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(11)
(24)

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(21)	10-2003-0044933 ()	(65)	10-2003-0062288
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(73)	가 가	가 22 22
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(72)	515-0063	648-2
	519-2157	1141-9

(74)

:

(54)

TFT가 , , ,
 , , TFT TFT
 , , .

1

1a
1b 1a x-x' .

TFT

2a	2d	1	TFT
3	1a		TFT
4	1a		U TFT
5a	1a		
5b	1a		
6a			
6b	6a	Y - Y'	
7a	6a	D - D'	
7b	6a	D - D'	
8a	6a		, 6a
A - A'			
8b	6a		, 6a
B - B'			
8c	6a		, 6a
C - C'			
8d	6a		, 6a
D - D'			
9a	6a		TFT
	,	6a A - A'	.
9b	6a		TFT
	,	6a B - B'	.
9c	6a		TFT
	,	6a C - C'	.
9d	6a		TFT
	,	6a D - D'	.
10a	6a		TFT , 6a A - A' .
10b	6a		TFT , 6a B - B' .
10c	6a		TFT , 6a C - C' .
10d	6a		TFT , 6a D - D' .
11a	6a		, 6a A - A'
11b	6a		, 6a B - B'
11c	6a		, 6a C - C'
11d	6a		, 6a D - D'
12a	6a		, 6a
A - A'			
12b	6a		, 6a
B - B'			
12c	6a		, 6a
C - C'			
12d	6a		, 6a
D - D'			
13a	6a		, 6a A - A'
13b	6a		, 6a B - B'
13c	6a		, 6a C - C'
13d	6a		, 6a D - D'
14			
15a			
15b	15a	Z - Z'	

[, TFT (Thin Film Transistor)]가

14 , TFT (101) (102), (103) 가 , (105) (103) (104) (101) (106), (102) (105) (, n + a-Si) (107) . n + a-Si (107) a-Si (106) a-Si (106) n + a-Si (107) (108) (109) , (110) (108) (102), a-Si (106), n + a-Si (107), (108) (109) TFT(111)가 (110) TFT(111) (113) (114) (104) (109) (112) (115) (103) (112) (104) (110) (103)가 , (112) (116) (09) *

(101) (Ti), (Al) (Cr) (102), (102) (103) P-CVD SiH₄ /NH₃ /N₂ 가 (105) SiN_x P-CVD PH₃ 가 SiH₄ /H₂ 가 n + a-Si a-Si , P-CVD a-Si (106) n + a-Si (107) , A1/Ti (108), (109) (110) (113) SiN_x (114) , 가 (113) (104) , (110) (114) (112) , (105) (109) (115) (116) (105) 15a 15b (201) (202), (204), (202a) (202b) (204b) (204a)가 a-Si (208a), a (204) (207) (209b) (210) (P) 가 -Si (208a) n + a-Si (208b) a-Si (208a) n + a-Si (208b) A1/Ti , * (209b), (210) (209b) (209) (209c), (210) (209), TFT(211) (209) TFT(211) SiN (212), (213) 2

(209c), (202a), (213), (215), (204a), (213), (215), (212), (212), (209c), (202a), (204a), (213), (207), (202a), (213), (214), (215), (213), (210)

14 (105) (110) (113) (105) (110) (110) 가 (105) (110) (115) 6 (115) (117) 가 (117) (103) (110) 가 15a 15b (213) (212) (213) (212) (210) 가 (212) 1/10 (202a) (204a) (207) (215) (217) (212) (213) (214) (214) 가

가

가

가

가

가

1 ;

2 ;

3 ;

가

4 ;

5 ;

6

가

가

가

가

가

가

1

2 1

가

가

가

2 1 (dummy) 2

2 가

가

가

2 1 a-Si n a-Si n +

2 가

2

가

2 1 n + a-Si 2 n + a

-Si 1 n + a-Si

가

2 a-Si

가

2 2

1

1a 1b 5a 5b

1a () (, "TFT: Thin Film Transistor") 1b

1a x-x' 1a 1b (1)

