

(19)
(12)

(KR)
(A)

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(43)

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(22) 2004 03 30

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JP-P-2003-00095769 2003 03 31 (JP)

(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 4 1-1

가 가 가 가 4 1-1

가 가 가 가 4 1-1

가 가 가 가 4 1-1

가 가 가 가 4 1-1

(74)

:

(54)

(6) , (2, 4) , (2, 4) , 가 , 1/4 (50, 51) , 1/4 (51, 50)
(87, 86) , (4) (4) (54)
, (2) (4)

1a

, , , , ,

1a	1b	1	
2	1	1-1	
3	1	1-1	가
4	1	1-1	
5			
6	1	1-1	
7	1	1-2	
8			
9	1	1-2	
10	1	1-3	
11	1	1-4	
12	1	1-4	
13	2	가	
14	2	가	
15	2		
16	2		
17	2		
18	2		
19	2		
20	2		

47	6		1	.	
48	7		1	.	
49	8		1	.	
50a	50b	8		.	
51	8			.	
52	8			1	
53	8				
1					
54a	54b	8			,
55a	55b	8			,
56a	56d	8			(1).
57a	57c	8			(2).
58	9		1	.	
59a	59b	9		.	
60	10			.	
61	10			.	
62	11			.	
63a	63c	11			(1).
64a	64c	11			(2).
65a	65c	11			(3).
66	11			.	
67	12		1	.	
68	12			.	
69a	69d	12			(1).
70a	70c	12			(2).
71	13		1	.	
72	13			.	
73	14		1	.	

74 14

75a 75b

76

77a 77b

78a 78b

< >

2 : TFT

4 :

6 :

10, 11 :

16 :

30 :

50, 51 : 1/4

52 :

54 :

86, 87 :

88 :

(TFT; Thin Film Transistor)

가 가 ()

가 PC

(106)

76

76 1 (102, 104)
ROCB(Reflective Optically Compensated Bend)

(106)

(102) (106) , (116)
 (104) (106) (142)
 (104) () , (1/4)(120), (122) (124)

(124) (116)
 (124) (124) , (124)
 , 가 (116) 가

77a 77b 2 77a 77b 77a X-X 77a
 1 , 77a 77b , 77b 77a X-X T R
 . TFT (102) R , R 가 T , (104)
)(130)가 (130) (106) 132가 . TFT (104)
 T (104) 1/4 (120) 1/4 (120)
 102) (122)

(116) (102) (106) 76
 가 , (116)
 (116)

78a (106) 가 , 78b (106) 가
 . 78a , 가 , 가
 , 1/4 , (106) , (122)
 (120) (106) (116) 1/4 (120)
 , 1/4 (120) 2 가 90° ,

(188) (122) , 1/4 (120) (120) 2 (120) (106)
 106) , , 1/4 (120) (122) , 1/4 (120) 2 (120) (106)
 가 90° , , (122) , , (106)
 , 가 , 가 , (106)
 가 , 78b , (122) (106)

[1]

2000-56326

[2]

2000-171789

[3]

2002-202511

[4]

6-175126

[5]

7-311383

[6]

11-281972

[7]

2000-47251

[1]

Uchida etal. 'a Bright Reflective LCD Using Optically Compensated Bend Cell with Gray-Scale Capability and Fast Response', SID 96 DIGEST, p.618-621

[2]

Jisaki etal. 'Development of Transflective LCD for High Contrast and Wide Viewing angle by Using Homeotropic Alignment'. Asia Display/IDW'01, p.133

76
 , (106) 2 , (106) 가
 가 . , 가 .
 , 77a 78b , (116)
 가 . , (116)
 가 . , 가 (116)
 .
 , , , , 1/4 가 , 1/4
 , , , ,
 .

[1]

1 1a 12 가
 , 2 가 .
 1a 1b . 1a
 TFT (2) , 1b (CF) (4) (6) . 1a 1b (6)
 . TFT (2) (10) , (54) (54)
 (54) (30)
 (30) (16) . (54) (4) (30) (11)
 (42)

(4) TFT (2) 1/4 (51), (86) () (52) (8) 6, 87) 1/4 (87) (50) (87) (88) . 가 , (6) , 1/4 (51) (6) (54) (86) , 1/4 (51) 2 (16) , 1/4 (51) (86) . , (88) (87) , 1/4 (50) 가 90° (6) , 1/4 (51) (86) 1/4 (50, 51) 2 가 90° 가 , (6) 가 , (6) 가 (86) (86) 가 , (86) 가 , (86) TFT (2) (54) 가가 (88) 가 (54) (52) (52) , (54) (54) (52) (54) (1-1) 1-1 2 2 6 , 2 TFT TFT (2) , CF가 (4) , (2, 4) 3 TFT (2) 가 TFT (2) (12) (14) , (12) (14) TFT(20) (16) TFT(20) (16) (14) , (12) (18) 2 가, TFT (2) , IC가 IC가 (82)가 (80) , (80, 82) (84) TFT (2) , (86) (86) TFT (2) (88) (4) (86) (87)

4 TFT (2) , (12) , (12) , (12) , (14) , (14) , TFT(20) , 가 , (12) (12) (14) (18) (18) (19) .

ITO(Indium Tin Oxide) (16) (60) , (16) (60) (60) (6) (4) (60) (60) 1 (14) 12 (66)가 , BM(68)

5 5 (19)(TFT(20) , TFT(20) / (18)) BM(68') , (19)((18)) (18)) (19) (18))

6 (19)((18)) (54) TFT(20) / (54) (60) (52) ()

(1-2)

1-2 1 7 9 , TFT(20) / (19) BM(68')가 (70) (70) (60) (19) (70) (70) ,

9 (6) (86) (SEG1425, AG150)(86) (SEG1425)((6) (87) 1/4 (50) (51) 1/4 (50, 51) , 140nm ART ON TAC (72) (6) 1/4 (51) (87) PCF350 (74) ,

1/4 (50) () (91) (87) (90) 45 ° , , (86) (87) 1/4 (50) 45 ° 1/4 (50, 51) (91, 94) (95) (86, 87), 1/4 (50, 51)

4 (87) (90) 150 ° . 1/ (50) (91) 15 ° . 1/4 (51) (94) 105 ° .

