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(24)

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(43)

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2002 10 11

(30) JP-P-2001-00094550 2001 03 29 (JP)

(73) 가 가 가 4 6

(72) 1 5-1 가 가

1 5-1 가 가

1 5-1 가 가

(74)

:

(54)

， 1 ， 2 ， 1 ， 2 가 ，

1

， ， ， ，

1		1	
2			
3	(a), (b)	1	
4		1	
5	(a), (b)	1	
6		1	
7	(a), (b)		
8			
9			
10		3	
11		4	
12		5	
13	(a), (b)		6
14	(a), (b)		7
15	(a), (b)		8
16	(a), (b)		8
17	(a), (b)		9
18	(a), (b)		10
19	(a), (b)		11
20		12	
21		13	
22		14	

1, 2 :
3 :
4 :
6a, 6b :
7 :
8 :
11 :
12 :

(TN) (, 가
) 가 , TN 가
(In-Plane Switching: IPS) 가 63-21907 , USP 4345249 , WO91/1093
6 , 6-160878
IPS (,)가 가 IPS TN ,
2 IPS
(1) , (1) (2) , (1) (2) (12) , (1)
, 가 (3) (4) , (1) (6a, 6b) , (6b)
[, (7)] , (2) (8) (7) , (1),
(2) (3) (4) , (11)

IPS 2 (13) (1) (3) (4) 가

가

9-297299

9-297299 (retardation) $d_{eff} \cdot \Delta n_{eff}$ 250 nm (, d_{eff} : , Δn_{eff} : (retardat

ion)

[1] 1 , 1 2 , 1 2 ,

1 2 , 1 2

[2] 1 , 1 2 , 1 2 ,

가, 1 1 , 2

1 2 , 1 2

1 2 ,

1 1 2 가

[3] 1 2 1

1 , 1

2 , 1 가 ,

2 가 1

1 1 , 1 1 , 1

2 2 , 1 2 1 , 1

2 2 ,

2 가 1 2 , 2 1 , 2

2 , 2 1 가 ,

2 가 2 1

1 1 , 1 1 , 1

2 2 , 1 2 1 , 1

2 2 ,

가 1.5μm 가 50% 가

[4] 가 1.5μm 가 50% 가

[5] 가 1.5μm 가 50% 가

IPS
IPS

(T)

$$T = T_0 \cdot \sin^2(2\Phi) \cdot \sin^2((\pi \cdot d_{\text{eff}} \cdot \Delta n_{\text{eff}}) / \lambda)$$

(, T₀: , Φ: , λ:).

Φ π/4 radian(45°)

d_{eff} · Δn_{eff} 2 λ

d_{eff} 가

$$\Delta n_{\text{eff}} = \cos \theta \cdot \Delta n_{\text{eff}} \quad (1)$$

1 (22a) , 2 (33) , (21) , 2 (5) 2 (22b) , (21) 1 (22a) (41) , (21) 1 (22a) , (21) 1 (22a) , (21) 2 (22b) 1 TFT(24a) , (21) 1 (22b) 2 TFT(24b) , 1 TFT(24a) (21) 1 (4) , 2 TFT(24b) (5) , (34) (3) , 3 (a), (b) , (1) (3) 1 (4) 2 (5) (6) , (6) (7) (2) (8) (7) , (1) (2) (11) , (1) 1 (4) (3) 2 (5) (5) $4\mu\text{m}$, (4) ITO(Indium - Tin - Oxide) . 1 (4) 2 (5) (3) 1 $10\mu\text{m}$, 2 ITO 가 (1) (1) (2) 9-244046 가 가 1 TFT(24a) 2 TFT(24b) (23) 가 가 (1) (2) 가 0.7mm . 1 TFT(24a) 2 TFT(24b) (23) 가 가 1 (4) (3) (6a, 6b, 6c) (rubbing) 가 $0.2\mu\text{m}$, $0.8\mu\text{m}$, $0.8\mu\text{m}$. (7) 가 80nm , (1) (2) $4\mu\text{m}$ 1 (4) 15 (11) 0.0947 , (beads)가 10.5 (crossed nicols) , 가 , 1 , 1 3 (a) (13) IPS 2 (13) , , IPS , (3) 1 (4) 2 (5) (3) 1 (4) 2 (5) (5) 5 (a) (3) 1 (4) 2 (5) , 0.0:1.0:0 (4) 2 (5) 0.0:1.0:0.3 . , 5 (b) (3) 1 5 (a) 5 (b)가 5 (a) , 1 (4) (3) 2 (5) (5) (3) 1 (4) 2 (5) . 2 (5) (3) 1 (4) (3) 1 (4) , 가 , (36) 2 , , 가 , (3) 1 (4) 2 (5) , (1) (1) (2) 가 ,

