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(22) 2002 03 15

(30) JP - P - 2001 - 00073880 2001 03 15 (JP)

(71) 가 가
5 7 1

(72) 5 7 1 가 가

(74)

:

(54)

(111) 2 (112) 가 (101, 201)
 (111, 112) , (111) Y (111b)
 (106) 2 (110) . (115) (111) Y (11 (11
 1b) (106) . (111) 가 (202) (2
 02a) (200) (115) .

1 1 ;

2 1 ;

3 1 ;

4 3 AA ;

5 TFT ;

6 TFT ;

7 ;

8a 10c 1 TFT ;

11 1 TFT ;

12 2 ;

13 3 ;

12 4 ;

15 5 ;

16 ;

17 16 PP ;

18 ;

19 18 QQ .

ing) . IPS 가 (IPS; In - Plane Switch

16 IPS

17 16 PP 17 , T

FT (100), (200) (300) (spacer) (

) TFT (100) (200) (300)

TFT (100) 1 (101) (102, 17)
 (103) 1 (101) 16 , X
 (102) , X
 (103) (102) (103) (102) (103)
 가 (103) 가 (103)
 (103) X (111)
 (111) (111a), (111a)
 (111a) 가 가 (11b) 가 .

17 , 1 (101), (102) (103) (104a) .
 (106) (112) (104a) 16 (105) (105) (104a)
 (104a) (105) (TFT) (105) (104a)
 (102) .

(106) Y (102) , Y
 (112) (112) (111) Y
 (112a) , (103) (112a) 가
 (112b) (112) (112a) (111)
 (111) , 17 (104a) (111) (111)
 112) (103) , (112) (112b)
 (104a) .

(104b) (104a), (106), (112) TFT
 (116) (104b) (119) 1 (101) .

(200) 2 (201) (202)가 2 (201) (106)
 (202) (202) (203) (204) (205) (106)
 202) (203) (207) (208) 2 (201) .

(102) 가 , (display tone) ()가
 (106) 가 가 가 () (102) TFT가 ,
 (106) 가 (107), (105) (108) (112)
 가 .

가 , TFT (112) 가 (112) (11
 1) (103) (112) .

가 , (111) , (112) (112a) ,
 가 , (203) .

(111) (112) (112a)
 (300) 가 (106) (112) (11
 2a) (106) (112)
 (106) 가 (300) " ((leak)" . (300) (disclination) ,
 (106) (300) (111b) (111) (106) (112)
 (wider) 가 (111b) (111) 가 (11b) (17 (terminate) (112)
 (300)
 () (111) 가 (111b)
 (111) (aper
 , 가 (111b) ,
 ture ratio)가
 11 - 119237 , 가,
 18
 19 18 가 QQ 16 17
 17 (112) (111) (106)
 19 (111) (106) (110)
 18 (111) 18 (103) X
 Y (103) 가 (111) 1 (104) 2
 (110) (113) (103)
 19 (112) 1 (104) 1 (109) 2 (110)
 2 (112a)
 18 , 1 (109) H , 1 (109) (103)
 , 2 (112a)
 가 . 1 (109) (108) 가 (103) (103)
 1 (109)
 2 (112a)
 2 (112a) (111) 2 (112a) 18
 (111a) (111)
 (103) (113) (103)
 (111) 2 (112a) , (ITO; Indium Tin Oxide)

(106) (111) 가 (111b)
 (106) (106) 19
 (111) 가 (111b) (300)
 (111) (112)
 (106) (111) 가 (11b) 2 (11
 0) (111) 가 (11b) (106)
 (106) 가
 (106) 가 (11b) 2 (110)
 (110) (thru
 ughput) 2 (110) (aspect ratio)
 2 (yield) 가가
 (110) (106) (111) 가 (11b)
 2 (110) (pinhole) (106) 가 ((11b)
 11b) (() 가 (short circuit) ,
 (line defect) 가 가
 가
 가
 가
 2 (110) 가 , 가 ,
 2 (110) 1 10 μ m 가
 2 (110) 가 , 가 ,
 2 0.5 5 μ m 가
 (permeability) 가 , TFT (back cha
 nnel) , 2 가
 (110) 2 가 , 가
 가가 가
 가 가
 가 가
 가

1); (101, 201) 1 (300); (101, 201) , (101, 20
 (106) (102); (106)
 가 , (102) ;
 (110) (106) , (112)
 ; (110) (1060 , (106) (111b) (11
 5) 가 , (112) (111) .

(111) (112) (111c, 112a) 가
 .
 (111b) (111c, 112a) .
 (115) (111c, 112a) 가 .
 (115) (111b) .
 (111) (111b) (106) 가 .
 (115) (106) 가 .
 (111) (112) (plane) .
 (111) (112) .
 (111) (112) .
 (101, 201) (111) (112) .

2 (101, 201); (101, 201)
 (300); (101, 201)
 (106) (102); (106)
 (102) ; (110) (106)
 , (112); (110) (
 106) , (106) (111b) (115) 가 , (112)
 (111); (101, 201) (115) (106)
 , (111) 1 (202a) .

(111) (112) (111c, 112a) 가
 .
 (111b) (111c, 112a) .
 (115) (111c, 112a) 가 .
 (115) (111b) .

(111) (111b) (106) 가 .

(115) (106) 가 .

(111) (112) .

(111) (112) .

(111) (112) .

1 (202a) (111) (118)

(103); (103) , (111) (111) (118)

2 (139a) 1 (202a) (103) 1 (202a)

(103)

2 (139a) (111) / (112) .

1 (202a) (115) 가 .

2 (202a) (202) .

204) (101, 201) (

(202)

1 (209a) (204) .

1 (209a) (202) 가 .

(101, 201) (111) (112) .

(101, 201); (101, 201)³ ;

(106); (102); (112)

(111)

(106) (110) ;

(110) 1 (139) ;

1 (139) , (111) (106) (111) (

111b) (115) .

(112) , (112a) 가

(111) (112) (112a) (111c) ,
 (115) (112a) .

(111) (115) (111b) .

(111) (111) (111b) (106)
 가 .

(111) (115) (106) 가 .

(111) (112) .