(2), (2) () (3), (2) (2)

(2a), (3) TFT(6) TFT(6)

(5), ITO(Indium Tin Oxide) (7)(2)

TFT (2) (2) (2b) , TFT(6)

(2) (2) (2a) (2b) Ti, Al, Cr

(3) (3) (3b) , TFT(6)

가 (3) (3) (5) (3b) Ti, Al, Cr

(5) () (10)가 (1) (2) (2b) (10)

(3) () (11) (11) (1a) (1b) (3) (1a) TFT(

6) a-Si (1b) TFT(6) ; n + a-Si

(3) (10) (7) () (12) (15)

13)(, 2) (4) (19) (19)

(7) TFT(6) (4) (19) (19)

(4) 1a (19)

1b , TFT(6) (5)

TFT(6) (1) (2b) SiN_x

() (16) (, a-Si) (8), (, n + a-

Si P) (9)가 . n + a-Si (9) 가 (4) (4) (3b)

n + a-Si (9) (3b) (4) (4) (3b)

Ti, Al, Cr (3b) (5) SiN_x (14) (10) (10a)

(16) (16) a-Si (8) (11) (11b)

(11) (11a), n + a-Si (9) (10) (3)

(11) (12) (12) (12) (1)

(3) (5) (14) (14) (12) (10) (3)

0) (13) (13) (12) (12) 0.5 10 μ m

(3) (11) (3) (12) 0.5 10 μ m

2a 2d

가 (13)
)(24) , 4 U (,
 , U (25) (24) (24) (U)
 가 (13)
 (21) (12) (21) (12)
 (21) (21) 가 (12)
 , TFT (12)
 (12) (21) 5b , 5a
 (21) (21) ,
 (21) (21) (12) (10)
 (16) (12) (22)
 (21) 가 (13)
 (21) (12) 가 가
 (21) 가 (3)
 (12) 0.5 10 μ m (11,21,24) TFT(6) (a-Si 8 n + a-Si 9)
 가 (16) 1/2 1/20 (17)
 (17) (16) (14)
 (5) (11)
 (3,22,25) (10)
 가 (16) (14) 1/5 가
 2
 1 6a, 6b 13a 13d
 6a 6b , () (14) () (17)
 (3b) (4) TFT(6) (30) (30) (7) (4) 7a 7b
 30) (17) 가 (7) (4) (31)
 TFT(6) (33) TFT (32) (30)
 8a 8d (1) Ti, Al, Cr
 (2b), (2b) (2)(6a), ()
 2) (2a), (34b), (34b)
 (34a)(6a)
 (34a) (6a)
 9a 9d P-CVD SiH₄, NH₃, N₂ 가 SiN_x
 (16) (1)
 9a, 9b, 6a 6b (16) (16b)
 (34a) (16) (3c) (16b) (2a),

9c (P) , n + a-Si (32a) , n + a-Si (32b) a-Si (32a) P-CVD , n + a-Si (32b) PH₃ 가 0.5%
SiH₄ 가 H₂ 가
a-Si (32a) n + a-Si (32b) (2b)
a-Si (32a) n + a-Si (32b) 1 (1) TFT (1
(32) , 9d 2 (2) (34b) (1
6) 가 2 (2)
(33)
, 10a 10d Ti, Al, Cr
, TFT (32) (4), (3b),
(3b) (3), (3) (3c) (4) TFT(6)
(3), (3) (3b) (3c)
, 7a 7b (4) 가 (34b)
(33) (4) (33) (31)가
(4) 가 (33) (31)
(33) 가 (4) (31)가
, 10a 10d (34b) (31)
(4) (33) n + a-Si (32b)
0d (34b) (33)
(4) (33) n + a-Si (32b)
, 11a 11d P-CVD SiH₄, NH₃, N₂ 가 SiN_x
1 (14) 10a 10d
(14) (17)
, (17)
, (4) (17) (2a), (30) (34a), (3c)
(4) (17) 11d 가
, 7a (4) (31)가 (4)
(30) 가 (30) (4) (31) (33)
, (33) (30) 1/3 2/3 가
(4) (33)
, (7) 15b
(215) (217) F₄, O₂ 가 12a 12d
(3) RIE (3c) (14) (16b)
(30) (34b) (16) (33) (4)
(4) (31) 가 (33) (14) (2a) (16b) (14)
, 12a (3c) (14) (16b) (14)
, TFT 12a, 12b 12d (17)
(3) (3c) (4) (14)
(16b) (17) (14) (16b)
, (14) (16b)
, (17) (30) (7) (16b) 가
2 (15a (215) (210) (209)
가 (207) (212)

