

(19)
(12)(KR)
(A)(51) 。 Int. Cl. ⁷
G02F 1/1337(11)
(43)2002 - 0047024
2002 06 21(21) 10 - 2001 - 0079700
(22) 2001 12 15(30) JP - P - 2000 - 0038 2000 12 15 (JP)
2684(71) 가 가
가

5 7 1

(72) 5 7 1 가 가
5 7 1 가 가
5 7 1 가 가
5 7 1 가 가
가 5 7 1 가 가
5 7 1 가 가
5 7 1 가 가

(74)

:

(54)

가 ,

.

1 ,
2 ,2 , 1 2
가 ,

.

2a

1/4 , , , , , , , , 1/2 ,

1a

1b 1a 가 .

1c 1a 가 .

2a 2b (A - A') , 1

2b 2a 가 .

2c 2g .

3a 3i

4a 4e .

5a 5h 가 .

6a 6g , .

7a 7g 가 .

8a 2 .

8b 4 , 8a .

9a 가 , (homogeneous)

9b 9a 2 .

10a 10b (B - B') , 가 가

10b 10a .

11a 11b (D - D') , 3

11b	11a			.
12a	12b	(C - C')	,	4
				.
12b	12a			.
13a	13b	(D - D')	,	5
				.
13b	13a			.
14		1/4	1/2	(slow)
				.
15a	15b	(E - E')	,	6
				.
15b	15a			.

*

*

101, 201 : 102, 202 :

103, 203 : 104, 204 :

104a : 105 :

106 : 107, 207 :

108, 208 : 116 :

117 : 118 :

120 : 121 : 1/4

205: 214 :

215 :

가

. 2 가 , .

5 - 113561 (0 538 796) , 2
 , 가
 1/4 , . 가 ,
 , 가 , 가 .
 가 .

2947350 , 가 ,
 . 1 , 가 . ,
 , , , .

wo 91/10936 (JP - T - 5 - 505247) ,
 - - (In - Plane - Switching; IPS) .
 가 가 , 가 ,
 , 가 , 2 가
 , , , ,

Applied Physics, Vol 45, No.12 (1974) 5466 10 - 186351 , IPS
 가 . 가 가
 , 가 가 .

IPS , 가 ,
 , TFT 가 가 ,
 , 가 가 ,
 , 가 가 .

10 - 186330 , 가 ,
 2 , , 가 ,
 . 가 .

, ,
 , ,
 , ,

()

$$\frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{1}{2}$$

()

 $\langle 1 \rangle$

2a 7g , 1 .

. 2b (A - A') 2a

(; 102) 가 (101), 1 (ITO)
(103) (102) (rod)
(122), 1/4 (121), (120) (101)
, (102) 2b ,

(106) (107) (106) (105) (104) (116) (106) (107) (122), 1/4 (121), (120) , .

(102) 가 , (104) (119) .
 (108) (119) (104) .
 (119) 가 (104) .
 (104) (102) , (102) . (104) 2c
 2g , , , , ,
 가 , .
 (119) (119) 2a , (104) 가 , (102)
 , , , 가 , (119) (119) 가 .
 (119)
 , (119)
 , TFT , ,
 (119) , (119)
 , (119) , (102)
 (119) (119) 가 . 가
 (119) 가 , (119) (119)
 ,
 2c (119) (119) (104) , , ,
 (104) 가 , (119)
 2a , (104a) (104) ,
 (106)
 , 가 , (103)
 (108) , (102) (102) 가 (104)
 (104) 가 , (102) (104) ,

가 2a (108) ,
 , 2c , ,
 , ,
 , (119) (104) ,
 (119) , (108) 가
 가 (119) 4
 , (119) , 가 ,
 , 가 가 , (108) 가
 , (119) ,
 , 1
 - () ,
 , , 가 , 가
 , ,
 , 3a 3i ,
 . 1 (119) ,
 , 2a 2
 c , (119) , (108) 가
 , (119) 가
 (119) , 가
 ,
 3a 3i (119)
 ,
 (chain)" n x m (n m)
 , () 가
 가
 , (104) 4a 4e ,
 (104a) 가 , 5a 5h
 (104) (104c) 가
 , (104c)
 (104) 6a 6g , (104d) 가

104) 7a (104d) 7g , (104e) 가 (104e) (104e)

4a 7g (119) (219) 가 (219) 가 (219) 가

TFT (104e) (104e) 가

(chiral agent) 가 가 가

(104b), (104c), (104d), (104e) 가

1 가 (retardation) 2 , 2

가 가

가

1/4 가 1/4 45 , 1/4 2

가 , 1/4 1/2

(pre - tilt)

AM - LCD '96/IDW' Digest of Technical Papers, page 337

가

"

가

"