(3) 1 (4) 2 (5) 6
가 ,
[]
7 (a), (b) 8 7 (a), (b)
8 7 (b) (1) (41)
, 7 (a) 7 (b) A-A' , 8 (1)
(1)
7 (a), (b) (1) , (2) , (1) (2)
(12) , (41) , (41) (4) , (4)
(3)
, 8 (4) (32) , (3)
(34) , (31) , (32) (34)
(21) , (31) (37) (1) (31)
(22) , (21) (22) , (21) (4) (21) (22)
(21) (22) TFT(24) , TFT(
24) (4) , (34) (3)
, 7 (a), (b)가 (1) (3) (4) (6)
(7) , (2) (8) (7) , (1) (2)
(11)
(1) (4) (3) 4 μ m , ()
4) (3) 10 μ m
(1) (2) 가 0.7mm . TFT(24) (23)
(4) (3) (6a, 6b)
0.2 μ m, 0.8 μ m (7) 80nm , 가
(1) (2) 1 (4) 15
(1) (2) 4 μ m 가
0.0947 , 10.5
(11) 가
1
, (1) 2 7 (a) 3 (a) (2)
, (5) (5) (6c) 1
, 가 9 2 (5)
2
2 ITO 2 (3) 1 (4) 2 (5)
2 (3) 1 (4) 2 (5) 1
1 (4) 1 (13) (3)
가 (3) 1 (4) E₂/E_x 가 E₂/E_x 가
E₂/E_x 가 E₂/E_x 가
, (3) 1 (4) 2 (5) 1 E₂/E_x 가 1
, 1 가
3
, (3) 1 3 (4) 10 2 (5) (3)
1
2 (5)
, 2 (5) 1 (4)
4

가
[5]

(3) 4 3 11 2 (5)
(3) , 3 , 가 2 (5) (3)

(3) 5 12 2 (5)
(3) , 2 (5) ITO 3

6 6 13 (a), (b) 13 (b) (1) (41)
(a) 13 (b) A-A'
6 13 (a), (b) (1)

1 13 (b) 1 (4) 1 (5)
2 , 1 (4) 1 , 2 (5) 2 (5)

13 (a) 1 (4) 2 (5) 1 (4) 2 (5) (22a) 2 (5) (22b) , (3)
(21) , 1

7 7 14 (a), (b) 14 (b) (1) (41)
(a) 14 (b) A-A'
7 14 (a), (b) 2 (5) 1 (6c)
(4) 1 (4) 1 (3) , 2 (5) (3) 1

(4) , 1 , 가
(3) 1 (4) 2 (5) 가 ITO

8 8 15 (a), (b) 15 (b) (1) (41)
(a) 15 (b) A-A'
8 15 (a), (b) (3) 1 (4)
) 2 (5) , ITO 1 (4) 2 (5)

1 (3) 1 (4) 2 (5)
(3) 1 (4) 2 (5)
16 (a), (b) 16 (a) (3) 1 (4) 2 (5)
, 0.0:1.0:1.0 , 0.0:1.0:0.6
1 16 (a) 16 (b)가 (4) 2 (5)
(3)

(3) 1 (4) 2 (5)
(5) 1 (4) , 가
(36) 2 (5)

가 , 1 (4) 2 (5) 가 ,
9 9 17 (a), (b) 17 (b) (1) (41)
(a) 17 (b) A-A'
9 17 (a), (b) (1)

8

17 (b) 2, 1 (4) 1 (5) 2 (5)

, 17 (a) 2 (5) 1 (4) 2 (5) (22a) 2 (22b) (3)

(21) 8

10 10 18 (a), (b) 18 (b) (1) (41)

, 18 (a) 18 (b) A-A' 10 18 (a), (b) (3) (6c) (5)

1 (4) 2 (5) (3) (3) 2 (5)

8

, 8 가

, (3) 1 (4) 2 (5) 7 (1)

TFT (3) 1 (4) 2 (5) 가 ITO

11 11 19 (a), (b) 19 (b) (1) (41)

, 19 (a) 19 (b) A-A' 11 19 (a), (b) (1)

10 19 (b) 2 (5) 2 (5) (5)

2 (5) 2 (5)

, 19 (a) 2 (5) 1 (4) 2 (5) (22a) 2 (22b) (3)

(21) 10

12 12 20 (3) (2)

1 (4) 2 (5) 7 (1) (2)

(1) (2) 가

가 (1) (2) 가

2 (5) $(x_1 - x_2)$ 1 $(x_1 + x_2)/2 : x_1 : x_2$ (4) $(x_1 - x_2)$ 2 (5) (3) 1 (4) (5) 가

(4) 2 (5) (36) (4) 2 (5) (3) 1 (4) 2 (5)

$x_1 : x_1 : x_2$

13 13 21 2 (5) 가 $2\mu\text{m}$

(9)가 12 (13)

, 12

, (9)

[14]

(9) (9')가 14 22 2 (5)

(9')가 13 가

(3) , (9) (9')가 . , ,
 , IPS , 가 ,
 (4) IPS (3) 가 가 2 (5) 1
 , 2 (5) 1
 (4) (3) 2 (5) 가 1 (,
 4) 가 (3) IPS 가 (4) (3)
 가 , 3 5 가 2 (5) , 2 (5)
 IPS 1 (4) 11 (3)
 가 , 8 11 2 (5) 1
 IPS 가 2 (5) 1
 가 , 12 14 1 (4) 가
 2 (5) (3) 1 (4) , IPS 2 (5) 가

1 2 , 가
 가

(57)

1. 1 , 1 2 , 1 2 ,
 , 1 2 , 1 2
2. 1 , 1 2 , 1 2 ,
 가, 1 1 2 , 1
 2 1 2
3. 1 2 , 2 , ,
 1 2
4. 1 2 , 1 2 2
 , 1 2 가
5. 1 2 , 2 1
 1 2
6. ,

5 1 , 1
 , 2 1 .
7.

5 1 , 1
 , 2 가 1
 .
8.

7 2 ,
 2 , 2 1
 .
9.

7 2 ,
 2 , 2 1
 .
10.