(217) , (4) (31) (33) ,
 (16) (30) (33)
 12d (17) (14) (17)
 , 13a 13d (7) ITO(Indium Tin Oxide)
 (4) (7) (7)
 ITO , Al, Ag
 , ,
 6b (4) (7) (30)
 , (30) 가 (31) (4) (30)
 (14) (17) (31) (33)
 (30) (33) (16b) 가 (1/3 1/5)
 , (33) (16b) 가
 (16) 가
 , (4) TFT(6) (14) (17) (3b)
 (30) 가 (30) (14) (30) (17)
 , (30) (7) (4) (4)
 , (30) (14) (30) (4)
 (7) (30) 가 (14) (7) (30) (7)
 , (7) (30) (4) (31)
 , TFT(6) TFT (8) (30)
 (33) (33) (30) (33)
 , TFT(6) TFT (8) (30) (14), (33)
 가 (14) (4) (33) (14) (31)
 , (33) (14) (14) (7) 가
 , (7) (7)
 ,
 2) , (2), (34), (34) (2), (34b)
 ; (2), (2b), (34) (34b)
 (16) ; (2b) (16) a-Si (32a) n + a-Si (32b)
 TFT (8) , (34b) (16)
 a-Si (32a) n + a-Si (32b) (8) 가 (33) ; (2b)
 TFT (8) (3b) (4) (34b)
 3b) (9) 가 (31) (34b)
 ; (33) (4) ; (34b)
 (31) n + a-Si (32b) ; (2b) TFT
 (33) n + a-Si (32b) (3b) (4) TFT
 (8) (8) n + a-Si (32b) ; (14) (34b) ;
 (14) (17) 가 ; (17) (30) (9)
 (4) (31) (2a) (34a) (17) ;
 c), (17) (30) (4) (31) (34a) (14)
 (30) (9c), (2a) ; (2a)

[illegible]

가

1/5

가

가

가
가

U

가

1 ;

2 ;

3 ;

가

4 ;

5 ;

6

가

가

가

4

5

(57)

1.

가

1

2

2

2.

ia-Si
ia-Si

n⁺ a-Si
n⁺ a-Si

1
2

1

2

2

n⁺

a-Si

2 n + a-Si , 1 n + a-Si

2 가 , 가

2 ia-Si

3.

2 가

4.

2 3 , 2 ia-

Si , 가

5.

1 , 2 1/3 2/3

6.

2 4 , ia-Si 가

7.

가 , 가 , 가

8.

7 , , ,

9.

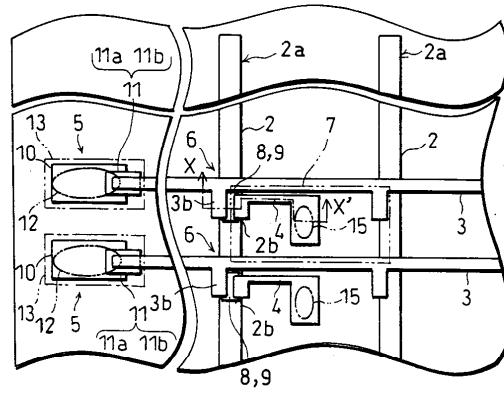
8 , 가 가

10.