4 , (101, 201); (101, 201)
 ; (106);
 (102); (112) (111)
 ,

(106) (110) ;

(110) 1 (139) ;

1 (139) (111) (106) (111) (
 111b) (115) ;

(101, 201) (115) (106) 1
 (202a) .

, (112) , (112a) 가
 , (111) (112) (112a)
 (111c) , (115) (112a)

(111) (115) (111b) .

(111) (111) (111b) (106)
 가 .

(111) (115) (106) 가 .

(111) (112) .

(111) , (111) (103) .

, (111) 1 (202a)
 (118) .

, (103) (118) 2 (139a)

2 (139a) (111) / (112) .
 ; (202) (101, 201)
 ; (202) (204) .

1 (209a) (204) .

1 (209a) , 1 (209a) (202)
 .

[1]

1 . 1
 IPS(In - plane Switching)

1 1
 (1) 가 3 1 (1) 2 1
 . 4 3 AA .

1 , (1) (1) (1) ,
 가 (1) (11) , (11) (12) .

TFT(, (11) . ,

(12) (1) (2), (3) (4)
 가 (12) .

(2) (X) (2)
 () . 2 , (106) (102)
 . (106) (2) Y
 (2) 가 (106) TFT 가 .

1 , (3) (1) (Y)
 . (3) 2 ,
 (102) (3) X 가 (3) 가
 (102) TFT 가 .

1 2 , (4) (1) (4)
 가 가 .

3 (1) (11a) 4 (1)
 3 (1) AA (12) .

4 , (1) TFT (100), (200) (300)

TFT (100) (200) () . TFT (100)
 (200) () (300) TFT (100), (200)
 () .

TFT (100) 1 (101) (102;
4) (103) 1 (101) (102) (103)
, , , , , , - , - - , , ,
, ITO() ,

5 (102) (103) 5 (102) X
, (11a) X .
(103) (102) X (103)
(102) . , (103) (11a) .
4 , 1 (104) 1 (101), (102) (103)
. 1 (104) , , , .
(106) 1 (109) 1 (104) . (106) 1 (109)
, , , , , - , - , ,
, , ITO ,

(106) 1 (109) 5 . 5 , (106)
X 가 Y . (106) Y Y
(11a) () .

$$\begin{array}{ccccccc} 1 & (109) & H & , & (11a) & . H & 1 \\ (109) & & & & (11a) & 가 & (103) \\ & . H & 1 & (109) & (11a) & & (106) \\ Y & & & 1 & (104) & 1 & (109) \\ (103) & & & & & & \end{array}$$

TFT	(105)	(11a)	.	5	,	(105)
(102)	(106)	,	(102)	.	4	,
(105)	(106)	1	(104)	.	(105)	,
				(105)	.	
	(107)	(108)	(105)		.	(107)
	(106)	,	(106)	.	(108)	1
(109)	,	1	(109)	.	(105)	1
(104)		(102)	.	(102)	TFT	.
4	,	2	(110)	(106),	1	(109)
	(110)					1
2	(110)		.	2	(110)	,
			.	2	(110)	,

(111) 2 (112) 2 (110) . (111) 2 (112)
 , , , , , , , , ITO()
 , ITO 가

6 (111) 2 (112) 6 (111) X
 (111a), Y (111b) (111c)

(111) X (111a) Y (111b) X Y
 . 3 , X (111a) (105) (103)
 , X (111a) 5 (103)
 (111) 3 5 가 (113)
 (103)

(111) Y (111b) Y , 5 (106)
 (106) . Y (111b) (106) 가
 , (106) 2 (110) (111) Y (111b)

6 (111) (111c) X (111a) Y
 . (111c) (11a) , , 2 3
 , (111c) (111c) 1 (109) Y
 가

2 (112) (11a) 2 (112)
 Y , 3 (112a) (112a) X
 (112b) . 2 (112) (112a) (111) (111c)
 (112a) (111) (111c) 2 (112)

3 , 2 (112) 2 (112) 가 (108)
 (114) (108) 2 (112) . 2 (112) 2
 (110) (114) (108)(, 1 (109))

(111) Y (111b) (115) 가 (115) X ()
 111a) Y (111b) Y (111b)

(106) 10 μ m 가 Y (111b)가 18 μ m 가 , (115)
 5 μ m , Y (111b) (106) , Y 4 μ m 가 , ()
 106) 1.5 μ m 가 (111b) (106)

4, (116) (111), 2 (112) 2 (110) .
 (116) , (116) , (rubbing) .

(12) , (117) 2 (110) 1 (104)
 . TFT (100) (200) (118)가
 (117) (118) , , (118)

(119) 1 (101) .

(200) 2 (201) .

(202) 2 (201) . (202)

가 (202) 가 가 (202)
 (202b) . (202) (106) (202a), (12)

4 , Y (111b) (202) (202a) (106) .
 , Y (111b) (115) , (202) (202a)

(106) (115) .

(202) (202a) (115) (115) 가
 , (115) 5 μ m , (202) (202a) 5 μ m
 (115) , (115) (202) (202a)

(115) (106) .

(203) (202) . (203) ,
 , , (R), (G) (B) 가 .

(204) (202), (203) 2 (201) . (204)
 . (204)

(205) (204) . (205) . (205)

(206) (202; , (202b)) (200) (12) . (206)
 (204) . (202) (202b) (206)
 . (205) (12) .

(206) TFT (100) (117)
 (118) (206) , , TFT (100)
 (103) (200) (202) , .

ITO (207) 2 (201) . (208) (207)

가 (1) (1) ,
 () (102) 가 , 가
 (106) 가 가 가 (102; , (107), (105),
 102)) TFT가 (106) 가 (112) 가
 (108) (114) 2 (112) 가 .

가 , TFT 2 (112) 가 2 (112)
 (111) () 1 (109) (103)
 .

111c) 2 (112) (112a) , (11a) (300) 가 ,
 (300) (111) Y (111b) (203)

(106) 7 (106)
 (106) (111) Y (111b) . Y
 (111b) (106) 가 , (106) (11a)
 Y (111b) . , (106)

5) (115) Y (111b) , (106) Y (111b) (11
 (106) Y (106) Y (111b)

(106) (115) (115) (300)
 , (202) (202a) (106) (200) ,
 (202) (12) (118) (103) (103)
 가 (115) (115)
 (202) (202a) .