5 1 , 1
 , 2 1 , 2 2 1
 , 2 1 2
 .
11.

5 1 , 2 , 1 2
 , 1 2
 .
12.

5 1 , 2 , 1 2
 , 가 1 2
 .
13.

5 1 , 2 , 1 2
 , 1 2 , 1 2
 , 2 1 2
 .
14.

6 2 , 1 1 , 1 ,
 2 2 2 , 1 1 ,
 2 2
 .
15.

14 1 , 2 1 2 ,
 .
16.

1 1 2 , 2 1 , 2
 .

17.

16 1 , 2 , 1 2
 , 1 2 .

18.

16 , , 가 $1.5\mu\text{m}$ 가 .

19.

18 , , 50%
 가 .

20.

6 , 가 , 2
 1 가 1 .

21.

7 , 가 , 2
 1 가 2 1 .

22.

11 , 가 , 2
 1 가 1 .

23.

17 , 2 가 ,
 1 가 1 2 .

24.

1 2 , .

25.

1 2 , 1 , 1 2
 , 1 , 1 1 , 2 2
 , 1 1 , 2 1 2 ,
 , 1 1 , 2 2 .

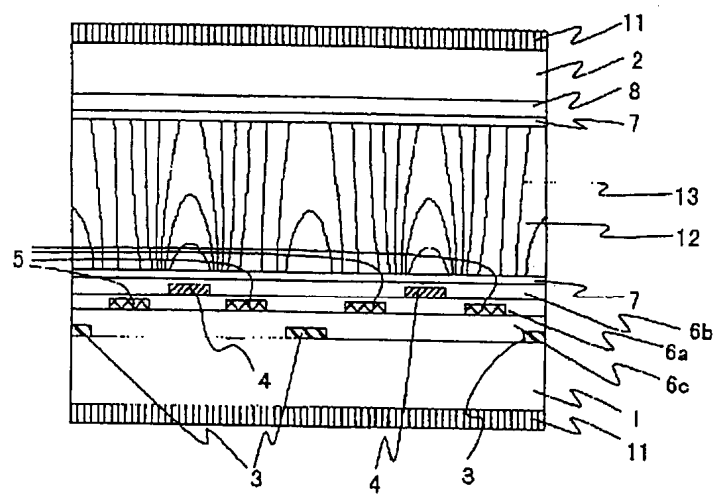
26.

25 , 1 , 1 , 1 1
 1 가 , 2 2 가 ,
 2 2 , 2 2 2 2 가 ,
 .

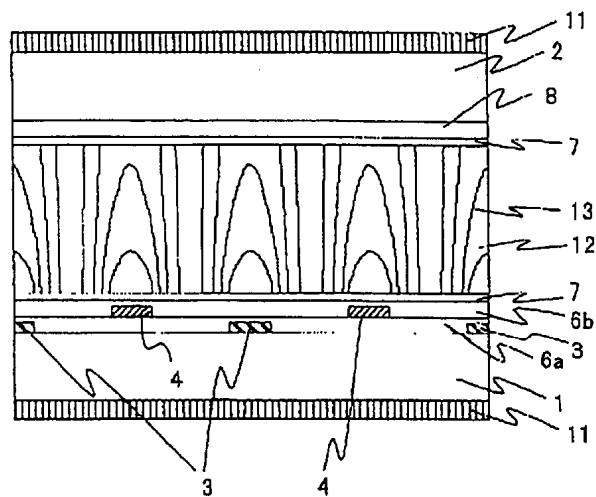
27.

25 , 1 , 1 , 2 , 1 1
 1 1 , 1 2 , 2
 2 가 .