(86) (95) 60°

(1-3)

1-3 가 10

2 가 2 가 1

(19) 가

10 ON/OFF 가 10 가

3V 5V

n n 가

(1-4)

1-4 11 12

(Al) (Ti) (19) 11 (19) (Ti)

(16), 11 (64) (76) (76) (19) (60)(

(19) (76) (Ti) (19) (19) (76) (Ti)

面) (19) (76) (19) (19) (76) (76) (Ti)

Ti (19) (19) (76) (19) Al ITO (64) (76)

Al (16) 11 (64) (76) (76) (76) (76)

Ti (19) Al (19) Al (19) Al

ITO Al 가 11 가 가

12 가 (60) 12 가

(54) (54) TFT(20) (64)

/ (54) Al Ti (54) TFT(20) (19)

(54) ITO Ti (54) (54) Al (

60) (54) (54) (54) (54) (19)

가 가 가

가

[2]

가 ,
 가 .

16 (70) 17 (56) 가 , 16 (16) 17 (71) 가 , (56)
) 가 , (70) (16) 가 가 (8) (16 17)
 , (8) (B)가 , (6) (A)

18 (56) 0° 20°
 (56) c 40° 가 1.5 (56) 0

(3) 19 (56) 19 (16) (56)
 (70) (8) 가 , (6) (8)
 , (56) (70) (62) , 가 (56)
 (8) 가 , (6) (8)

20 (56) 20 (62) (70)
 (2) (71)
 21 (4) (62) 21 (62)
 가 , (56) (70) , (56) (71)
 가 , (6)

22 (56) 22 (70) (70) ()
 (6)

23 (70)가 24 (70)가 (6) (6)
 , 23 24 (70)
 , 22 (70)가 1 2가 , (6)
 , (56) 2가 (56) 1

(2-1)

2-1 25 31 25
 (56) 25 26 (70) , TFT 26 (2) (70) (16)
 ()

4) (62) 가 , (70) TFT (2) (62) .
 , 2-1 가 .
 , (70) (56) 27 28 가 가
 , (6) (62) , (70) .
 (2-4)
 , 2-4 (71)
 (56) (16) 2-2 가 27 28
 가 (4) 가 (62) , 가 (71) (6)
 가 , (6) .
 (2-5)
 , 2-5 (70) , (70)
 1.7 (JSR) (70) (6)
 (56) (4) (62) , (70) TFT (2) (62)
 가 , 2-1 가 27 28 가
 가 , (70) (56) , (70) 가 (56) , (6)
 , (70) , (70) 가 가

[3]

3 .
 , 가 , 가 가
 , , 1 , 1
 , 7 1 1
 32 7 1 , TFT
 , (12) , (12)
 , (14) , (12)
 (12) (14) 가 (18)
 (19) (18) .
 (12) (14) TFT(20)
 (16)

(16) (62) , (62) (60) , (60) (64)
 () (62) , (62) (60) (60) (12)
 32 3 , (14) (18) 2 , 6 (12) , (60) (60) .
 32 7 , 가 (60) ,
 가 ,
 7 (60) , (60) , (60) (60)
 (60) 가 (60) 가 (60) 가
 , (60) 가 50 μ m , 가 (60) 가
 , (60) , 가 (60) 가 ,
 , 가 ,
 2 , 2가 , 1,
 , 1 2 , ,
 , 2 ,
 , 가 , ,
 가 , 가 2 , 가 .
 , , 가
 , , 1 1 , 1 2 ,
 , 2 , 1 1 , 2 ,
 , , ,
 , , 1 , 1

가

가

가

33 40c

33 37 33 A-A 33 35

1 37

33 1 (12) , TFT (2) 300 μ m (12) 10

0 μ m (33 2). (3 2). (14) , (12) (14) 10

7 μ m 가 (12) (14) (14) (1) 8) (18) (12) (19)

(36) (12) (14) (14) TFT(20)가 (12) . TFT(20) (36) (36)

(36), (38) , (38) , TFT(20) (38) (36) (36)

(36), (38) (12) , TFT(20)

ITO(Indium Tin Oxide) (16)

(16) (60) , (60) (60) (6)

4) () (62) , (62) (60) (18) (12) (12)

3 , (14) 2 6 (12) (60) (60)

(16) (60) (60)

(60) (12) (14)
 (46) . (46) 1 25 μ m .
 (60) (46) (12) (14)
 (48) . (48) 5, 5 μ m .
 (60) (46) (48) (48)
 (49) , (49) () (66) .
 (48) (48) (48) (49)가 (49)가 (46) 1
 2 33 (48) 2 (49)가 , (46) 1
 4 (49)가 (49)가 . , (48) (48), (49)가 (6
 6) (60) (53) .
 (48) (49)가 , (60) (49)가
 45° . (49) 3 μ m , (66) 3 μ m .
 (49) (12) (14) ,
 35 μ m . (60) 가 . (60) 1 ,
 25 μ m , 1 가 35 μ m (60) , 1 가
 (46)가 (53) (60) 5 μ m (53)
 . , (53) (60) 가 5 μ m .
 (60) (48) (64)
 (64) (60) .
 , (16) , TFT(20) (36)
 36) , 가 가 . , (60)(33) (,
 (36) 가 가
 (60) 35 μ m \times 35 μ m (60)
 (36) 7 μ m , 가 .
 (16) TFT(20) (60)(33) (46)
 (38) , TFT(20) (60) 1 가 5 μ m
 (16) , (60) (62) (38) , (38)
 가 , (62) 가 , 가
 , (16) (19) (67) .
 (67) (60) (48) (64) (67) .
 (16) (67) (19)
 TFT (2) CF (4) BM(Black Matrix)가
 . BM 23 μ m . (12)
 (G), (B) 100 μ m , CF (14) 300 μ m . BM (R),
) CF . CF ITO . ()
 34 33 A-A . , TFT (2) (10)

(14) (14) (30) (14) (16) (10) (30)