(202) (202a) (115) 가 , (115)
 (202) (202a)

6) , 1 , (106) (106)
 (111) Y (111b) . Y (111b) (10
 가 ,

Y (111b) (115) 가 , Y (111b) (106)
 , Y (111b) (106)

(110) 가 , 2 (111) (115) , 2
 (112) 가 가

Y (111b) (106) 가 , (111)

, (115) (115) (103) (111)

(202) (202a) ,

가, , (1) (118) (111)

가 가 .

가 8a 10c TFT

(100) 8a 10c 3 BB, CC DD , , (

2) (3) (117)

(1) .

, .

, 8a , 1 (131) , 1 (

101) 1 (131) , 8b , (102) (103)

, 8c , (132) , CVD 1 (101)

, (133) , CVD (132) (132)

(133) 1 (104) .

, (134) n^+ (135) , CVD (133)

(134) n^+ 8d , (105)

(134) (135) . n^+ (135)

(134)

, 9a , 2 (136) , CVD

, 9b , (106), (107), 1 (109) (108)

2 (136) .

, (107) (108) n^+ (135)

(134) (134) n^+ (135) TFT가 n^+ (135) ,

, 9c , (137) , CVD , ,

(110) (138) (137) (137) 2

(137) (138) 2 (110)

, 가 (138) , (137), (133)

(132) . (138) (tapered) 가

(137)

10a , (113), (114), (117),

(120), (121)

, 10b , ITO 2 (139) , 6
 (111) 2 (112) (139) (115) 가 (111) 10c
 , (117) 3 (139) , (103) (117)
 (120) (121) (122) (123)
 (2) (3)
 , 4 , (116) , (116) (12)
 , TFT (100)
 (200)
 (201) , (202) 가 4 (202a) 2
 (202)가
 (202) (20
 3)
 (204) (206)
 (204)
 (205) (204) (205)
 TFT (100) 가 (200)
 TFT (100) (200) ()
 (116 205) (300) ()
 (119 208) 1 (101) 2 (201)
 TFT (100) (200) (117)
 TFT (100) (200) (200)
 (206) (103) (202) (200)
 18)가 1 (1)가 (1
 1 (111) Y (111b) (11a) (300)
 , Y (111b) (11a)
 Y (111b) 11 (111) X
 , Y Y
 [2]
 12 2 2
 3 3 1 12 3 4
 , 3 AA 12
 12
 12 , 2 (139a) TFT (100) (117) (117) (103) (139a) , ITO (

(111), (112) , (139a) 10b
3 (139) , 10c (117) (,
).

$$\begin{array}{ccccc} (118) & & (139a) & & (118) & & (139a) \\ (103) & & & & & & (139a) \\ & (103) & & & & & \end{array}$$

, (111), (112) ITO , (117)
 (103) ITO , (103)
 , (103) (202) 가 , 가

, 12 2 (202) (202a) 1 (202a)

가 . , (202) (202a) (111) Y (111b) (115) (106) (202) (202a) (202) (202a)

[3]

13 3 3
3 1
, 3 AA 13 3 4
13 ,

$$3 \quad , \quad (115) \quad (202)$$

13 , (209) (200) (204) . (209) ,
 , - , - ITO
 , (209) (205)

(209) (202) , (209) (202) (202a)
(202b) (209a) (209b) .

(209) (209a) (111) Y (111b) (202) (202a)
(115) (106) .

(209) (209b) (12) (103) 3
, (206) (204) (209) (209b) (1
18) . , (209) (103)

$$(209) \quad (209a) \quad , \quad 1 \quad (202) \quad (202a) \quad , \quad (115)$$

(209) , (202)가 (118) , (103) 가 ,
 , (202)가
 , (209) , (209)가 ,
 , (209)

3 , (209) (202) ,
 (209) , (209) ITO , (209a) (202) (202a)
 , (209) (209a) , (202)
 (202a) (209) (209a) (202) (202a) , (209) (209a)
 , 가

[4]

14 4 . 4
 , 3 AA 3 1 14 , 3, 4, 12 13
 14 ,
 14 , 4 2 (139a) 3
 (209) , 2 3 , (118)
 (103) , 가

[5]

15 5 . 5
 , 3 AA 3 1 15 , 3, 4 14
 15 ,
 5 14 . 15
 , 5 TFT (100) , 2 (112) , (111)
 , 15 , (111) 3 (124) 2 (110)
 . 2 (112) 3 (124) , (116) . 3 (124)
 , ,
 2 (112) , 3 (124) 3 (114)
 (108)

(111) 2 (112)
 , (111) 2 (112)
 (unlit)
 ,
 (111) 2 (112)
 ,
 1 5 , TFT
 , MIM
 가 .
 , TFT
 가 .
 가 .

(57)

1.

(101, 201);
 (101, 201) (300);
 (101, 201) (106)
 (102);
 (106) 가 , (102)
 ;
 (110) (106) ,
 (112);
 (110) (106) (106) (111b)
 (115) 가 , (112) (111)

2.

1 , (111) (112)
 (111c, 112a) 가 ,
 (111b) (111c, 112a) ,
 (115) (111c, 112a)

3.

1 , (115) (111b)

4.

1 , (111) (111b) (106)

5.

1 , (115) (106)

6.

1 , (111) (112) (plane)

7.

1 , (111) (112)

8.

1 , (111) (112)

9.

1 , (101, 201) (111) (1

12)

10.

(101, 201);

(101, 201) (300);

(101, 201) (106)

(102);

(106) 가 , (102)

;

(110) (106) ,

(112);

(110) (106) (106) (111b)

(115) 가 , (112) (111);

(101, 201) (115) (106) ,
(111) 1 (202a) .

11.

10 , (111) (112)
(111c, 112a) 가 ,
(111b) (111c, 112a) ,
(115) (111c, 112a) .

12.

10 , (115) (111b)

13.

10 , (111) (111b) (106)

14.

10 , (115) (106) .

15.

10 , (111) (112) .

16.

10 , (111) (112)

17.

10 , (111) (112)

18.

10 , 1 (202a) (111) (118)

19.

10 , (111) (111)
(103);

(103) , 1 (202a) (111)
 (118) .

20.