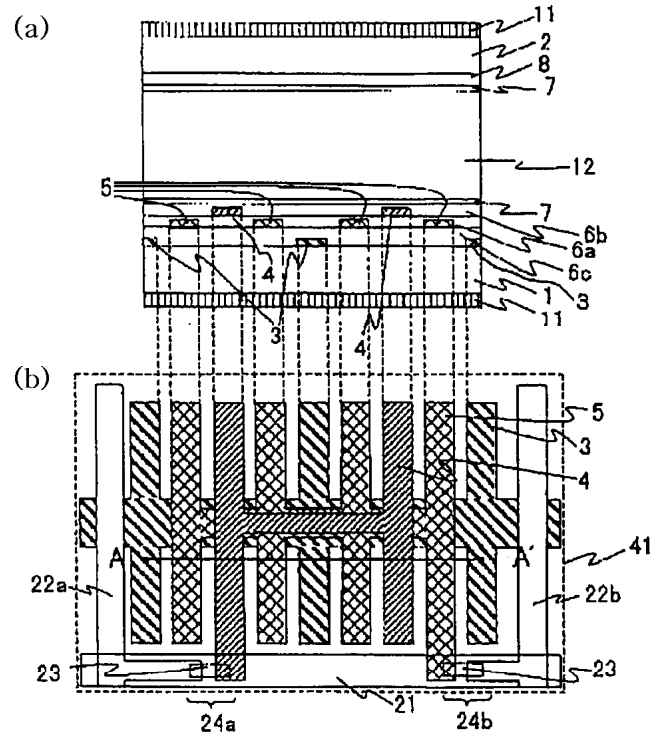
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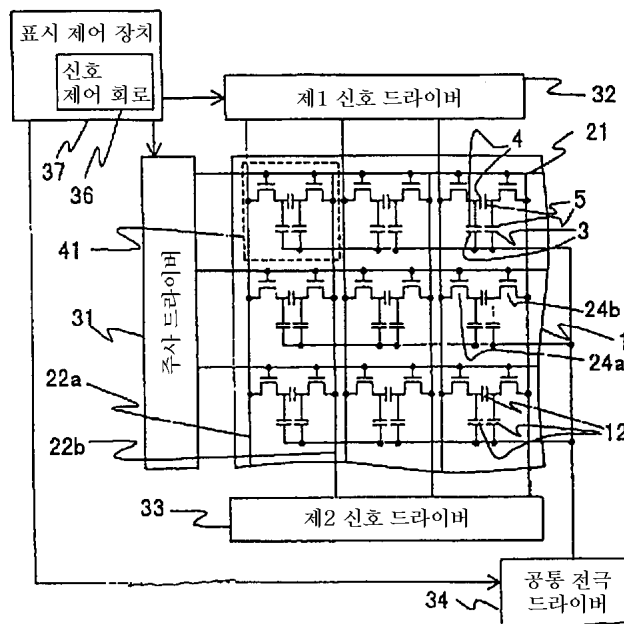
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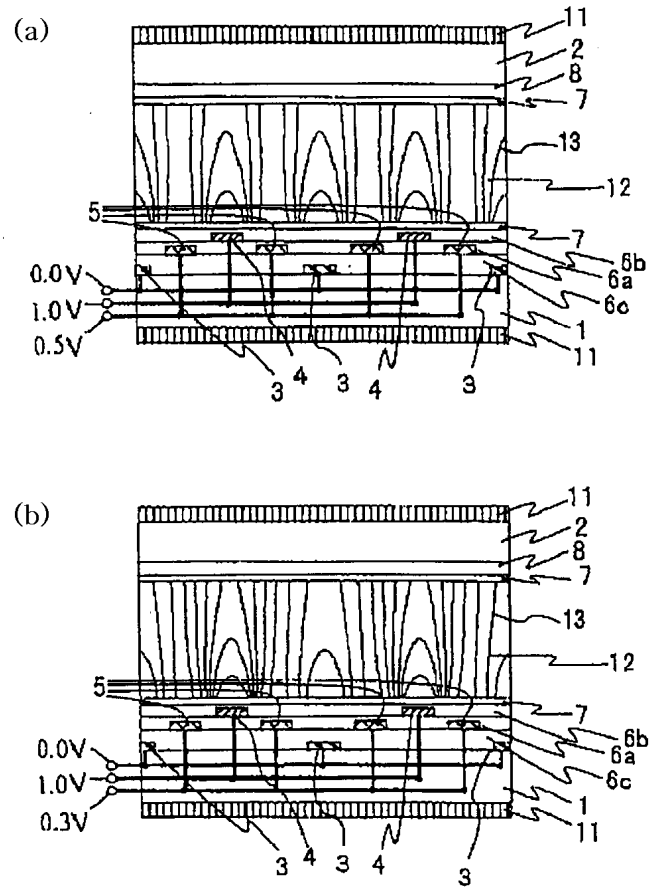
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4