, TFT (2) CF (4) (11) (11) TFT (2)
 (42) (11) (42) CF ()

, CF (4) 33 34 , TFT (2) , TFT (2)
 (60) (73) 10 μ m, 2 μ m (73)

(60) s=+1 (2, 4) () (2, 4)

35 (6) (87) 1/4 (50) (86, 87) (86) 1/4
 (51) 1/4 (50, 51) JSR (6) (140nm)
) (72) (6) 1/4 (51) , TAC()

가 (87) (75) PCF350D (75)

1/4 (50) () (87) 45° (51) (86)
 (87) 1/4 (50) 1/4 (50, 51) , 1/4 (86, 87), 1/4
 (50, 51)

(87) (3) 150°
 1/4 (50) TAC (72) 1/4 (51) 15°
 (6) 105° (86)

60° 가

가 , (42) (16)

(60) (53) (53) (49)
 (66) (46) (60) (46)가
 (60) (53) 4

(46) , (46) , 1 (16) (60) ,
 (48) , (46) (48) (12) (14)
 (49) 가 (48)

0) (53) (60) , (46) 36 (48) (49) (6)
 (48) (12) (14) 36 (48) (60)
 (49) , (60) (48) (48) 2
 (49) (49) (66) (4)

8) , (48) (49)가 .
 , 36 (60) , , ,
 , (48), (49) , 가 ,
 , (46) (48), (49)가 (60) (46)가 ,
 (60) (48), (49) (53) 36 , (,
 48), (49) 가 , , ,
 , (53) (48), (49) , ,
 (60) (46) 50% . ,
 37 (53) (48), (49)()
 37 , 1 (60) (46) 58%
 2 (60) (46) 50%
 3 (60) (46) 33%
 4 (60) (53) (46)가 3
 6
 37 (46) (53) (60) (,
 36 , , , (,
 60) (46) 50% , , (,
 , (60) (46)가 , ,
 (53) 가 (60) 36 (53) (48),
 (49) 가 , , 36 ,
 (53) 가 , , 36 (53)
 , , (53) , ,
 (46)가 가 (53) 가 , ,
 , , (2, 4) 1/4 (50, 51) (87, 86)
 , , (87, 86) , 가 ,
 1/4 (50, 51) , 1/4 (50, 51) , ,
 4 가 , (53) , (53)
 가 , 가 1/4 (50, 51) , , (53)
 , 38a 40c 38a
 40c (14) , TFT (2) (10) 33 (16)
 , (10) , (21) (38a
).
 , (21) , (12), (18) (38b
). , 38a 40c (18) .

) , (38c CVD(Chemical Vapor Deposition) (22) , CVD (23) (38d) .
 9a) . (12) (24) (23) , (3
 (38), (14) (19) TFT(20)가 (23) (39b) . , (14), (12) (36),
 , CVD (25) (39c) .
 (25) , TFT(20) (38) (26) (40a) .
 , ITO (27) (40b) .
 40c) . (27) , TFT (2) (10) , (60), (26) (64), (67) (38) ()
 (16) .
 , 가 ,
 (53) , (60) , (53) (46)가 , (60)
 ()
 1n 41a 41n . 41a 4
 (60) , 33 가 , (60) (46)가 ,
 41a , (46) 41a , (60)
 (46) 41a ,
 41b , (46) . , (46)
 , 41c (46) . , (conv
 ex polygon) , 180° .
 41d , (46) (48) .
 41e , (46) . , (concave
 polygon) , 180° .
 , (46) (60) , (46)

41f 41g (46) (60) 2 (46)
 (53) 2 (14)
 (46)가 (12)

41h (60) 1 (53)
 (46) 41h (60)

41i 41d 가 (46)
 (46)가 (60) 2

41j (60) (53)
 (46)

41k (60) (60)
 (48) 4 1 (46)
 1 (53) (60)
 4 (46)가 (53)

(60) (60) (60) (60)
 (48) 4 (60)

41l (60) (60)
 (48) 4 (60) (60)
 (46) (49) (46) (48) (48)
 48) (48) (49)가 (48)
 (46) (48) 45 ° (60) (49)가
 (49)가 90 °

41m (60) (48) 4
 (48) (46) (48) (49)
 (48) (46) (48) (49)가 (48)가
 (48) (49)가 45 °

41n (60) (48) 4
 (60) (48) (48) (48)
 6) (48) (49) (48) (48)
 (46) (48) (49)가 (48)
 (49)가 45 °

41m, 41n (60) (60) 4
 , 4 (53) (46)가
 , 41n , 4 (53)
 (46)가 (14) (53)

(60) 41a 41n (48)
 (49)가 (48), (49)가, (60) (60)
 (46) (60)

[4]

4 1 42 3 42 가

3 가 (16) (60) (60)

46) (14) 1 (53) (60) (

(14) 42 (14) 1 (60) (48),

(49) (53) (60) (46)

(46) (14) (14) (60) 80% (

28 μ m (60) (46) (64)

46) (60) (46) (64)

(60) (60) (14) 1

(53) 가 (62)

(64) (60) 3 (60) (64)

(60) (64) s=-1 (64)

(60) 4 (64) 3

-1 , 가 (60) (14) 가 (14) s=

가 가 가

(53) (14) (14) (53)

(42 , /) 2 (42 , /)

2 가 (14) 가 (48)

(46)가 3 (53) (60)

[5]

5 43 45b 43

1 , 44a 45b 가

3 (16) (60) (60) 3

가 (60)

3 (16) , 43 (60) (62) (62)

(60) (64) 43 (18)
 1 3 (6) (60) (12) 3 (14)

(60) (12) (14) 60μm
 (46) (46) (12) 25μm
 (14)

8) (60) (46) (12) (14) (14) (4)
 5μm, 5μm 9μm, 5μm (48) (14) (12) (48)

(60) (46) (48) (48) (48)
 (49) , (49) (66) (48)
 43 , (46) (48) (49)가 6 (49)가

(48) (49)가 45 ° (49) 3μm (66)
 3μm

(49) 3 가 , 가 (12)
 (14) (60) (60) 가 (14)
) (60) 35μm (12) 78μm

(64) (60) , (60) (48) 1
 , (64) (14)