19 , 2 (139a) 1 (202a) (103)
 1 (202a) (103) .

21.

20 , 2 (139a) (111) / (112)
 .

22.

10 , 1 (202a) (115)
 .

23.

10 , 2 (202a) (202) .

24.

10 , (101, 201) (204)
 (202) ,
 1 (209a) (204) .

25.

24 , 1 (209a) (202)
 .

26.

10 , (101. 201) (111) (112)
 .

27.

(101, 201); (101, 201) ;
 (106); (102); (1
 12) (111)
 ,
 (106) (110) ;
 (110) 1 (139) ;

1 (139) , (111) (106)
 (111) (111b) (115) .

28.

27 , (112) , (112a) 가
 ,

1c) (111) , (115) (112) (112a) (11
 , (112a)

29.

27 , (111) , (115) (111b)

30.

27 , (111) , (111) (111b)
 (106) 가 .

31.

27 , (111) , (115) (106)
 가 .

32.

27 , (111) (112)

33.

12) (101, 201); (106); (101, 201) ;
 (111) (102); (1

(106) (110) ;

(110) 1 (139) ;

1 (139) , (111) (106)
 (111) (111b) (115) ;

1 (202a) (101, 201) , (115) (106)

34.

- 33 , (112) , (112a) 가
 ,
- 1c) (111) , (115) , (112a) (112) (112a) (11
- 35.
- 33 , (111) , (115) (111b)
- 36.
- 33 , (111) (111) (111b)
(106) 가 .
- 37.
- 33 , (111) , (115) (106)
가 .
- 38.
- 33 , (111) (112)
- 39.
- 33 , (111) , (111) (103)
 ,
(111) 1 (202a) (118)
- 40.
- 39 , (103) (118) 2 (139a)
- 41.
- 40 , 2 (139a) (111) / (112)
- 42.
- 33 , (202) (101, 201)
 ;

(202)

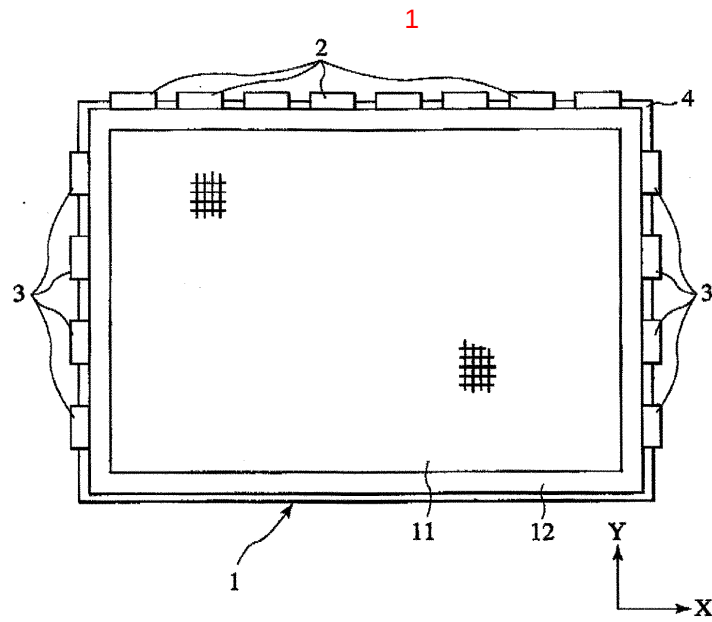
(204)

1 (209a)

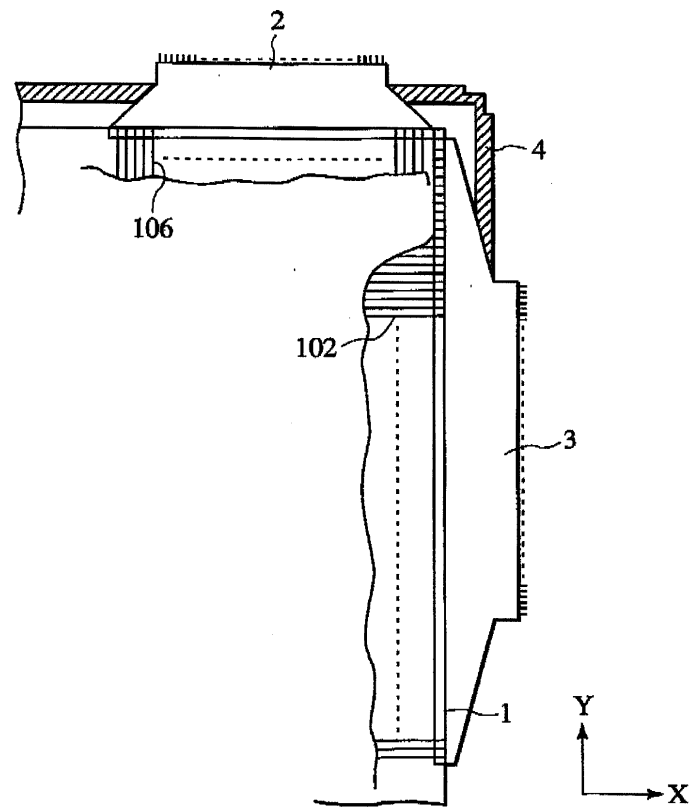
(204)

43.

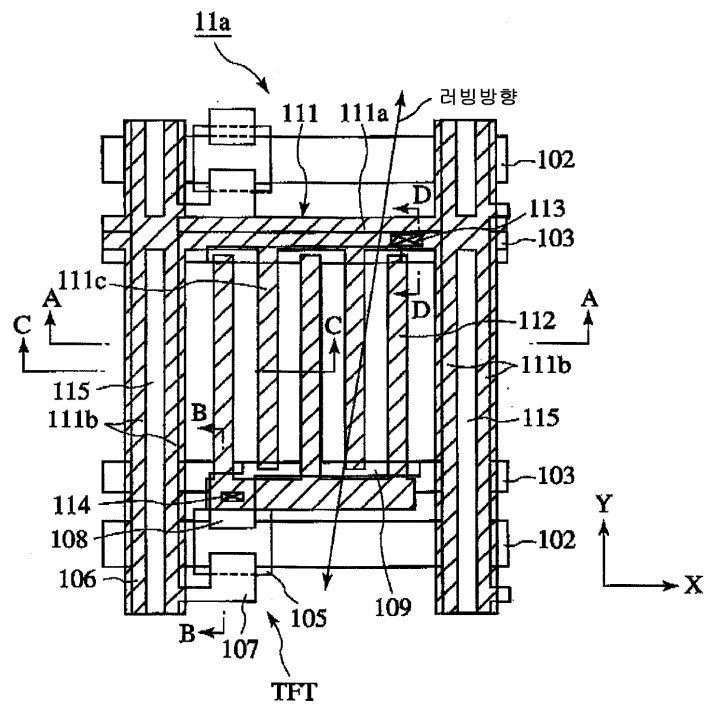
42 , 1 (209a) , 1 (209a) (202)