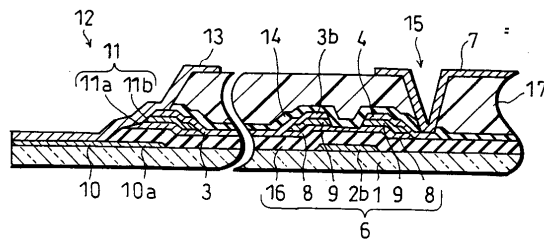
8 , 1/3 2/3

1

도 1a

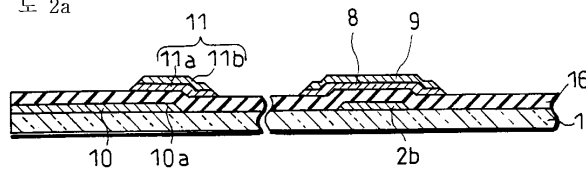


도 1b

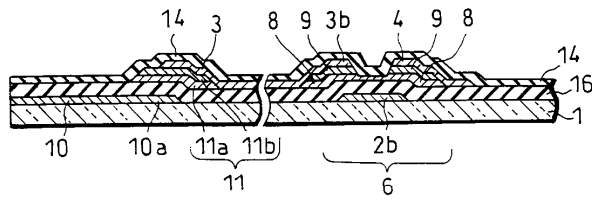


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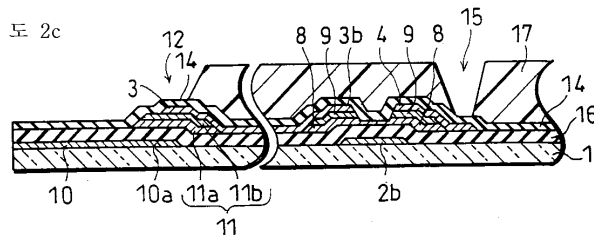
도 2a