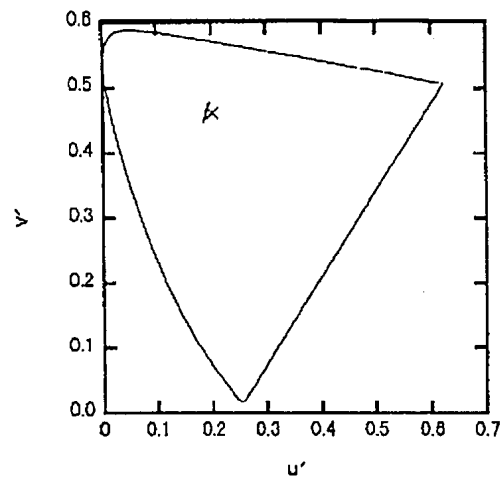


5

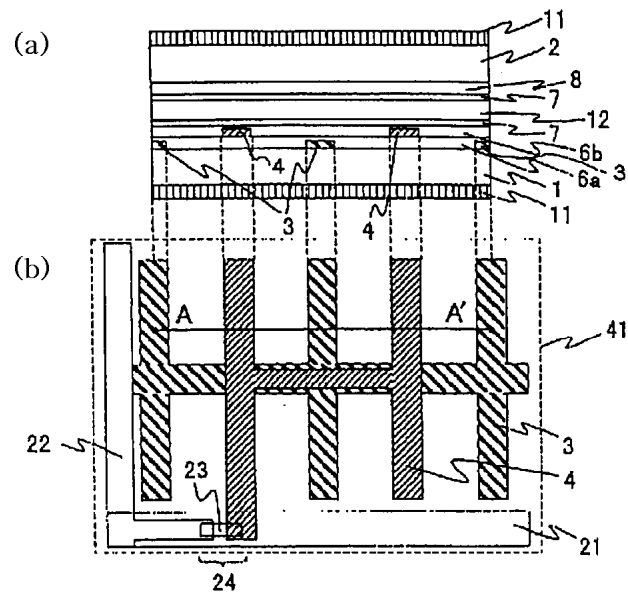


$V \dots$ 임의 정수

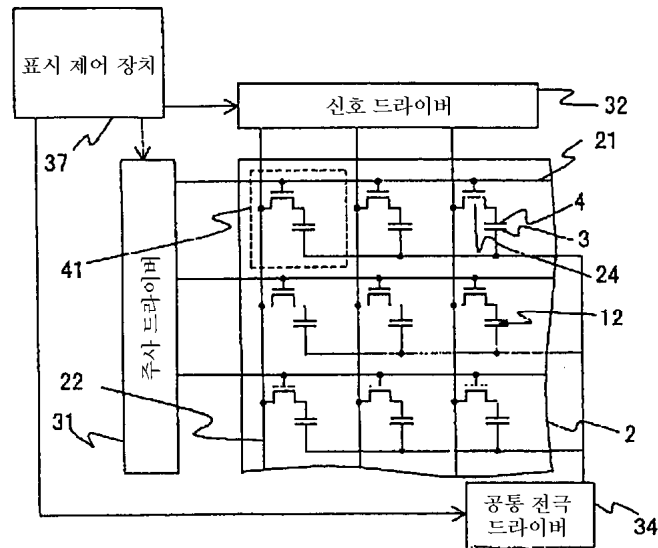
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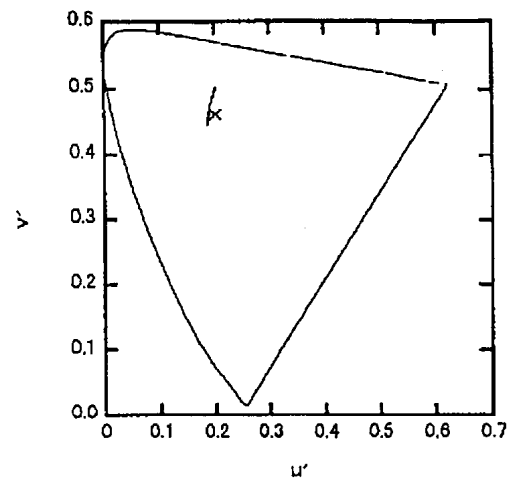
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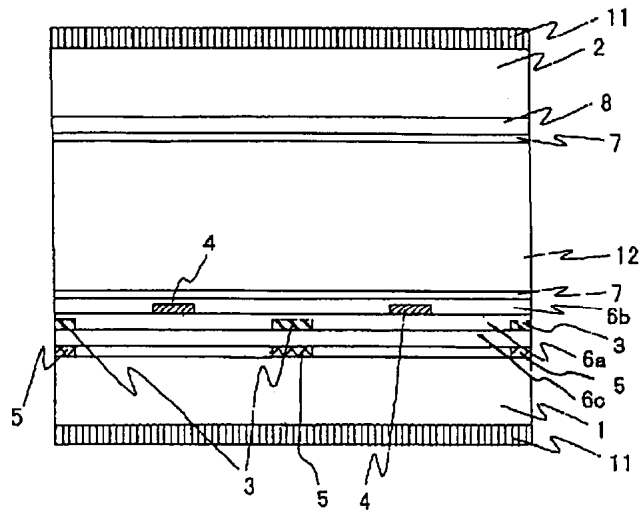