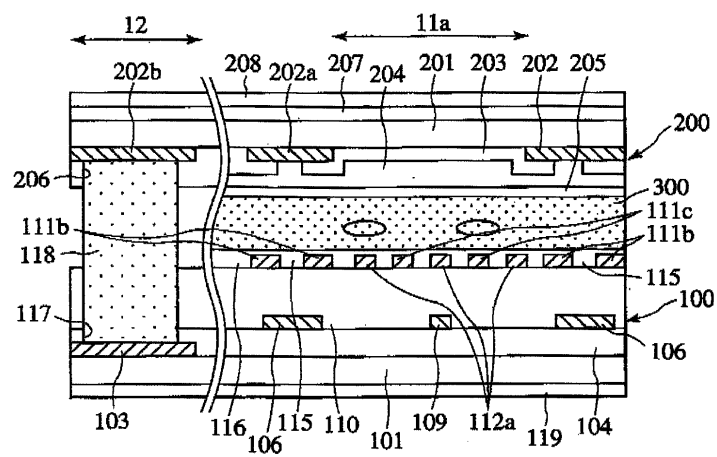
2



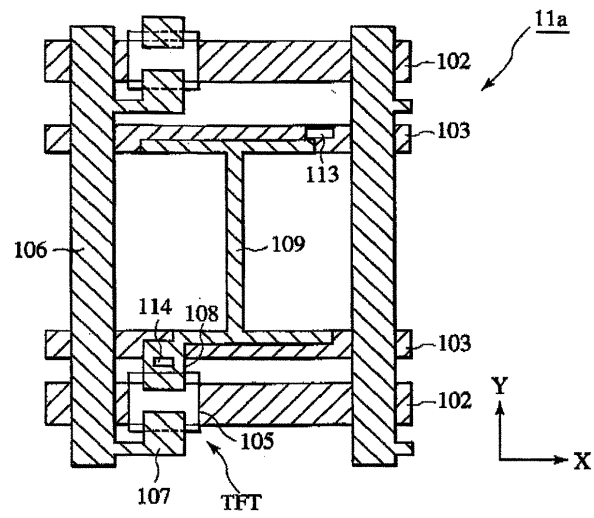
3



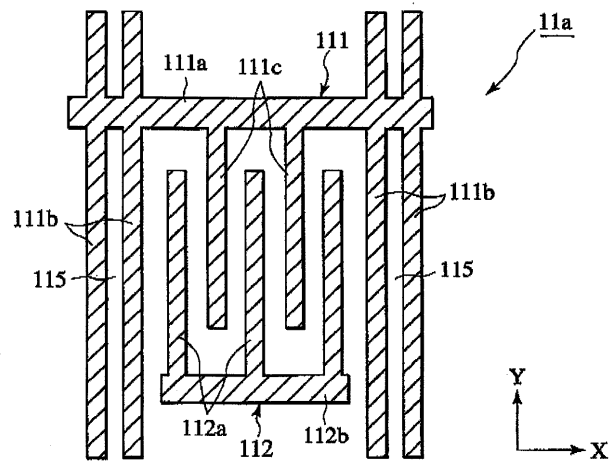
4



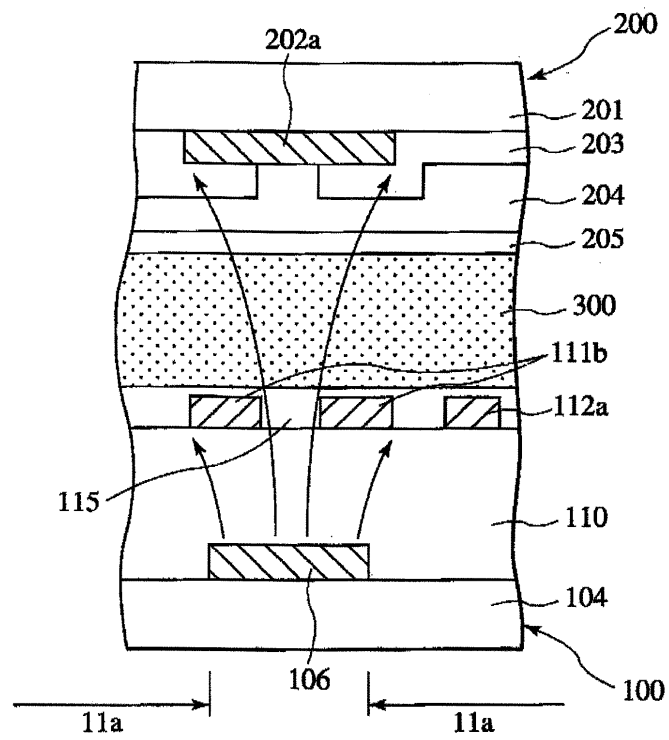
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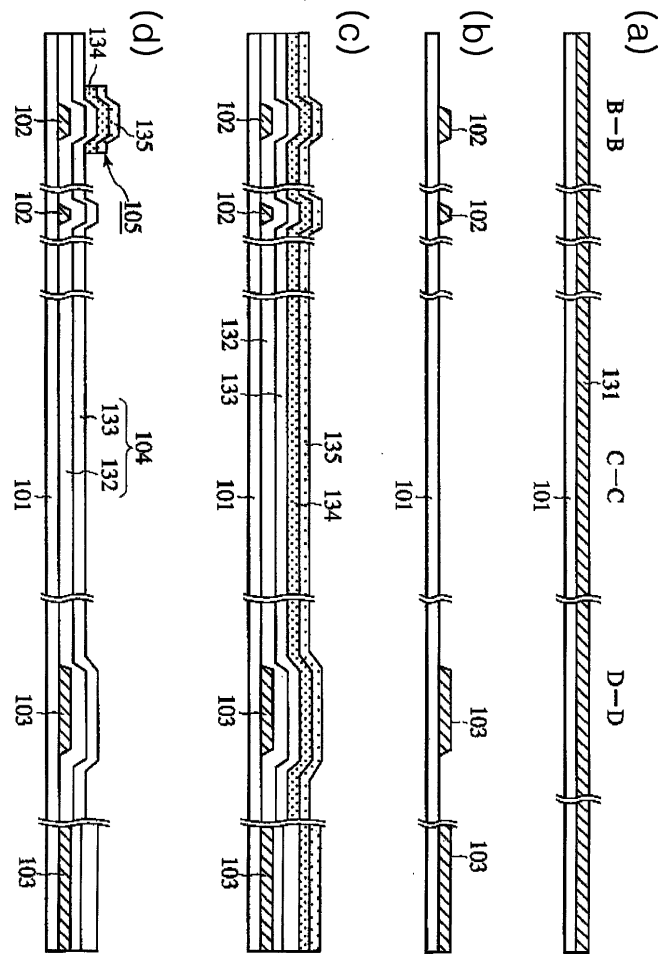
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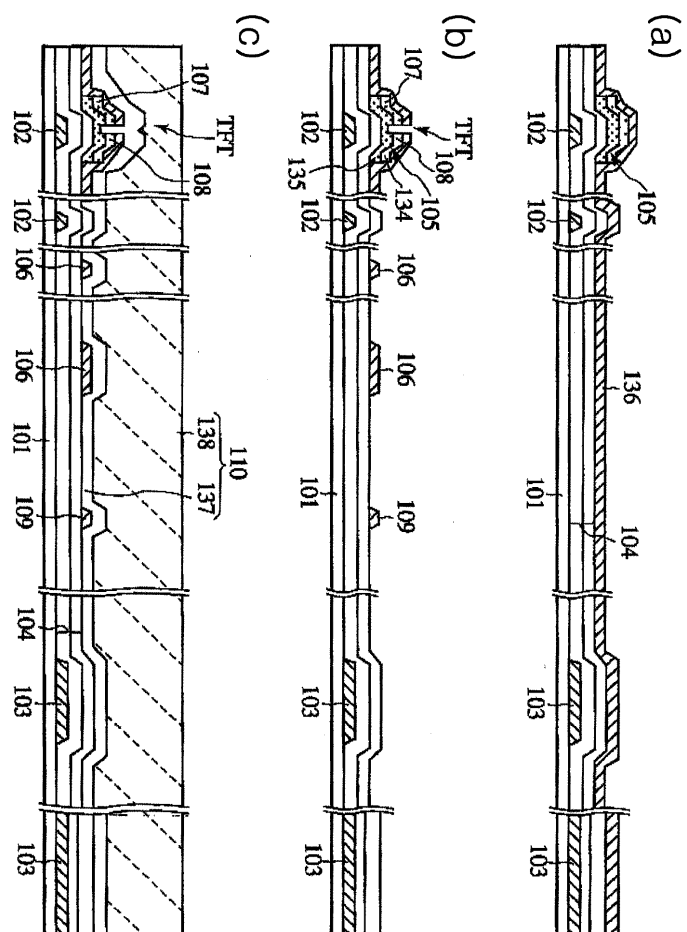
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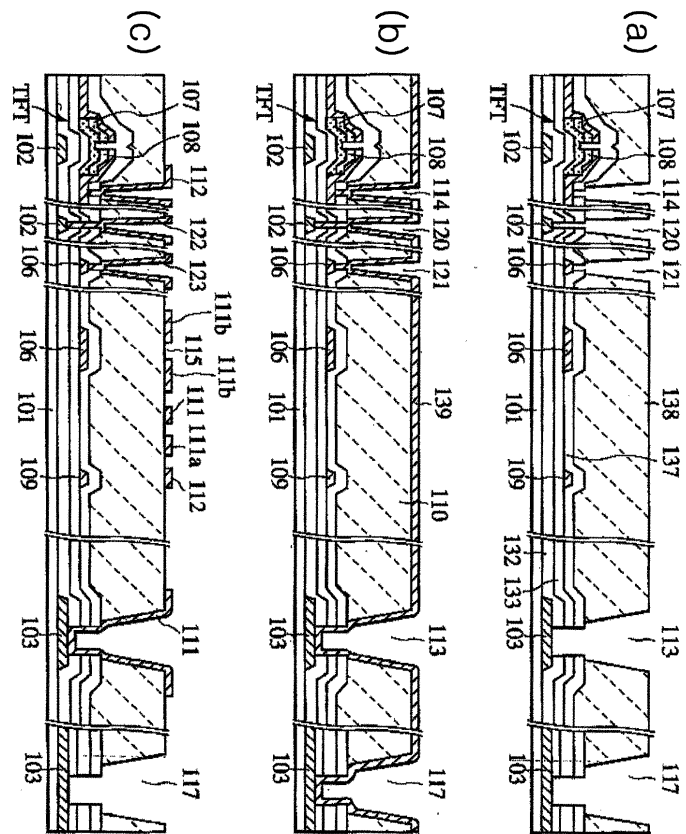