가

가

가

가

1

, 2 -

, 2 -
, 2 -

, N,N -

, N, N -

, 2 -

, 2,2,3,3 -

, 2,2,2 -

, 2,2,3,3,3 -

, 2,2,3,4,4,4 -

1

2 -

, 2 -

, 2 -

, 2 -

, 2 -

, N,N -

, N,N -

, 2,2,2 -

, 2,2,3,3 -

, 2,2,3,4,4,4 -

, 4 - 4' -

, 1,4 -

, 4,

4' - , 4,4' - , 3,9 - [1,1 - - 2 -
]2 - 4 - 8 - 10 - [5,5] , ' - [4 -] - 1,4 - , 1,4
 - , 4,4' - ,
 , 1,4 - , 1,3 - , ,
 , 1,6 - , ,
 , ,
 , 4,4' - , 4,4' - , 4,4' - ,
 4,4' - , 4,4' - , 4,4' - ,
 4,4' - , 4,4' - , 2,2,3,3,4,4 -
 - 1,5 - , 1,1,2,2,3,3 - - 1,3 - ,
 .

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

, 2,2,3,3,4,4 -
 - 1,5 - , 1,1,2,2,3,3 - - 1,3 - , 2,2,2 -
 , 2,2,3,3,3 - , 2,2,3,3 - , 2,2,3,4,4,4 -
 , 2,2,2 - , 2,2,3,3 -
 , 2,2,3,4,4,4 - ,
 .

, 2,2 - , 2 - - 2 - - 1 - - 1 - , 1 - (4 -) - 2 -
 - 2 - - 1 - , 1 - (4 -) - 2 - - 2 - - 1 - ;
 , 4 - , 3,3
 - - 4 - ; , 2 - 2 - ;
 ; ; ; .

1

(1)

(ITO)

(101,107)

. ITO
 (105)

(102,106)
 (107)

(116) (105) ITO 가 ,
 (104) 가 5 μm
 (102) 가 3.5 μm (104)
 . (Nissan Chemical Industries, Ltd. " SE1211" 가)
 (103,115) 1 200 가 ,
 .
 , X,Y
 가
 ,
 가 (108)
 가 가 0.096 (n) 가 .
 ,
 ,
 1/4 , 45 , 1/4
 ,
 ,
 ,
 (2)
 (107) (105) (104) (104a)
 , 1 , (104a)
 .
 ,
 ,
 , 2
 ,
 < 2 >
 8a 8b , 2
 , 가
 2b (A - A') 8a
 .
 (ITO)
 (; 102) 가 (101) (103) (102)
 (103) (rubbing) , 가
 (1°) 0° 가
 (107) (106)
 (106) (102) , (105)
 (106) (106) , (116) (104)
 (106) (119) (104)
 (103)
 (108)

4a) (104) (102) , (102) (106) . (10

(104) ,

(103)

8b , (101) (117) ,

(110) (118) .

가 ,

2 가

가

1 ° 0 ° 가

가 , (103)

(108) (1 °) 0 ° . (102) (102)

(104) 가 (104) (104) 가

(104) (102) (104) 8a

1 , (119) , 가

8b

8b , 1) (104) , 2)

(102) (104) , 3) (102) (104)

가 , 가 , 가

1
가 , , 1/4 ,
(119) .

(104) 4a 4e ,
(104a) 가 . , 5a 5h ,
(104a) (104) (104c) 가
(104) 6a 6g , (104c) (104d) 가
(104) 7a 7g (104d) , (104e) 가 (104e) (104e) ,
(104e) 가 (104e) ,

가 , 가
 , 가 1/4 ,
 , 1/4 ,
 , 2 1/4 .

9a (108) 가 , 가 9b , (1
01) (117) , (110) 가
(118) 1 ° 0 ° 가
 , ,

가 , 가 2 ,
2 (104e) ,

9a 9b 8a 8b .
 ,

가 , , 4
가 2 , (,
() , ,
()) .

가

(3)

(104) , JSR " JALS - 428" , " ZL14792" 가

. JALS - 428

0 ° 가

가 5 μ m

, Sumitomo Chemical Co., Ltd

" New - Vac"

< 3 >

10a

10b

3

10b (B - B')

, 10a

(214)

(215)

(201)

(201)

(202)

(203)

(202)

(219)

(202)

(202)

(203)

TFT (230)

(207)

. Cr

(209;

(2

30)

(209)

(210)

(212)

(210)

(209)

TFT (230)

(211)

(213)

(212)

(205)

(211)

(213) n

()

(212)

10b

(211)

(211a;

)

(211)

(211a)

가 ,

(209)

(209a)

(213)

(204)

(210)

(203)

(213)

(204)

(204) 가

ON/OFF

(204)