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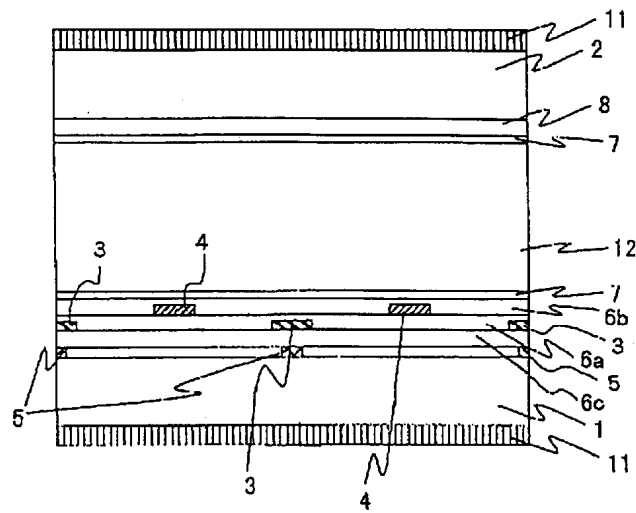
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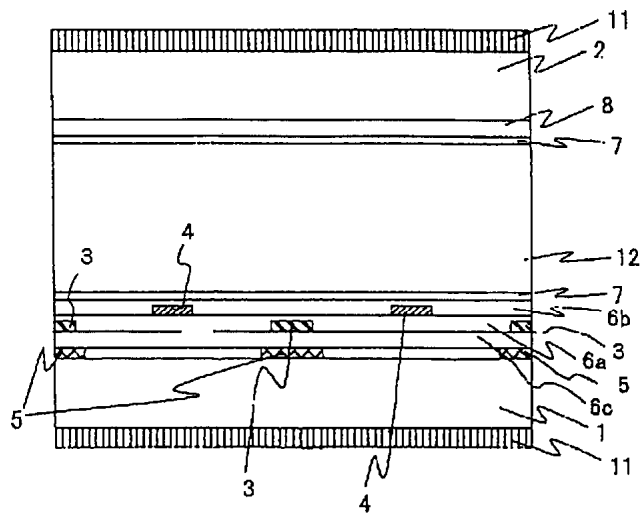
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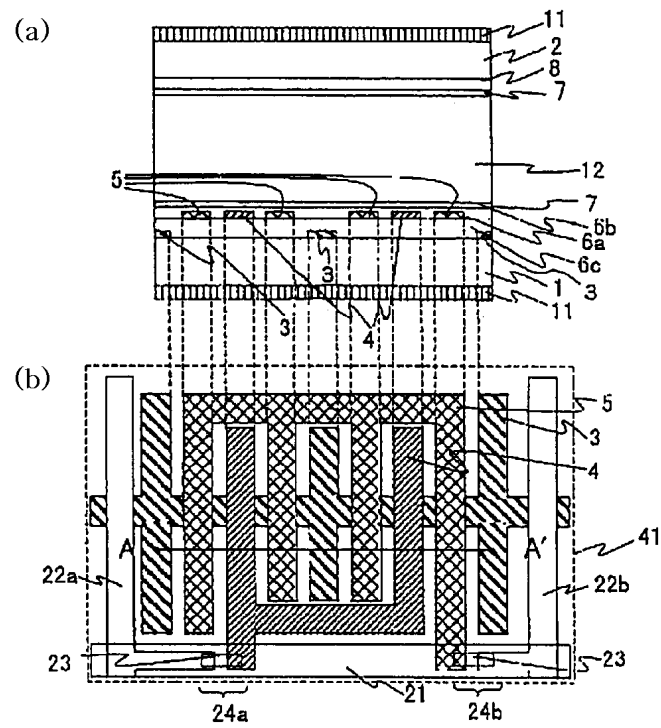
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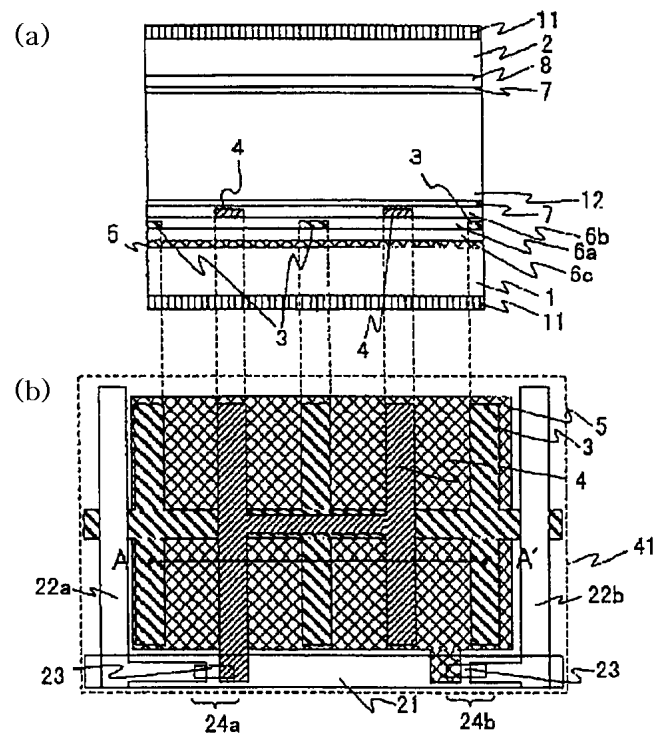
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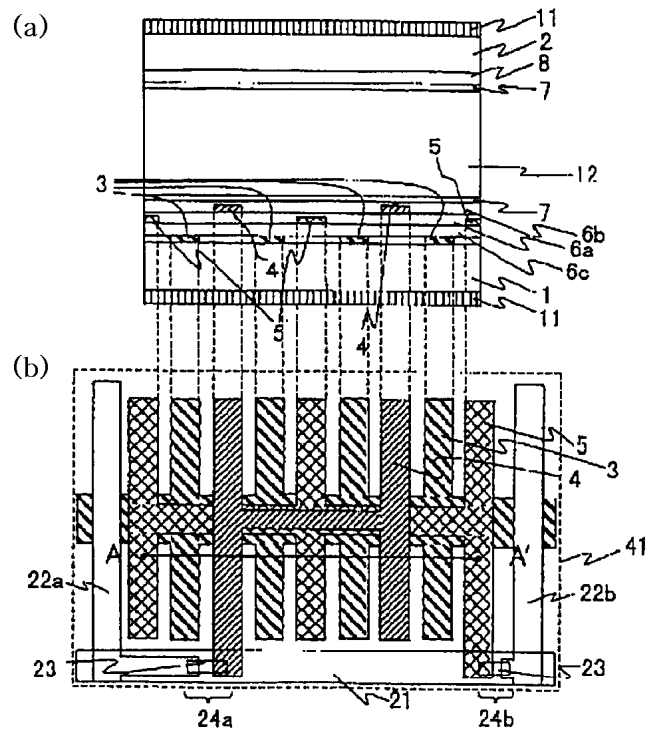