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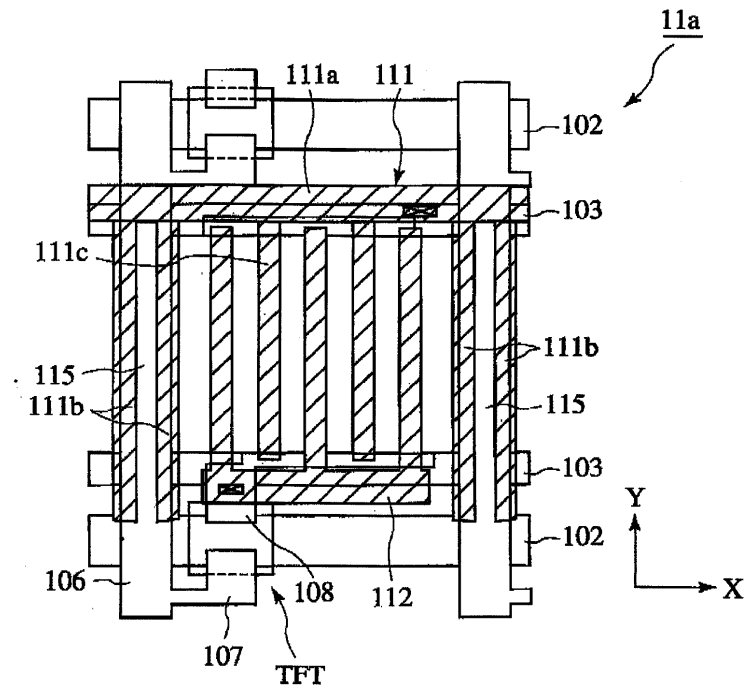
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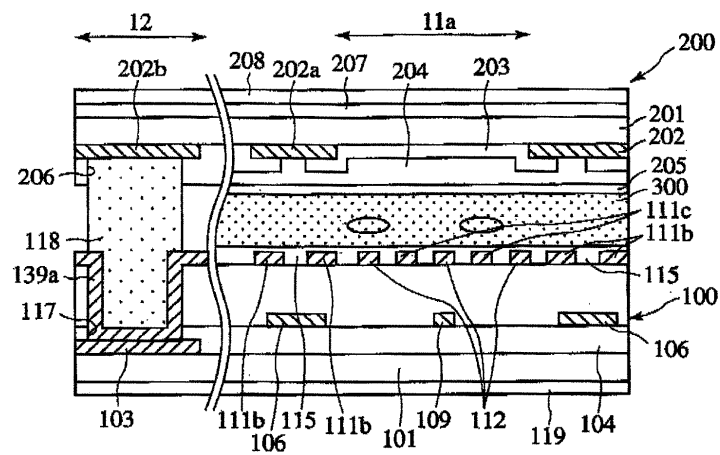
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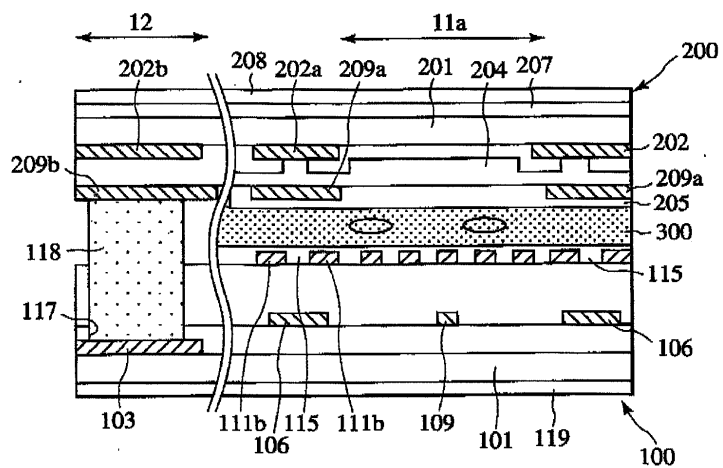
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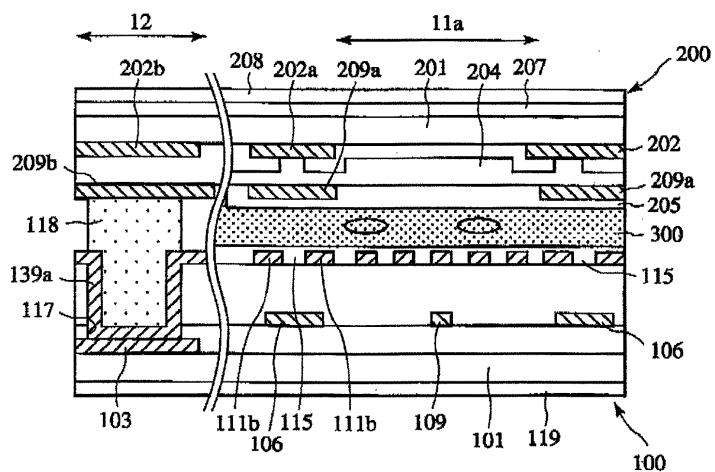