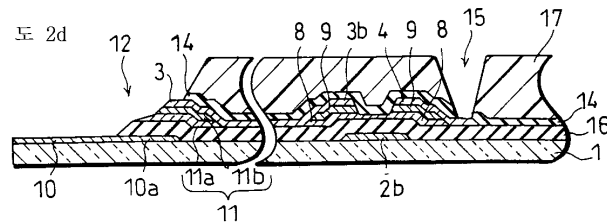
도 2b



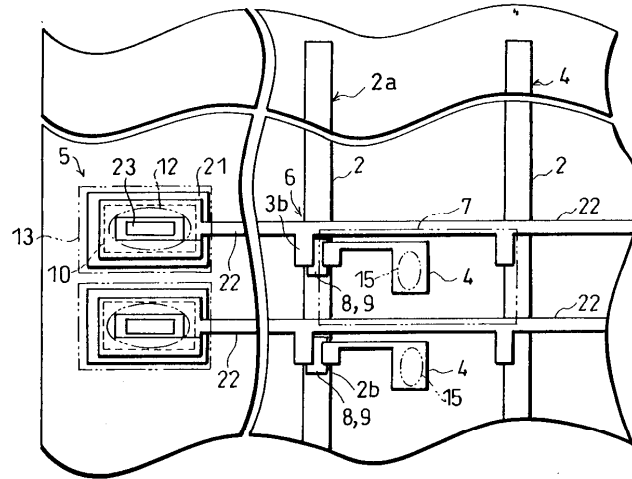
도 2c



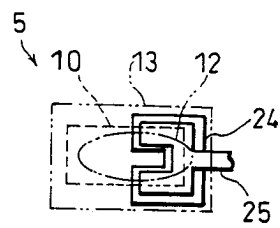
도 2d



3

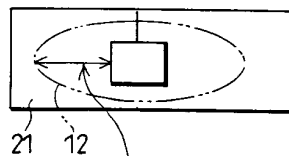


4



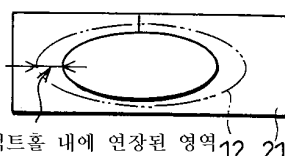
5

도 5a



컨택트홀 내에 연장된 영역

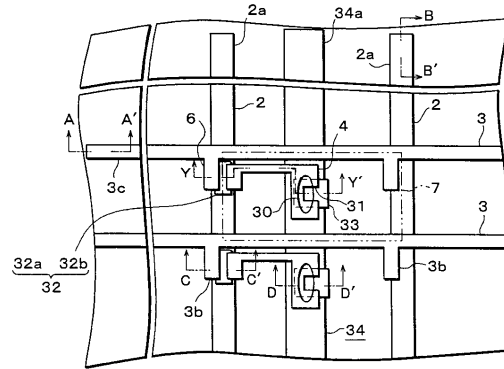
도 5b



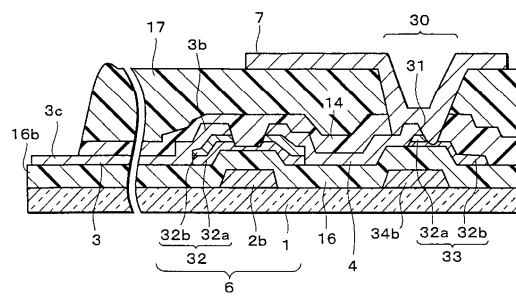
컨택트홀 내에 연장된 영역

6

도 6a

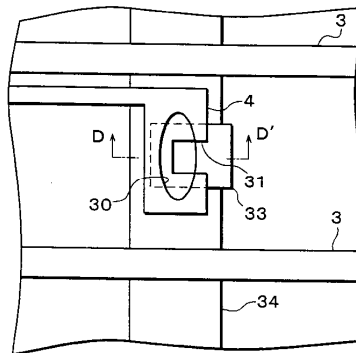


도 6b

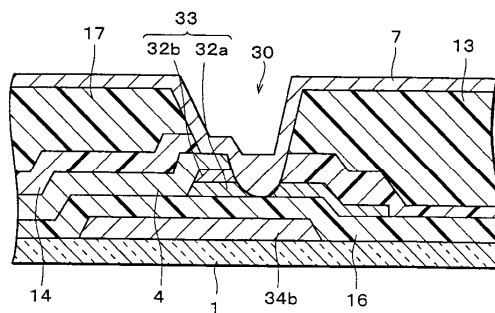


7

도 7a

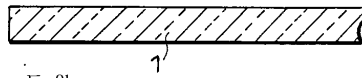


도 7b

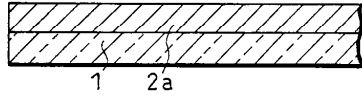


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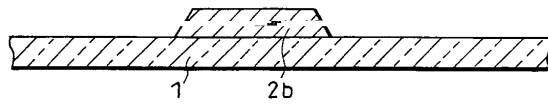
도 8a



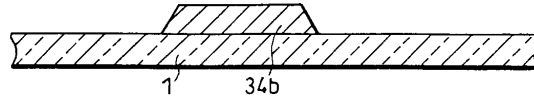
도 8b



도 8c

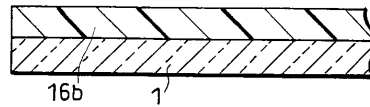


도 8d

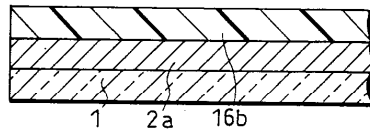


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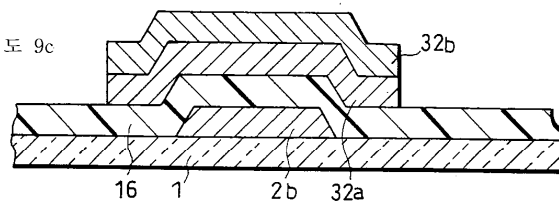
도 9a