3 가 TFT(20) (36)
) , (36) 가 가 (60)(43
 (60) 35μm×78μm , 가 (60)
 (36) 7μm , 가

(46) (60) ,

6) (60) , 3 가 , (4) (4)
 (60) (46) 가 , (46)
 (53) (46) , (60)
 (60) 가 , (60)
 가

(46)가 (60) , (53)
 가

(60) 가 3 , 50%
 (60) 가 (49) (46)

(48) 1 (60) (64) (46) ()
 48) 44a (49)가 45b

44a (48) 44c (64) (48) 1 (49)가
 , 44a , 가 , 44c 44b , 44b 가
 , 45a (46) 45b (48) (64) (48) 1 (64) (49)가
)가 (46) (48) . 45a , 가 (60) (64) , 45b
 45a .
 , 44a 45b , , s=+1
 , s=-1
 (64) (48) 1 (49)가 (48)
 () , 가 , 44a (60)
 (64) ()
 44a () , 가 , 44b 44c (64)
 () , (64) (48) 가 (60) (60)
) () , 가 44c , ()
 (48) 1 (49) 2 (49) (66) ()
 (66) (60) (49)가 (48) , (64) (48) (64)
 1 () , 가 , (64)
 () , (64) (48) 1 (49)가 (46) (48)
) , 가 , 가 , 44a (64) ()
) , 44b 44c (64) (48) (60) ()
 1 , (49) 2 (49) (66) 45b , (48)
 , (60) (66) , (66)
 49)가 , (60) (48) , (64) (48) 1 ()
) (46) (48) , (64) , (64) ()
 ()
 a 5 46a 46c . 46
 46c
 , 43 (60) , 가 41a 41n (60) (46)가 가
 , 가 , 46a , (46)
 46b , (46) (60)
 , (46) 46b ,
 , 46c , (46) , (60) 2 , 46c
 , (53) 2 , (46) 6 .
 (60)

[6]

6 1 47 5 47 가
 , (16) (60) 5
 가 , (60)
 (46) (14) 2 (53) ,
 47 (48), (49) (60) (14) 2
 , 5 (60) (53) (60)
 , (46) (12) (14) 2 35μm×78μm (53) 7μm
 , 64μm
 , 4 가 , (14) (1
 4) (53) (53) (47 , /) (47 , /)
) 2 (48) 가 가 (14)가 가
 , (60) (46)가 (60) 5 (53)

[7]

7 1 48 5 48 가
 5 (60a) 가 (16) (60) (19)
 (16) , 48 (60a) , (19)
 (60a) , (60b)
 (12) (60a, 60b) (62) (16) (62) (14)
 (60a, 60b) , 1 (60a) , (60a) (64) 48 (12) 2 (4)
 (60b)
 (60a) (60a) (19)
 (60a) , (12) (14) (19) (9
 6) , (96) (14) ,
 (97) (46) (96) (12) (48)
 (60a) , (46) (96) (12) , 5
 (14) (48) (48)
 μm, 5μm

(60a) (46) (96) (97) (48)
 (48) (96) (49) , (49) (66) (49)가
 (60b) (12) (14)
 (46) (60b) (46) (12)
 60 μ m (14) 39 μ m
 (60b) (46) (12) (14)
 48) 5 μ m, 9 μ m, 5 μ m (14) (12) (48)
 (60b) (46) (48) (48)
 (49) (46) (49) (48) (48) (49)가
 (60a, 60b) (48) (49)가 45° (49)
 3 μ m (66) 3 μ m
 (60a, 60b) (49) (12) (14)
 (60a, 60b) 가 (14) (60a)
 64 μ m (12) (60b) 78 μ m (14) 78 μ m
 (14) 49 μ m
 (60a, 60b) (60a, 60b) (12)
 (48) (64)
 3 가 TFT(20) (36)
) (60b) (36) 가 (60b)(48)
 (36) 7 μ m 49 μ m x 78 μ m (60)
 (19) (16) (60a)
 (19) (60a) 48
 (60a) (19) 가
 (19) (12) (14)
 (60a) (19) (19)
 가
 [8]
 8 49 57c
 5 가
 49 55b 49
 51 1 50a 49 A-A 52 50b B-B

1, 53
 54a 54b , 55a 55b BM , BM
 , 5 TFT (2)
 49 , 가 (12) (14) , 5
 가 TFT(20)가 (12) (14) , 5 (36) (38) , (12)
 , TFT(20) , (12)
 46) , (60) , (46) 가 (55) (60μm)
 (14) (55) 25μm , (55)
 (60) (46)
 5) (60) (55) (28) (28) (5)
 5μm 15μm×50μm
 55)(49 (55)) (38) (38) , TFT(20) (16) (38)
 50a 50b (60) (55) (29)
 , (12) (10) (22) , (25)
 (31) (55) (22) (55) (25)
 (28) (25) (31) (29) (28)
 (46) 가 가 , (46) (60) (55)
 (29) , (55) (28) (60) (55)
 , 49 50b , (64) (60)
 51 , 35 3 , (79) (79)
 (86)
 , 가
 , (16) (42) 가 ,
 , (16) (42) 가 , 가 가
 , (55) (86) , 가
 , (16) (42) 가 , (55)
 , (87) , 가 가
 , (86) , 가 가

(16) (42) 가 , ,
 (16) (42) 가 , (86) ,
 가 .
 (79) ,
 1 (55) , (55)
 가 .
 (16) (42) 가 (86) ,
 가 .
 가 ,
 (55) TFT (2) (38) (38) (55)
 ,
 49 (60) , 1 (55) (60) (55) (55)
 (60) .
 52 (18) (60) (55) (60)
 (55) , 1 (60) (55) 가 49 (55) ,
 (55) 가 , 가 .
 1 (55) ,
 (38) (16) 가 (38)
 (60) , (55) .
 (19) (19) (19) (55) .
 (55) , 1 .
 53 (19) (55) 1
 , 가 (16) , (19) (60a) 7
 가 (60a) , (46) 가 (55)
 (46) (60a) (55)
 (28) .
 53 TFT(20) (60b) , (46) 가 (55)
) (46) . TFT(20) (60b)
 (55) (38) . TFT(20) (60b)
 (55) (28) , TFT(20) (60b)
 (38) .