2c

가

가

(208)

(203)

가

(208)

(209)

가

, TFT (220)

(213)

가

(204)

(202) 가

(204)

(202)

(204)

10

a

가

(208)

1

(219)

(204)

(208) 가

(219) 가

(219) 가

1/4

1 가 , 1/4 가

가 ,

(209a) (211a)

(204) (209a) (211a) 가 (209a)

(211a) 1 (204) (209a) (211a) 가 (209a)

(209a) (211a)

(204)

4a 4e , 5a 5h , 6a 6g , (104d)

가 , 11a 11b , 7a 7g (223) (20) 4) (223) (204) 11a 11b 9a 9b 10a 10b

1 , 가 , - ,

가 , 가 가 가

가 ,
가 ,
2
8a 8b 4
TFT
TN 가
()
가
/ 가
3 1
3
(4)

TFT (230) TFT
(230) , (209), (210),
(212), - (211,213) , (207)
(213) ITO (204)
(205)
ITO 가 가 5 μm
(219)
가 3.7 μm 가 . (Nissan Chemical Industries, Ltd. " SE1211" 가)
(203) 1 200 가 ,
가 (208) 0.096 (n)
가

1
1/4 45
1/4

(5)

TFT
TO

4 , 6a 6g , (104d) I 가

, 4 .

,

,

.

(6)

TFT

4

(223)

11b

ITO

11a

11b

ITO (204)

4

(7)

TFT 4 . TFT 4

4, ITO가 5 μm 가 4.0 μm 가 (Nissan Chemical Industries, Ltd. "SE1211"가 200가 0.095가 4가 1/4

 $\langle 4 \rangle$

12a 12b , 4 . 3

12a . 12b (C - C ')

4 가 3 (304) (313) (31
6)

(314) (315) (301) (301)
(302) (303) (302)

TFT (330) (307) Cr (309;) (3
30) (309) (310) (309) (310)

TFT (330) (312) (311) (313) (312)

(310) (310)
(311) (313) n ()
(312) (304) (316) (3
13)

12b (311) (311a) (311a;)
(309a) (313) (304) (305) (309)
(303)
(313) (304) (304) 가
(304) ON/OFF (304) 가
2c 가

3 (319) (303) (302)
(303) (304) 가
(308)

(309) 가 , TFT (313) 가
(304) (302) 가 (304)
(302) (304)
가 (308)

가
가

1 2 가
(219) 가

1/4

1 3

가 , 1/4

가

가

(309a) (311a)

(304) (309a) (311a)

(311a) 1 (304) (309a) (311a)

(304) (309a) (311a)

(311a) 1 (309a) (311a)

(309a) (311a)

(309a) (311a)

(304) (309a) (311a)

가 , 4a 4e

6a 6g , 5a 5h

가 , 11a 11b , 7a 7g

1 , 가 , 가

가 , 가

가 , 가

2

8a 8b , 4

가) , 가 (가

가 , 가 , 가 가

4

1

, 4

(8)

TFT (330) 4 TFT (330) 4
 , (309), (310), (312),
 - - (311 313) , (307)
 (305) (304) (305) (3
 04) (316) (313)

4 , ITO 가
 (Nissan Chemical Industries, Ltd. " SE1211" 가) (303)
 . 1 200 가 ,
 가 (308) , 가 ,
 1/4 , 45 가 1/4
 .

(9)

(312) , TFT 8
 . TFT 4
 , 7a 7g . 가
 , , 가

6

1/4 45 1/4

가

6

45

45

(10)

TFT 8 (6 μ m)

가 (Nissan Chemical Industries, Ltd. " SE1211" 가) (203)

1 200 가

가 (Merck Japan Ltd " MJ95955" 가) (Nippo

n Kayaku Co.,Ltd " KAYARAD PET - 30" 가) (0.2 %)

" IRGANOX 907" , 5 %)

0V 3V 가 TFT

가 1/4

45 1/4

9

8

(11)

(312) , TFT 8

5V 가 , 5V 가 40ms

, 2.2 V 가 , 5V 가 , 5V 가

20ms

< 5 >

13a 13b , 5 . 13b (D - D') 3
4 , 13a . 5 , .

(401) (402) (403) (402)
. TFT (430) (407) . Cr (409;)
(430) . (409) (410)
. (412) (410) (409)
. TFT (430) . (411) (413) (412)
(405) . (411) (413) n
() (412) .

13b , (411) (411a;) ,
(411) (411a) . 가 , (409)
(409a) .

5 , (414) (405) , (415) (405)
, TFT (412) . (414) (415) (417)
. (417) .

3 , (419) (402) ,
(404) 가 ,
, (403) (402) (404) , 13a
13b (419) (404) , (403)
.