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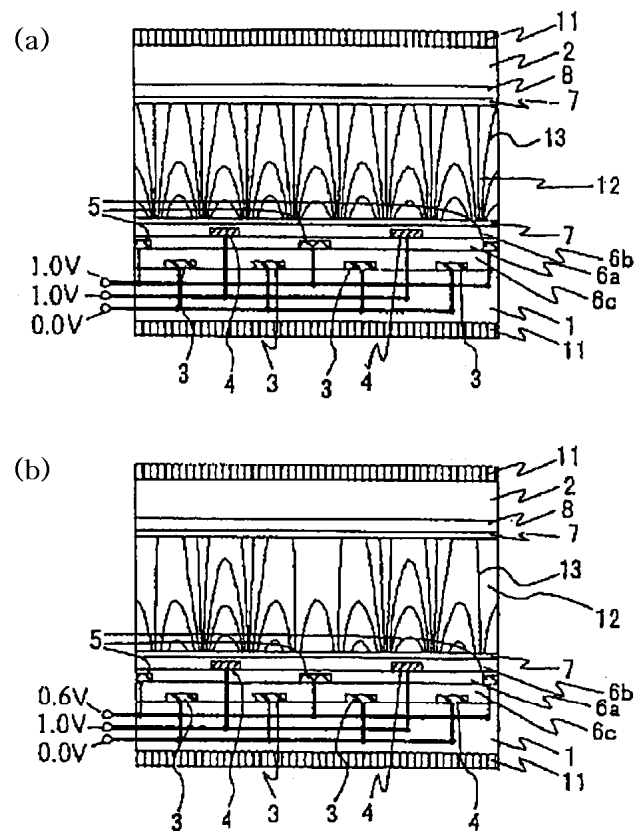
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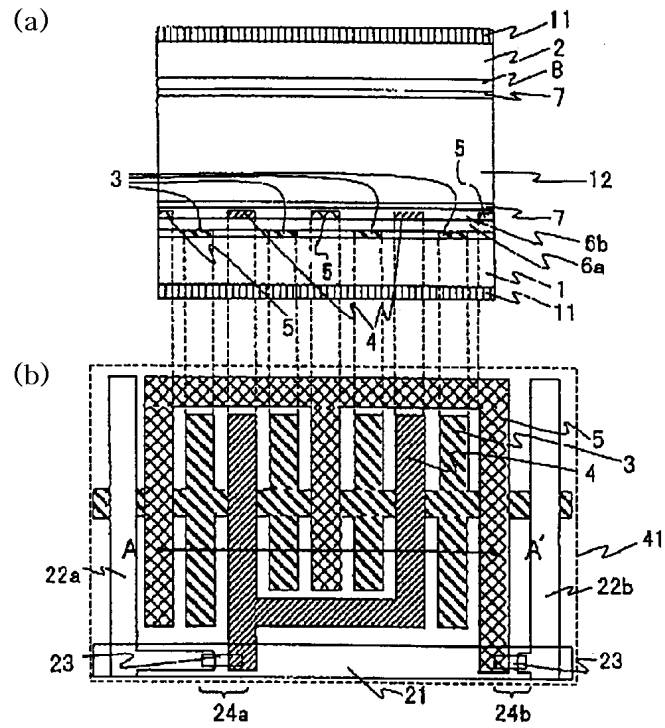
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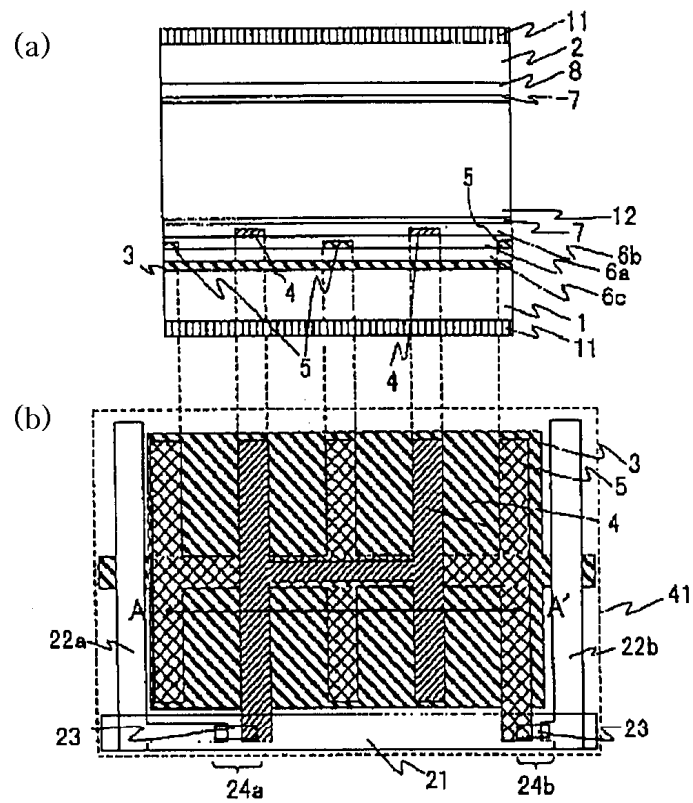
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17