(60a) (38) (28) (60b) (55) (60b) (19)
 (18) 2 (60a) (55) (55) . ,
 , (55) (55) (55) .
 , BM (98) 54a 54b
 , 54a 54b 54a .
 54a 54b BM (98) , 5% 5% 10 25%
 , BM (98) 55a
 , 55a 55b 55a
 , 55b
 55a 55b BM (98) , 5% 5% 50 90%
 , 56a 57c 56a
 (14) 57c , TFT (2) (10) 49 (16)
 18) , (10) , 3 가 (12), ()
 , (12) (10) , ,
 (29) (56a).
 , (29) , (31) (56b).
 , (31) (29) (55) (56c). , (55)
 (14), (14), (36), (36), (38), (38), (19) (19) .
 , , CVD , (25) (56d).
 , (25) (31) , (55) (29) (28)
 (57a).
 , , ITO (27) (57b).
 57c) . (27) , TFT (2) (10) (60), (64), (67) ()
 , 가 ,
 , (55) , (38)

[9]

9 , 8 1 58 , 59a 59b 58 A-A , 58 59b B-B
 , 8 가
 8 (64) , (16) (60) , (60)
 (55) , (57) (28) , (60) (55) 가 (64) , (60)
 , 58 (60) , , 49 8 가
 , 59a 59b (60) (25) , (29)
 (31) 2 μ m (60) (55) (28) (55) (29)
 , (55) 59b , (55) (29) (25) ,
 (57) (55) (57) (60) , (28)
 (55) (60)
 , (25) , 8 , (57) , (57)
 , 가 CF (4) (73)
 , CF (4) (73)

[10]

10 60 , 60 가
 , 8 가
 (55) CF (4) , TFT (2) (55) 가 ,
 , 60 , CF (4) TFT (2) (42) (55)
) 25 μ m (12) , (55) (69) (69) (69)
 60 μ m (4) TFT (2) (14)
 , , CF (4) , TFT (2) (55)
 , (73) (55) 8 가 , (69)
 s=+1 , 가
 , (55) (69) , 가

(55) , (55) . ,
 ()
 10 61 61
 가 , (60) (73) , 5⁽⁶⁹⁾ (73) (73)
 (60) , CF (4) s=+1 (69) (73) , ,
 [11]
 , 8 11 가 62 65c .
 , 62 62
 , 8 가 .
 (65) , , TFT (2)⁽⁵⁵⁾ (55) (55) (55)
 (60)
 62 (65) (12) (10) (22)
 (65) (55) (65) (29) (31)
 (29) (60) (55) (65) (28) (25) (55) (60)
 , (65) , (55) (55)
 10 가 (65) , CF (4) s=+1 (69)
 (60)
 65) , (55) , 10 가 , (,
 , 63a 65c . 63a
 (2) 65c (10) (16) , TFT
 , (10) , 3 가 (12), (,
 18) .
 , (12) (10) , , ,
 (32) (63a).
 , (32) (65) (63b).
 , , (29) (63c).

(29) , (31) (64a).

(64b) (31) (29) (14), (65) (55) (36), (38), (55) (19) (19)

(55) , (14), (36), (38), (38), (19)

CVD , (25) (64c).

(25) (31) , (55) (29) (28)

(65a).

ITO (27) (65b).

5c (27) , TFT (2) (10) (60), (16) (64), (67) (6

가 가 ,

()

11 66 . 66

(42) , 5 , 66 , CF 가 (4) TFT (2) (73)

, CF (4) (73) , (60) s=+1

[12]

12 67 70c .

, 8 가

1 67 68 67 B-B . 67

(55) 8

가 .

67 (60) (62) 가 ,

(38) (55) (55) 8

(55) (60) 8μm (55) 가 (62) 6μm .

(60) (60) (64) ,

(55)

(55) 68 (55) (22) (12) (25) (10) (25) (22) (60)

)

(62) (55) , .

(55) , (60) (62) (55)

0) (55) 가 , (55) 가 , (6) , (55) 가 , (60) 가

70c 69a 70c 67 69a
 (14) , TFT (2) (10) (16)

18) (10) , 3 가 (12), (

(12) (10) ,
 (29) (69a).

(29) , (31) (69b).

(31) (29) (55) (69c). , (5
 (14), (36), (38), (19) .
 5) , (14), (36), (38), (19)

CVD , (25) (69d).

70a (25), (31) (55) (29) (33) (

, ITO (27) (70b).

c (27) , TFT (2) , (10) (60), (64), (67) (70
 , (16) .

가 ,

[13]

13 71 72 71 A-A 71 , 3
 8 1 가 , 72 71

, 3 가 (16) ,
 (16) 가 (55) (60) (62) , 12

, 71 72 (60) , (62) (12) (55) (14) .

, 12 (60)
 (62) , (55) .

[14]

14 1 가 73 74 73 A-A 73 12

(60) 73 12 가 (60) 12 (12) 66μm (14) 33μm

(14) (60) (99) (60) BM (98) (98) (14) 6μm (99) (60) , BM (60)

, BM (99) (98) 73 74 (14) (60) (62) (99) (55) (14) (60) (60)

가 (60) (55) 가 (55) 12 (60) 가 가

, 3 14 (60) (60) (16) (46) (46) (60) 가

, 8 14 (55) (12, 14, 18) TFT(20) 가

, 10 11 (55) 가 []

가 가 (14) (60) (49) (12) (49) (60) 가 (49) (49) 75a (49) (46) (48) 가 75b

(49)가 45° (48) (49)가 (60) (49) (49)가 (49) (60) 1 (49) 0 90° 가 (60) (60) 1 (48)가 90° (53) (48) (60) 1 1 0 0 90° (60) 1 1 0 90°

(60) (60) (60) (60)

60) , (46) (60) , (60) , 1 (60) 가 12 , 6 , 5 , 1 , (60) , (16) ITO (16) ITO , 3 7 , (16) , TFT(20) (6) TFT(20)가 MIM(Metal Insulator Metal) 가 (55) , 8 14 (55) , TFT (2) , TFT (2) CF (4) CF가 CF-on-TFT , 8 14 (38) (55) (55) , (12), (14), TFT(20) (36), (38) (55) , 8 14 , (60) , 3 7 , 가 (60) , 10 11 , (69, 65) , (55)

(57)

1.