(416) (413) (404) (403)
(417) . , (403) , 가 ,
(408) .

(409) 가 , TFT (413) 가
, (404) (402) 가 ,
(404) , (402) (404) ,
. 가 (408)
, ,
, 가
, ,
, 가
, 가

1/4 1 3 .
가 ,

5 (404) (; 409a) (; 411a)

5 (414) (404) (414) (408) ,
(414) (404) ,

(404) (414) (408) 가 , (409a)
(411a) .

, IPS , ,
(414) .

3 4 , .

가 , 가 , 가 ,
가 , 2 , ,
, 8a 8b , 4 .

5 1 .

, 5 .
(12)

(407) TFT (430)
4 . TFT (430)
(410), (412), - - (409),
(412) (410) , (411,413) ,
(412) (411), (413),

(405)

(414)

(415)

(415)

(414) , 가

3

(414)

(417)

(414)

(415)

(417)

가

(417)

(416)

(413)

(404)

(417)

가 $5\ \mu\text{m}$ 가 $3.5\ \mu\text{m}$

, ITO 가

, (Nissan Chemical Industries, Ltd.

" SE1211" 가)

(403)

4

1

200

가

가

가

(408)

0.096

(n)

가

가

1/4

45

1/4

가

(13)

5a

5h

11

11

(14)

(414) (417) , TFT
 12 3 , , JSR " JALS - 428" , " ZL1
 4792" , 가 , 3
 . , 9 .

, . ,
 , 가 가 가 ,
 .

(15)

5a 5h 13

(16)

1/4 4 ,
 , 5V 가 , 5V 가 40ms
 , 2.2 V 가 , 5V 가
 , 5V 가 20ms ,
 가 0V 2300 , 2.2V
 130 .

2000 .
 5V 가 , 5V 가 30ms
 , 2.2 V 가 , 5V 가 , 5V 가
 10ms , 1/4 가 가

(17)

가 2 μm , (Nissan Chemical Industries, Ltd. " SE1211" 가)
 , 가 12
 n) 가 . 가 , 0.1669 (,
 . 4 , 1/4 ,

, . ,
 , 가 .

, 1 16.7 ms 8.3 ms 가 .

(18)

1/2 4

14, 1/4 1/2
(TFT) (601) (
(602).

$$\begin{aligned} & \left(\begin{array}{c} (603) \\ (TFT) \end{array} \right)^{1/4} \left(\begin{array}{c} (604) \\ (TFT) \end{array} \right)^{1/2} \left(\begin{array}{c} (601) \\ (TFT) \end{array} \right)^{1/2} \\ & \left(\begin{array}{c} (603) \\ (TFT) \end{array} \right)^{1/4} \left(\begin{array}{c} (604) \\ (TFT) \end{array} \right)^{1/2} \left(\begin{array}{c} (601) \\ (TFT) \end{array} \right)^{1/2} \end{aligned}$$

, 가

< 6 >

15a 15b , 6 . 15b (E - E ') 3

, 15a .

6 3 TFT .1 (; 719) (702) , . 3

(719)

(719) (702) (704) 5% (719)
가 5% , 가 ,

(719) (702) (704) 10% 90% , 가 90%
 . 가 10% , 가 90%
 100% .

3, (709) 가, TFT, (7

04) (702) 가 (704) , (702)
 (704) ,
 가 (708) ,

(719) 가 $\frac{1}{4}$
 $\frac{3}{4}$, $\frac{1}{4}$, 가 가

(; 709a) (; 711a)
 (709a) (711a) (704)
 (709a) (711a) 1
 a) (704) (711a) , (704) (709

4a 4e ,
 (104b) , 5
 a 5h , (104c)
 6g (104d) , (104e) 6a
 (104d) , (104d) 가 , 7a 7g
 (104e) 가 (104e)

(722) (720) (701) ,
 가 ,

가 , 가 ,

2
8a 8b 4

(19)

TFT 4 가 5 μm
3.7 μm

SEM 가 3.7 μm 가
4

(57)

1.

1 ;

2 ;

1 2 ,

2 가 ,

2.

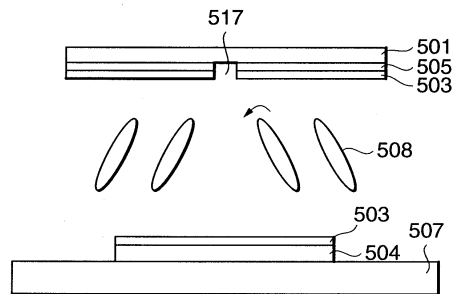
1 , 1 ,

3.