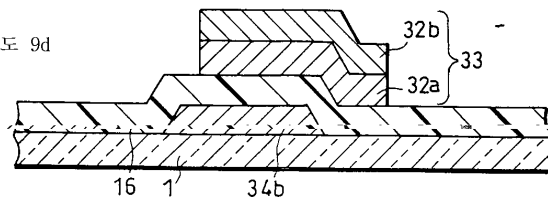
도 9b



도 9c

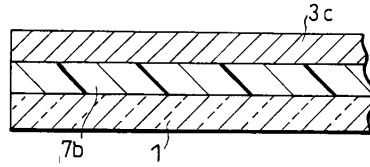


도 9d

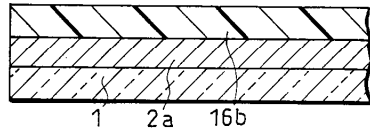


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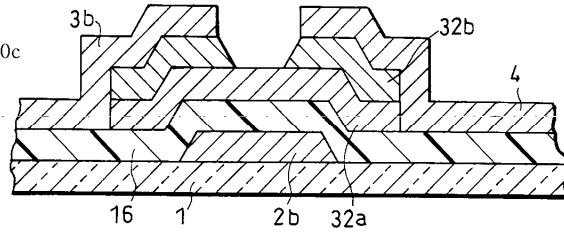
도 10a



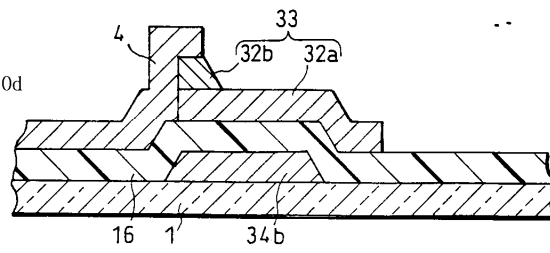
도 10b



도 10c

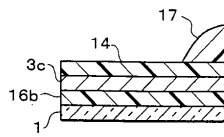


도 10d

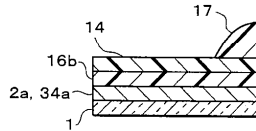


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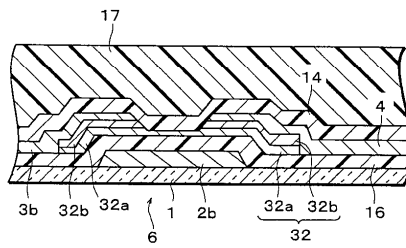
도 11a