1/4

가

1/4

2.

1

2 3. ,

1 4. 3 ,

1 5. 4 ,

1 6. 5 ,

6 7. ,

6 8. ,

1 9. 5 ,

1 10. 9 ,

10 11. ,

11 12. ,

11 13. 12 ,

14.

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14

16.

17.

16

18.

17

19.

18

2

20.

16

19

0 ° 20 °

21.

16

20

3

16 22. 21 ,
가

23.

23 24. ,

24 25. ,

16 26. 25 ,

45 °

16 27. 26 ,

16 28. 26 ,

29.

1 , 1 , 2 ,

1 , 2 ,

1 , 2 ,

29 30.

29 31.

30

50%

29 32.

31

29 33.

31

29 34.

33

1 0 90°

29 35.

34

가

35 36.

36 37.

29 38.

34

2

가

39.

38

2

40.

29

34

1

가

41.

40

42.

29

34

4

가

4

가

43.

42

4

가

가

44.

29

34

가

4

가

4

45.

44

4

가

가

46.

29

45

5 μ m

47.

1

1 , 2 ,

1 2 , ,

가

47 48.

47 49.

48 ,

47 50.

49 ,

50 90%

10 25%

47 51.

50 ,

51 52.

47 53.

52 ,

54.

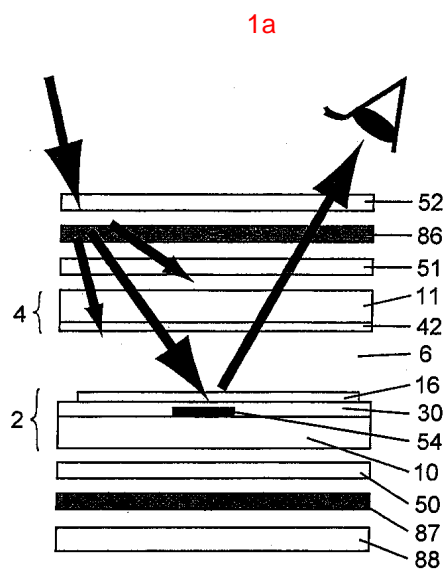
60 61.

60 61 62.

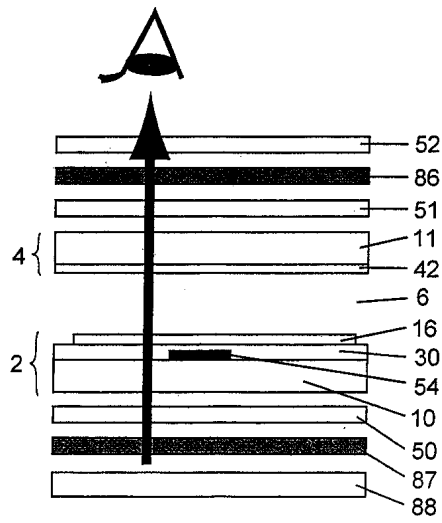
62 63.

60 63 64.

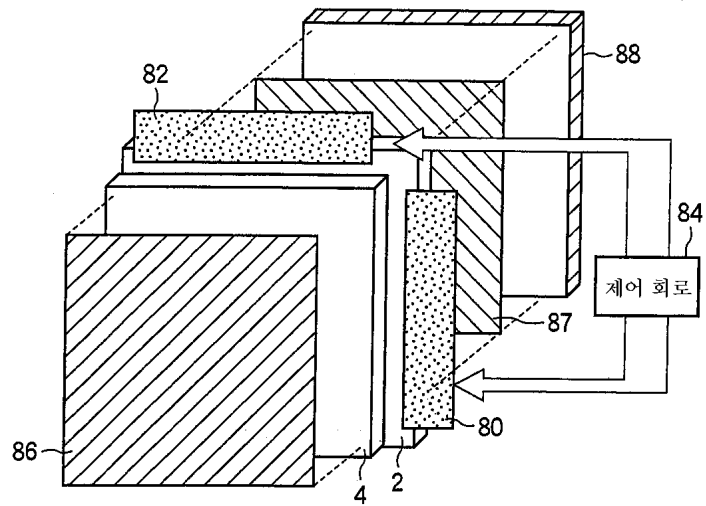
65.