1

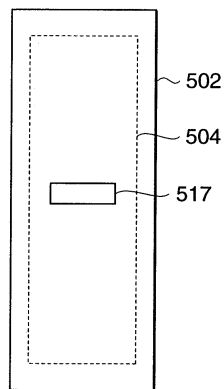
1a

종래 기술



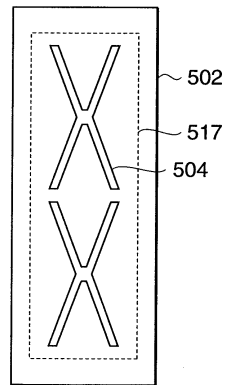
1b

종래 기술

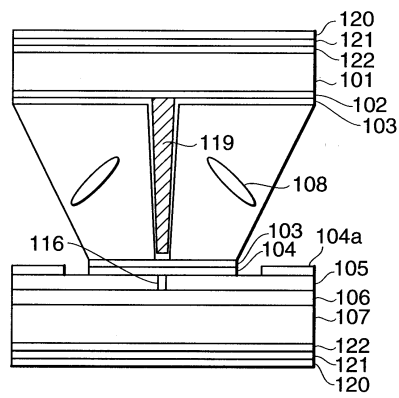


1c

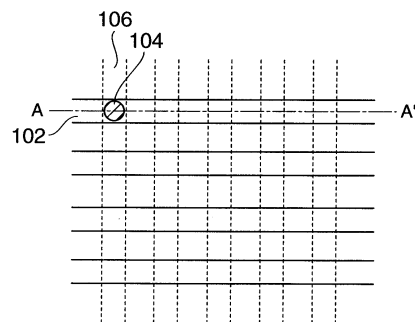
종래 기술



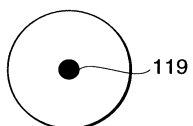
2a



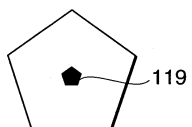
2b



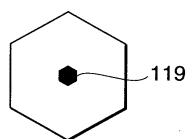
2c



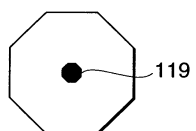
2d



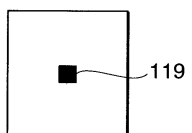
2e



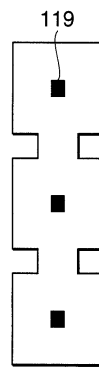
2f



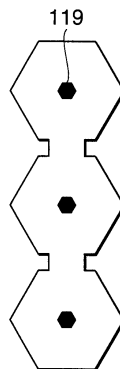
2g



3a



3b



3c



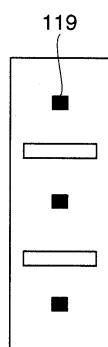
3d



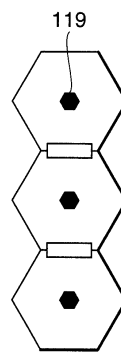
3e



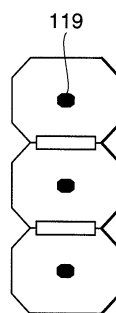
3f



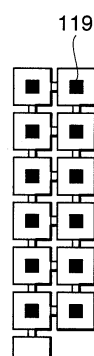
3g



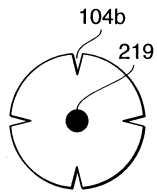
3h



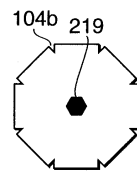
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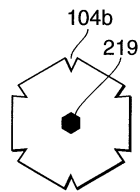
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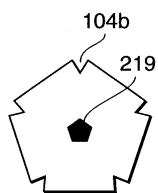
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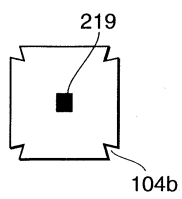
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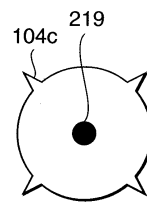
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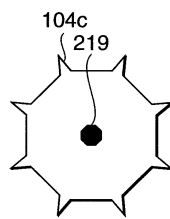
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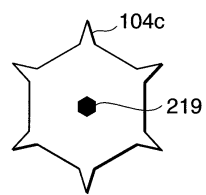
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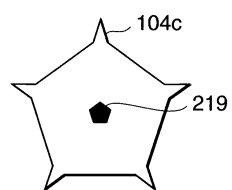
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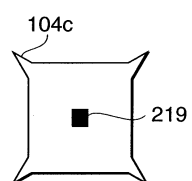
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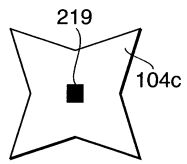
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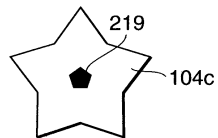
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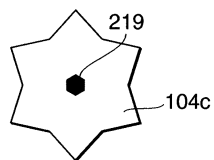
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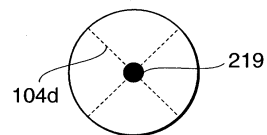
