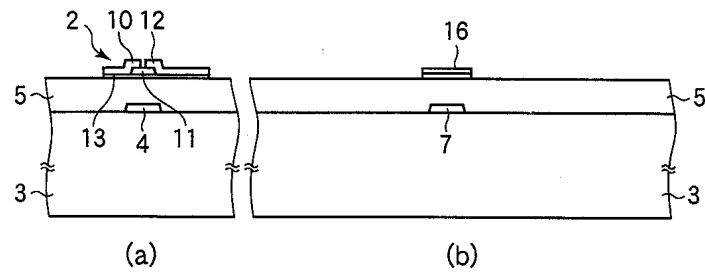
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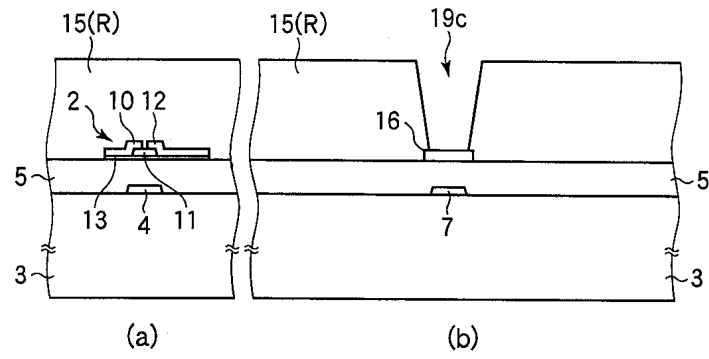
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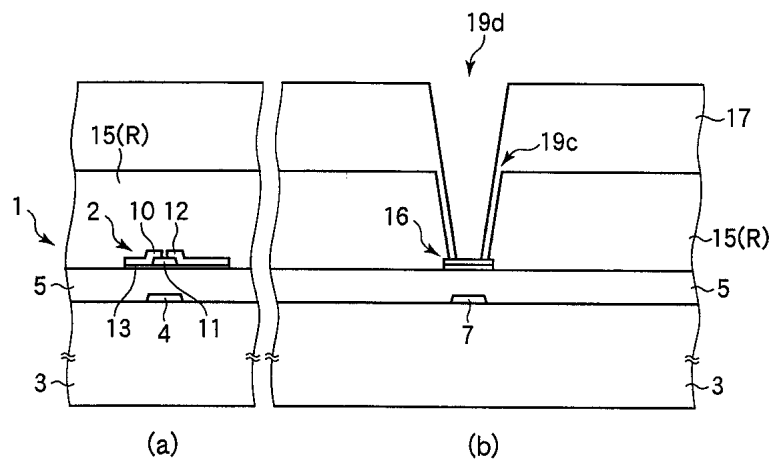
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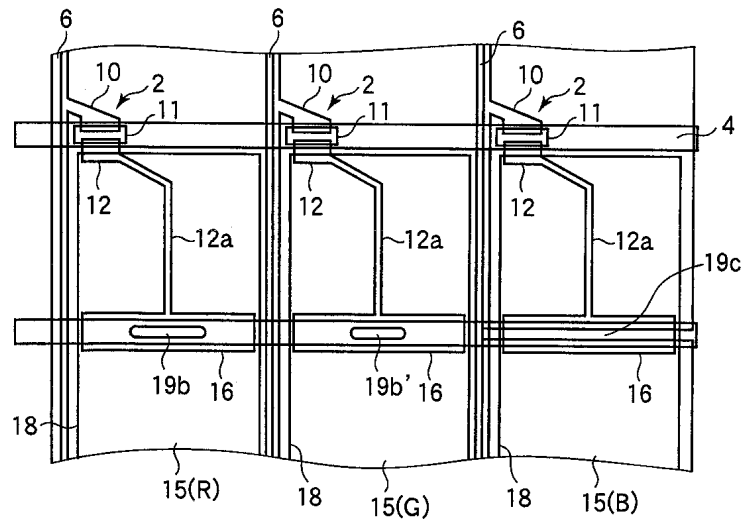
27



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专利名称(译)	用于液晶显示装置的基板和使用该基板的液晶显示装置		
公开(公告)号	KR1020040084720A	公开(公告)日	2004-10-06
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[标]申请(专利权)人(译)	夏普株式会社		
申请(专利权)人(译)	夏普株式会社		
[标]发明人	SAWASAKI MANABU 사와사끼마나부 TANOSE TOMONORI 다노세도모노리 MISAKI KATSUNORI 미사끼가쓰노리		
发明人	사와사끼마나부 다노세도모노리 미사끼가쓰노리		
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代理人(译)	Jangsugil Juseongmin		
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其他公开文献	KR100814183B1		
外部链接	Espacenet		

摘要(译)

因此，抑制了在阵列基板侧上具有CF的LCD基板上的CF残留或剥离，以防止导电失败。在形成于多个像素区域中的每一个中的像素电极与驱动像素电极的TFT 2之间形成的钝化膜14制成具有SiN层14a和14b以及SiO₂层14c的层叠结构，并且其最上层被称为SiO₂层14c。树脂CF层15形成在具有这种层叠结构的钝化膜14上。树脂CF层15直接形成在SiO₂层14c上，从而防止树脂CF层15的粘附性降低，并且当形成树脂CF层15时CF层15不容易剥离，在形成接触孔时不太可能产生CF残留物。结果，抑制了导通缺陷，实现了具有优异显示特性并且可靠性高的TFT基板1和LCD。1 指数方面 钝化膜，滤色器层，氮化硅层，TFT基板，液晶显示器