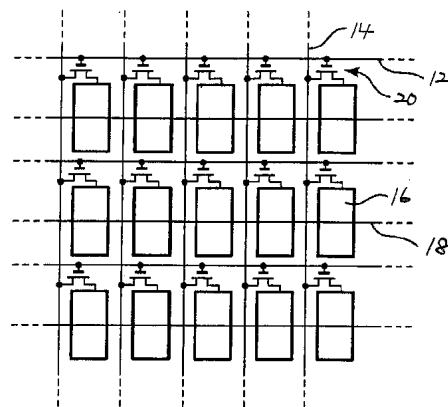
1b



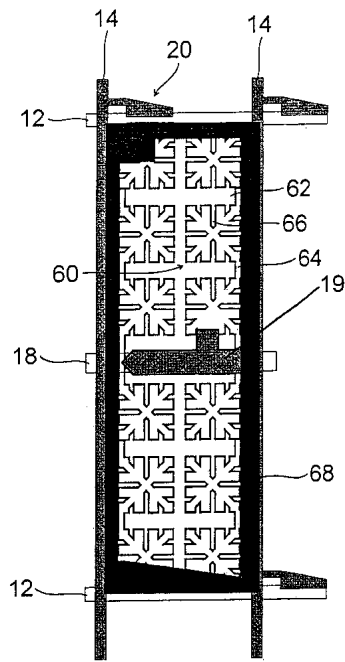
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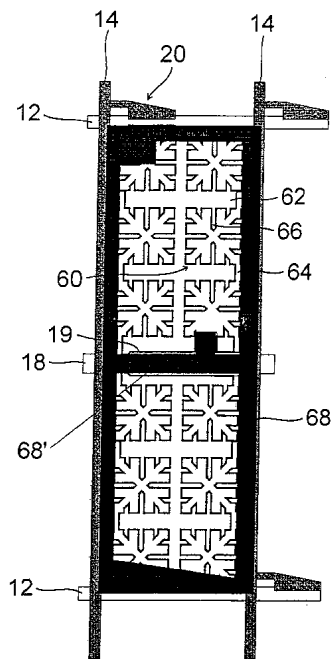
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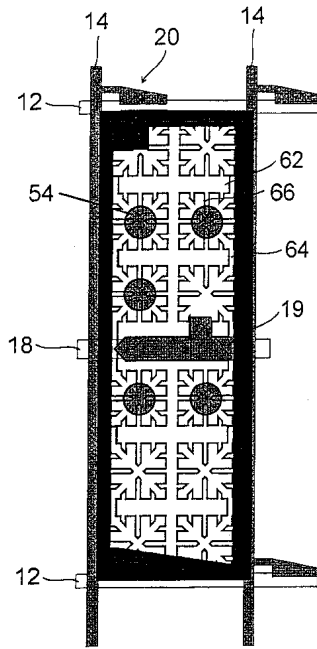
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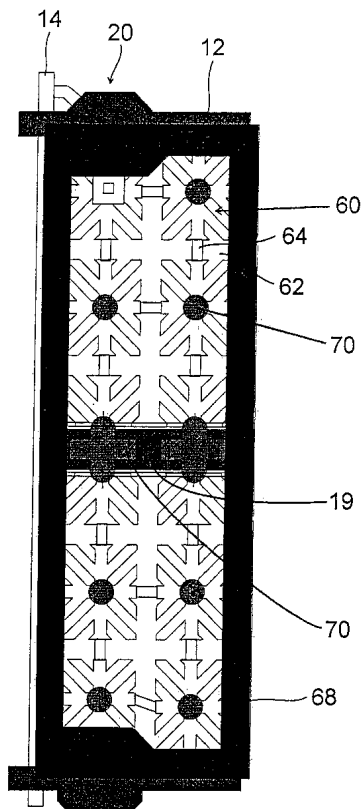
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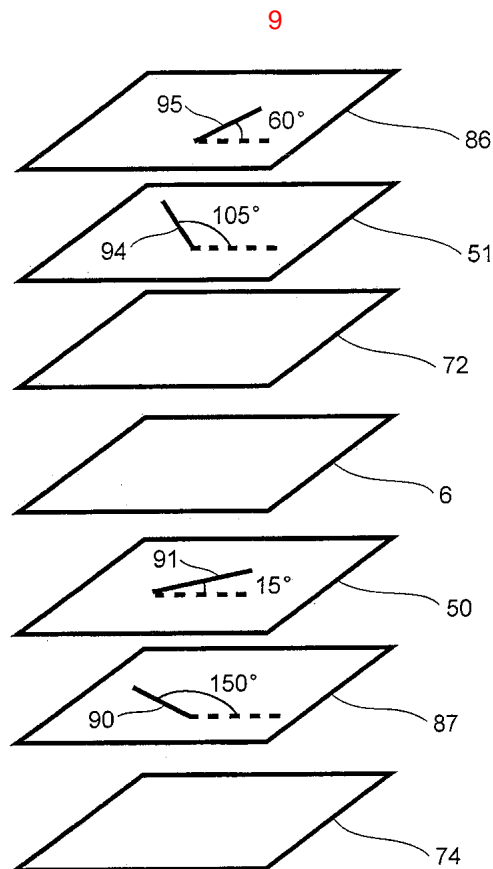
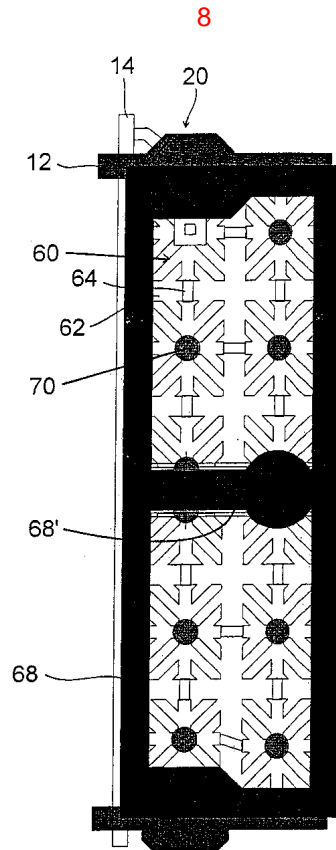


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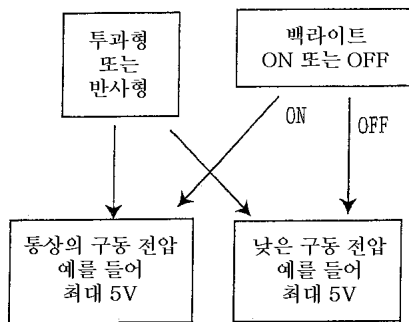


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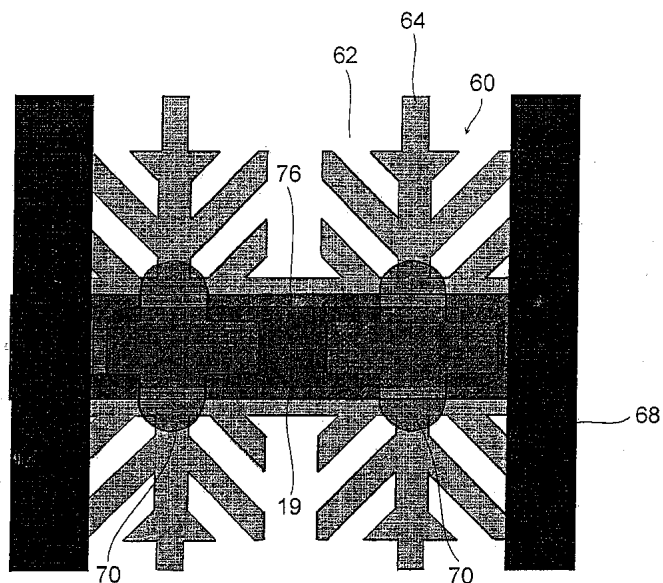