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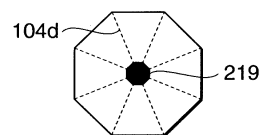
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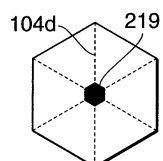
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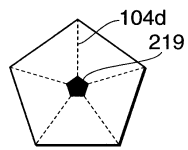
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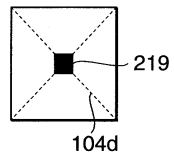
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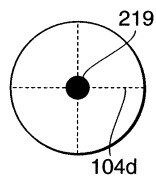
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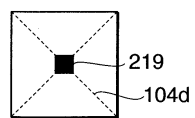
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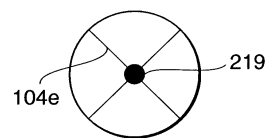
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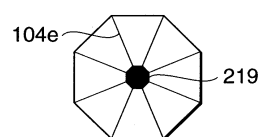
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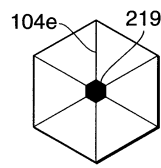
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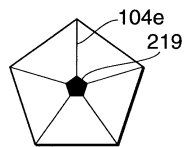
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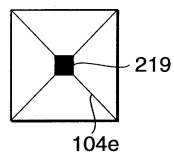
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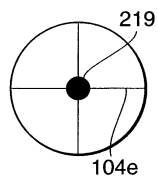
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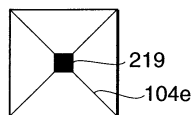
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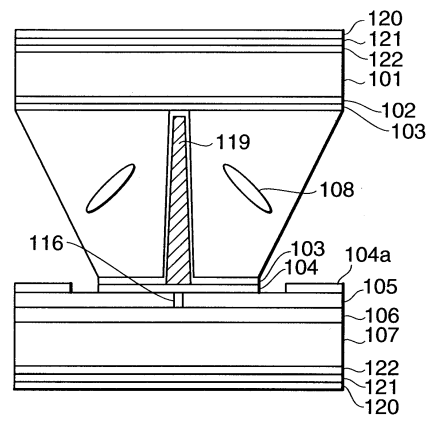
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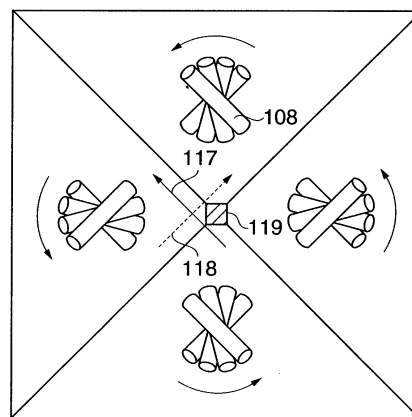
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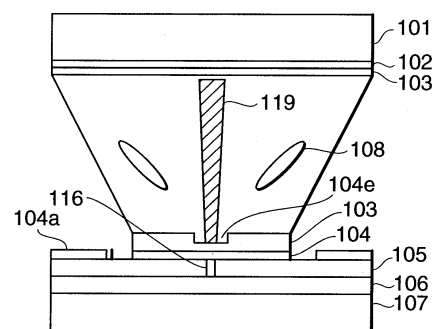
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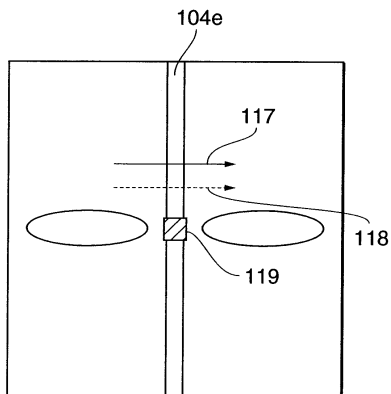
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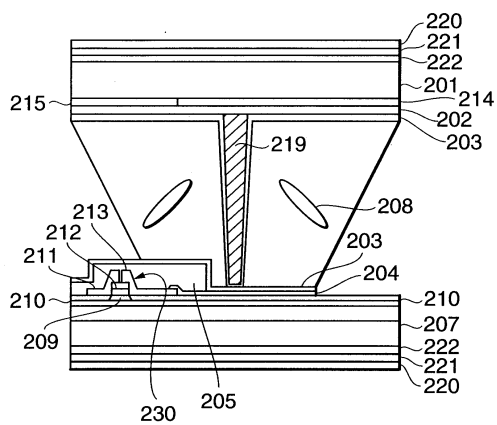
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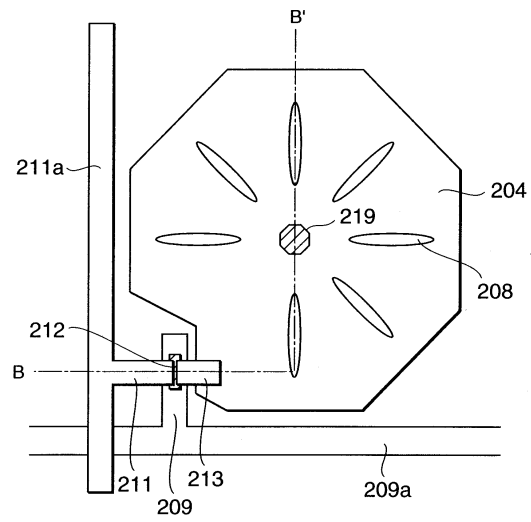
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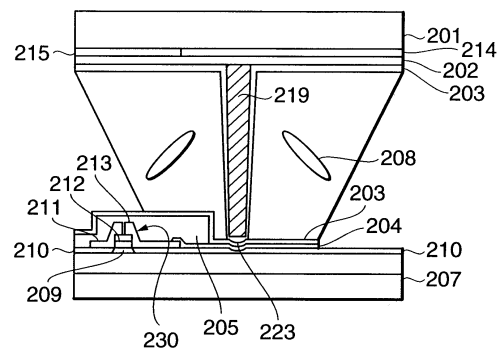
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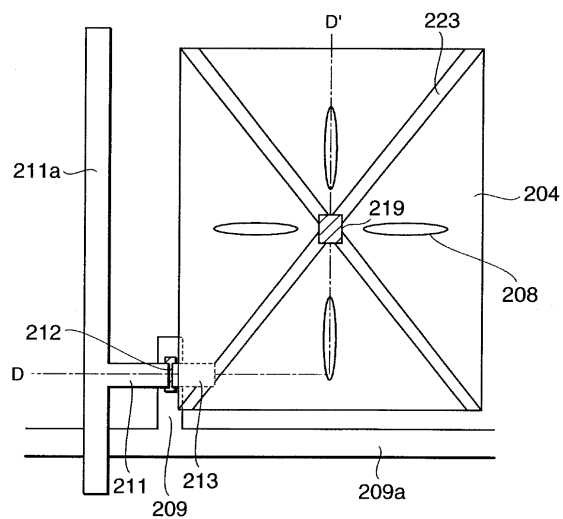
10b