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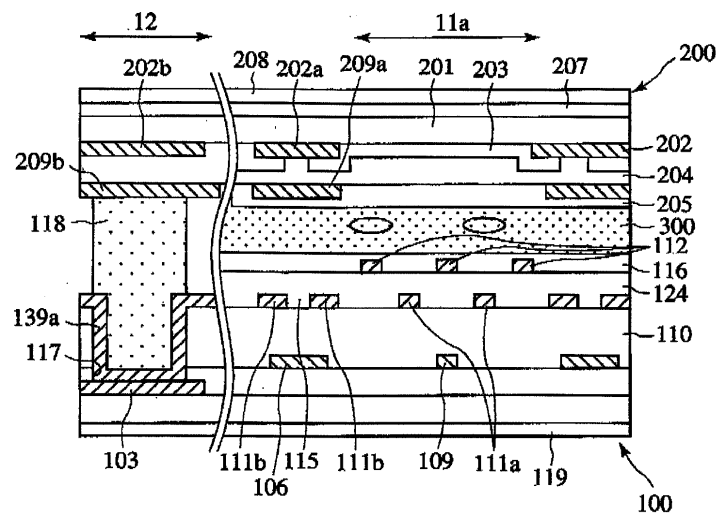
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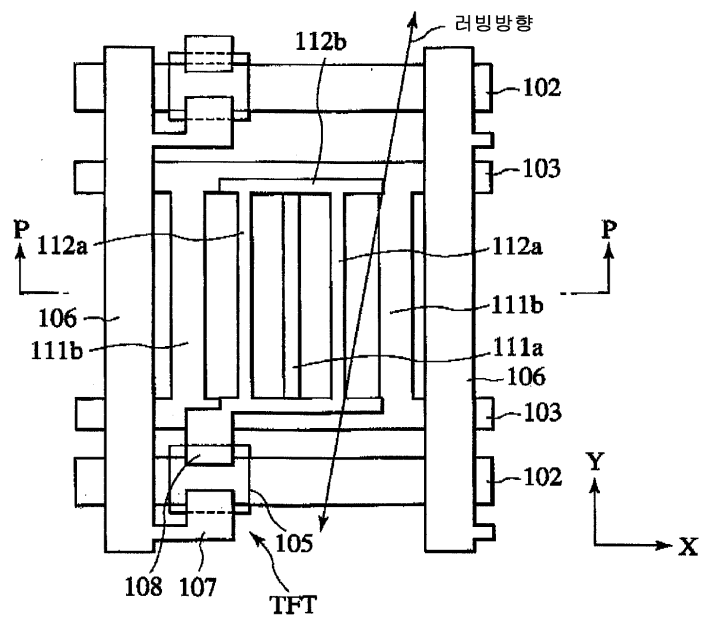
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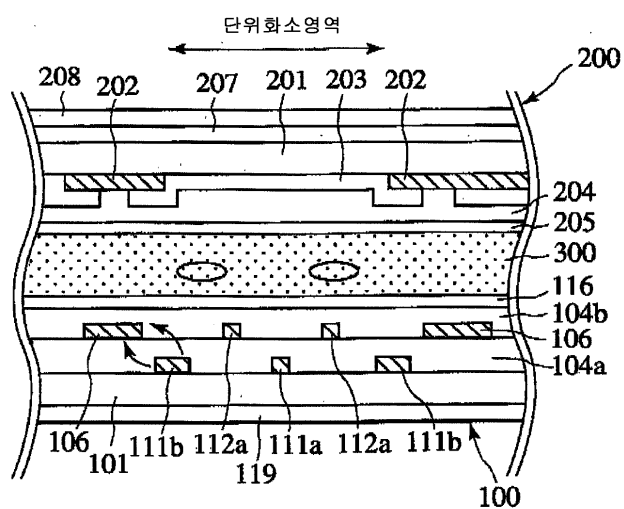
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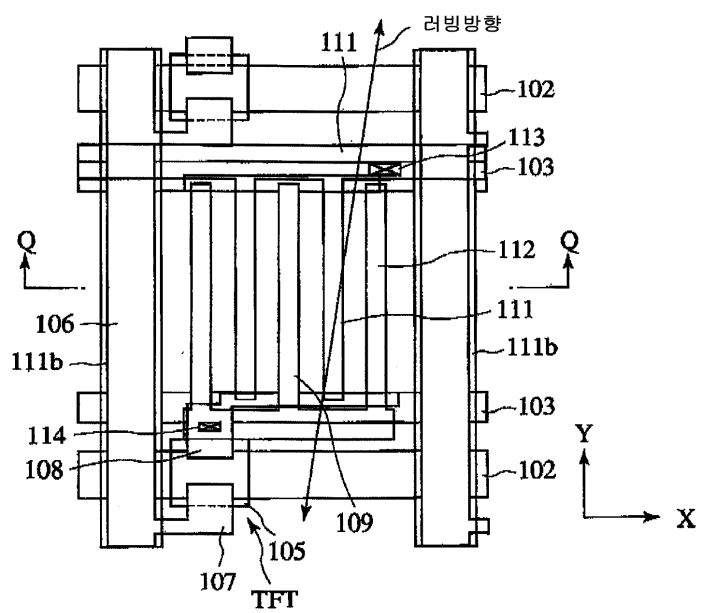
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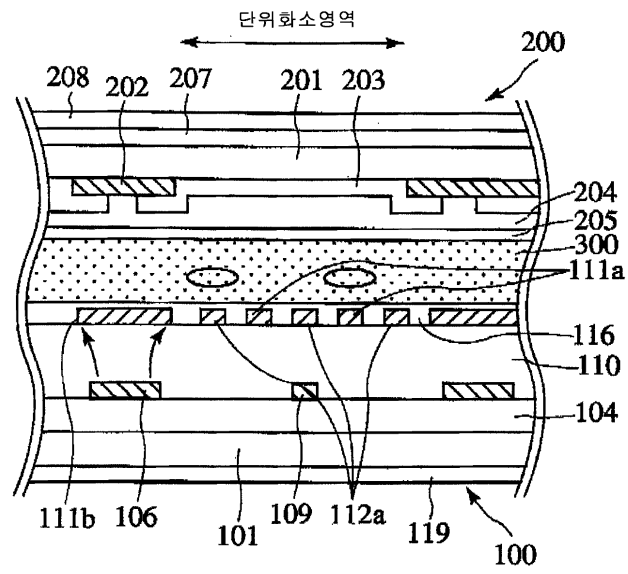
17