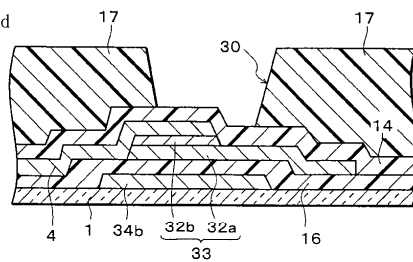
도 11b



도 11c

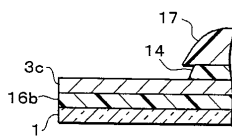


도 11d

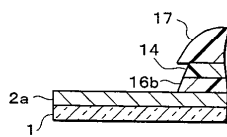


12

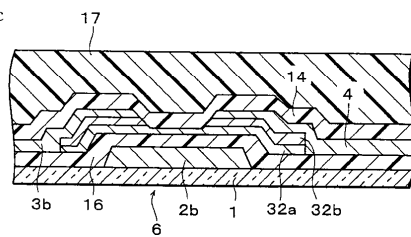
도 12a



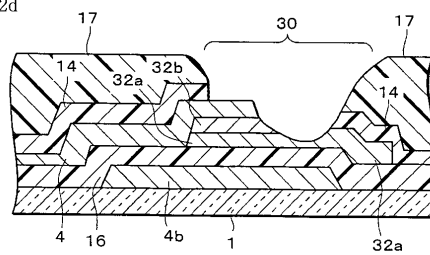
도 12b



도 12c

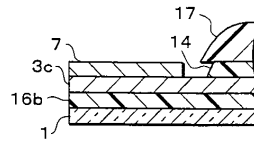


도 12d

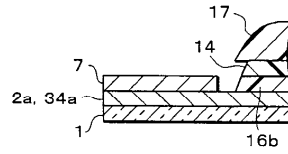


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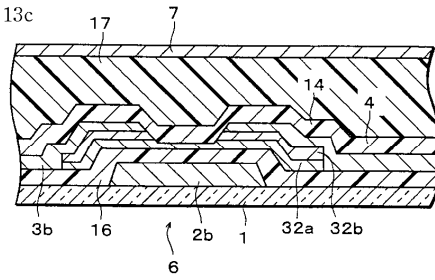
도 13a



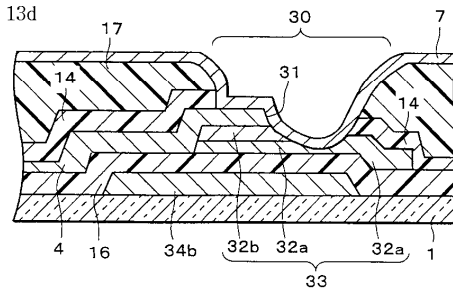
도 13b



도 13c

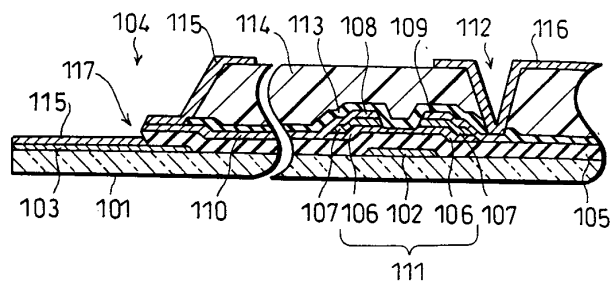


도 13d



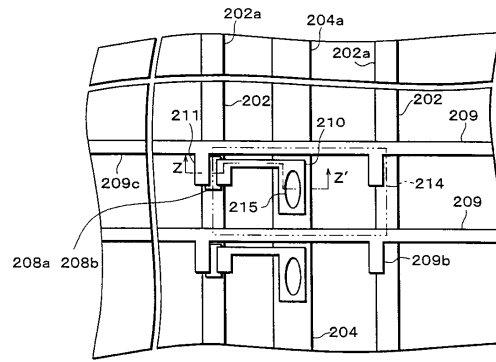
14

종래기술

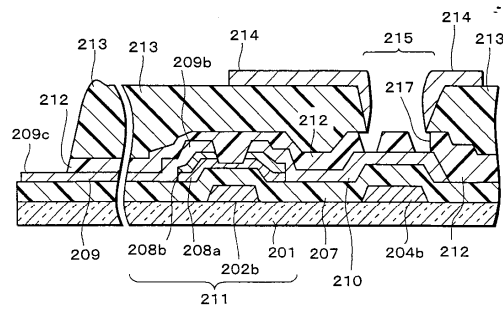


15

도 15a
종래기술



도 15b
종래기술



专利名称(译)	液晶显示器及其制造方法		
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摘要(译)

将保护膜和树脂层层压在其上形成有TFT的绝缘基板上，并在树脂层中形成接触孔之后，通过蚀刻去除接触孔下方的保护膜，并使像素显示电极与接触孔区域中的漏电极接触。形成液晶显示装置。与下层连通的切口部分形成在接触孔区域中的漏极上。当形成TFT部分岛型半导体层以形成TFT时，在接触孔区域中也形成空穴部分岛型半导体层。由此，可以提供一种能够防止像素显示电极脱落而使像素显示电极脱离的液晶显示装置的制造方法。图1

도 1a