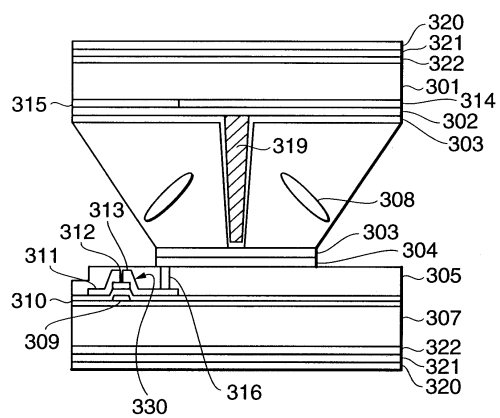
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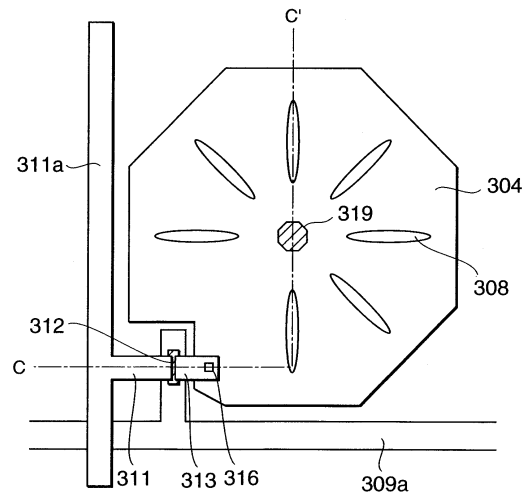
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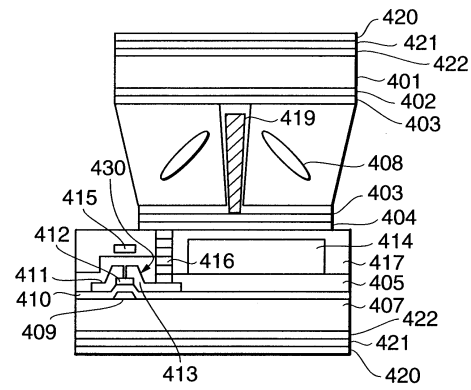
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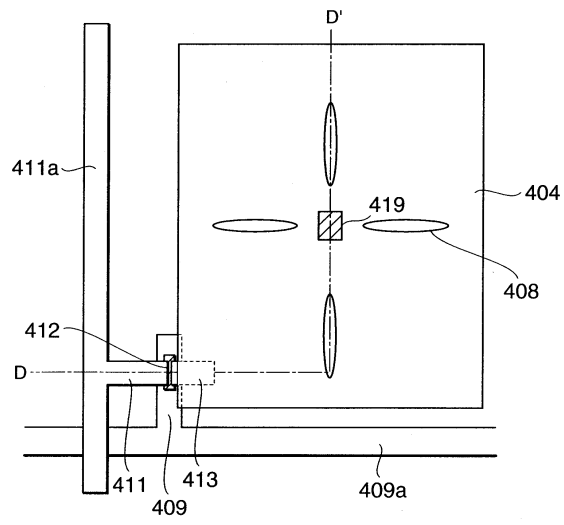
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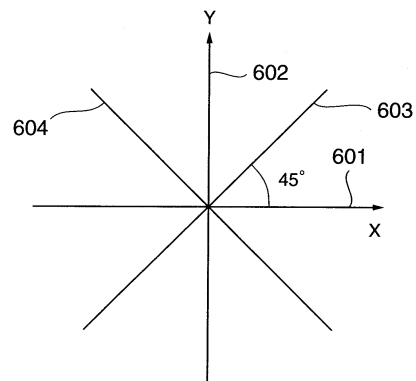
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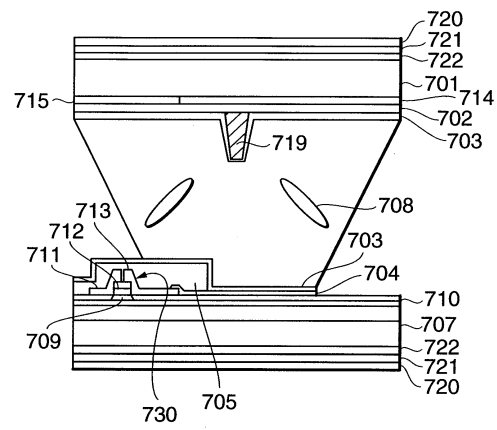
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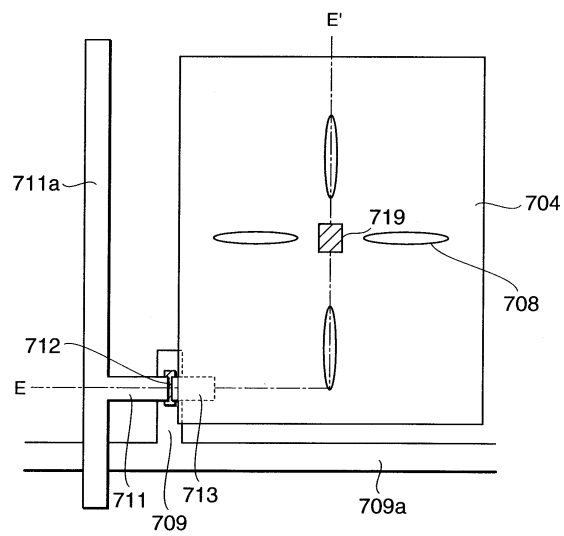
14