18



19



专利名称(译)	有源矩阵型液晶显示装置及其制造方法		
公开(公告)号	KR1020020073447A	公开(公告)日	2002-09-26
申请号	KR1020020014224	申请日	2002-03-15
[标]申请(专利权)人(译)	NEC液晶技术株式会社		
申请(专利权)人(译)	日元号技术可否让这个夏		
当前申请(专利权)人(译)	日元号技术可否让这个夏		
[标]发明人	MATSUMOTO KIMIKAZU		
发明人	MATSUMOTO,KIMIKAZU		
IPC分类号	G02F1/1362 G02F1/1368 G02F1/1343 G02F1/1345 H01L21/3205 H01L23/52 H01L29/786		
CPC分类号	G02F1/134363 G02F2001/136218 G02F1/1345		
代理人(译)	JO , EUI JE		
优先权	2001073880 2001-03-15 JP		
其他公开文献	KR100494638B1		
外部链接	Espacenet		

摘要(译)

公共电极 (111) 的Y方向延伸部分 (111b) 在数据线 (106) 的上侧插入第二金属间电介质 (110) , 并且在有源矩阵LCD中制备, 其中在基板中形成平行电场 (如图101,201所示, 在两个电极 (111,112) 之间具有公共电极 (111) 和第二像素电极 (112) 所面对的部分。狭缝 (115) 沿着数据线 (106) 在公共电极 (111) 的Y方向延伸部分 (111b) 内开口。在固定黑矩阵 (202) 的部分 (202a) 面对相对板 (200) 上方的狭缝 (115) 到公共电极 (111) 的公共电位的位置准备。有源矩阵型, 电场, 黑矩阵, 公共电极, 数据线, 狭缝。