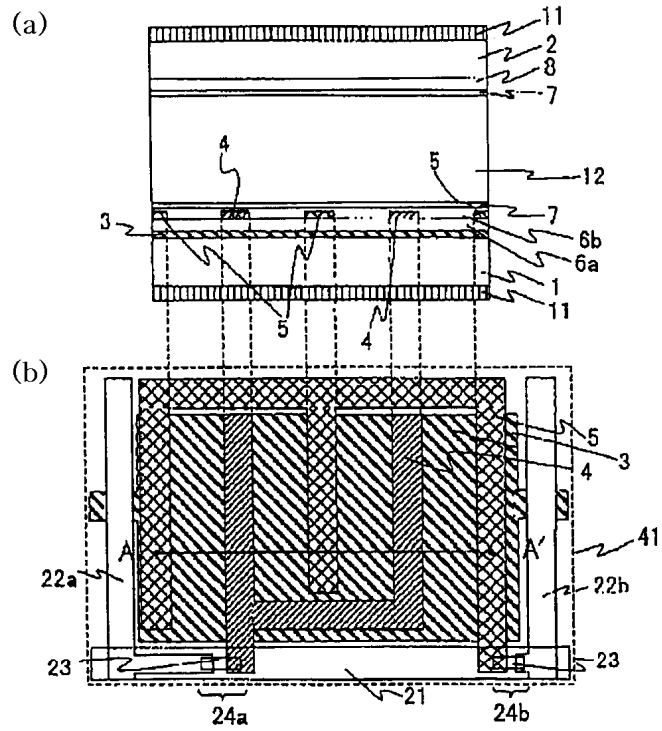


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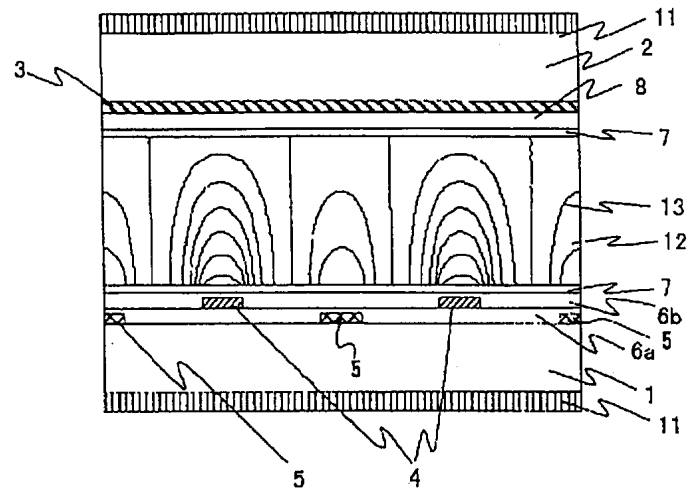


22a... 제1 신호선 23... 비정질 실리콘
24a... 제1 TFT 24b... 제2 TFT

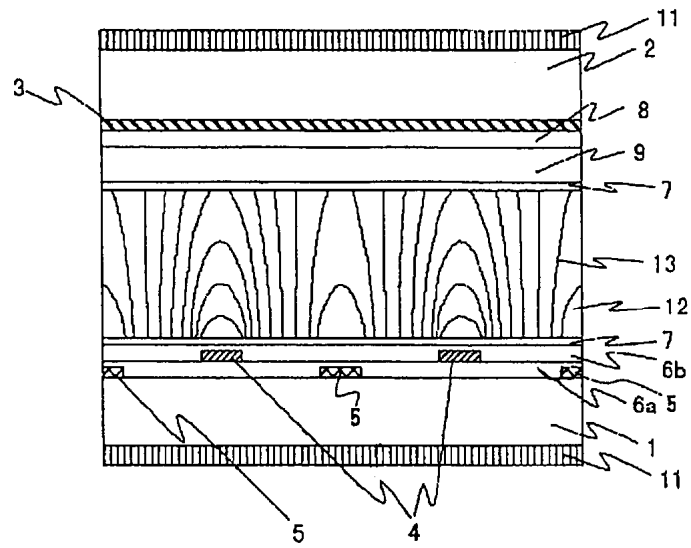
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20

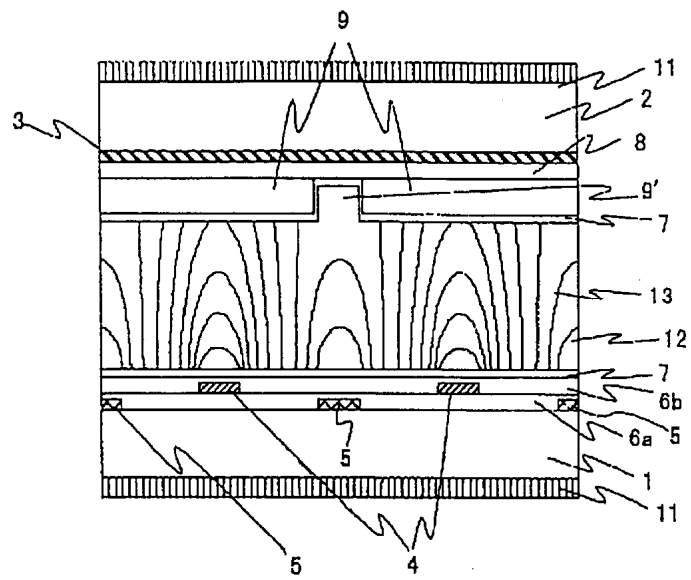


21



9... 유전체

22



9' ...오목부

专利名称(译)	液晶显示器		
公开(公告)号	KR100404292B1	公开(公告)日	2003-11-03
申请号	KR1020010052828	申请日	2001-08-30
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA		
申请(专利权)人(译)	株式会社日立制作所		
当前申请(专利权)人(译)	株式会社日立制作所		
[标]发明人	AOYAMA TETSUYA 아오야마데쓰야 KOMURA SHINICHI 고무라신이찌 UTSUMI YUKA 우쓰미유카		
发明人	아오야마데쓰야 고무라신이찌 우쓰미유카		
IPC分类号	G02F1/133 G02F1/1343		
CPC分类号	G02F1/134363		
代理人(译)	CHANG, SOO KIL		
优先权	2001094550 2001-03-29 JP		
其他公开文献	KR1020020077008A		
外部链接	Espacenet		

摘要(译)

一种液晶显示装置，包括基板和夹在其间的液晶层的第二基板。多个像素夹在两个基板之间并形成显示部分，每个像素设置有对应于像素的第一和第二像素电极，以及对应于第一和第二像素电极的公共电极。