15a



15b



专利名称(译)	液晶显示器		
公开(公告)号	KR1020020047024A	公开(公告)日	2002-06-21
申请号	KR1020010079700	申请日	2001-12-15
[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	SUZUKI MASAYOSHI 스즈끼마사요시 ISHII TOSHIYA 이시이도시아 SUZUKI SEIJI 스즈끼세이지 MATSUYAMA HIROAKI 마쯔야마히로아끼 KAWADA KIYOMI 가와다기요미 HIRAI YOSHIHIKO 히라이요시히꼬		
发明人	스즈끼마사요시 이시이도시아 스즈끼세이지 마쯔야마히로아끼 가와다기요미 히라이요시히꼬		
IPC分类号	G02F1/1339 G02F1/1362 G02F1/1337 G02F1/1343 G02F1/1333		
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代理人(译)	韩国专利公司		
优先权	2000382684 2000-12-15 JP		
外部链接	Espacenet		

摘要(译)

本发明提供一种液晶显示装置，其在宽视角下具有高对比度并且抑制颜色劣化。液晶显示装置包括：第一基板，其上形成有多个像素电极；第二基板，其上形成有对电极；以及液晶层，夹在第一基板和第二基板之间，在其上进一步设置多个突起，并且每个突起位于相应的一个像素电极的基本中心部分。 - 1 - 图2a 指数方面 液晶显示器，扭曲向列液晶，垂直取向，水平取向，像素电极，公共电极，凸起，间隔物，偏振片，半波片，四分之一波片，