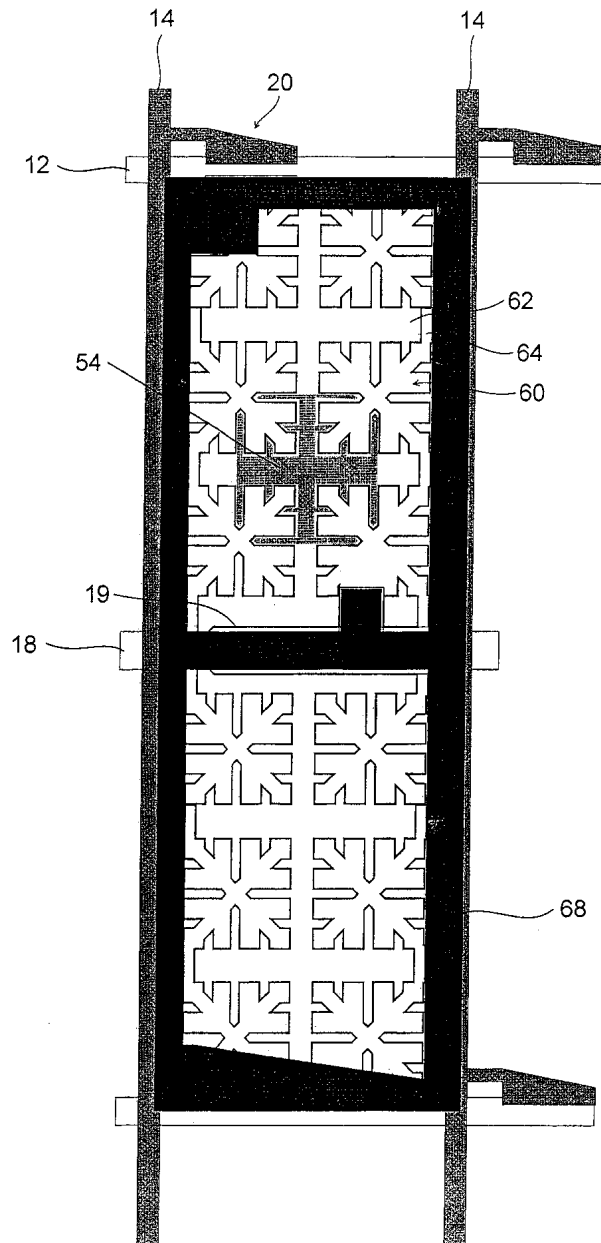
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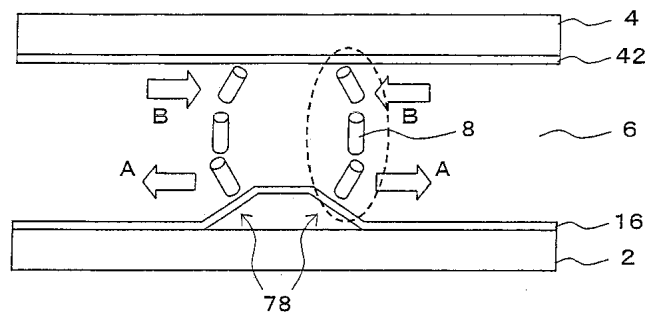
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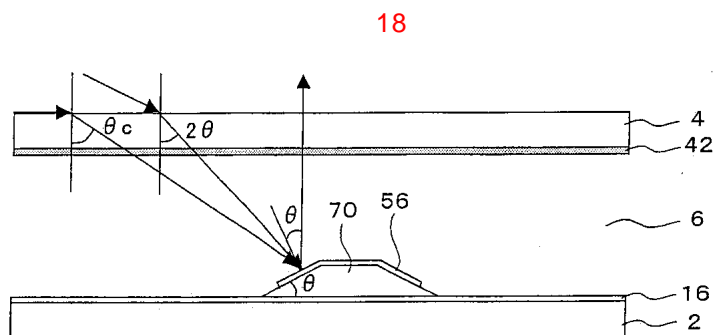
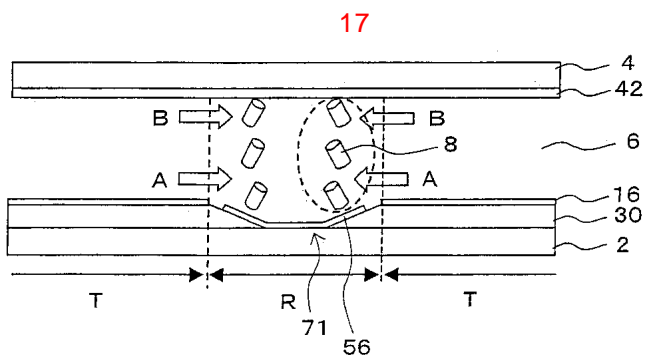
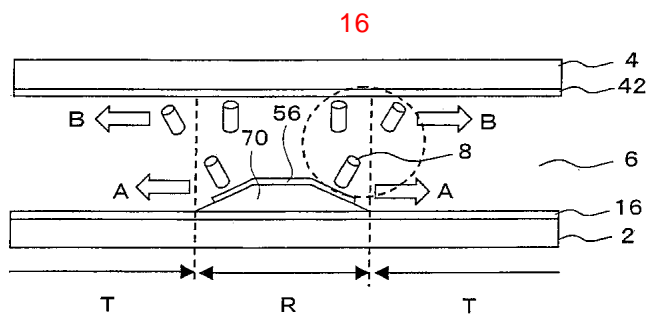
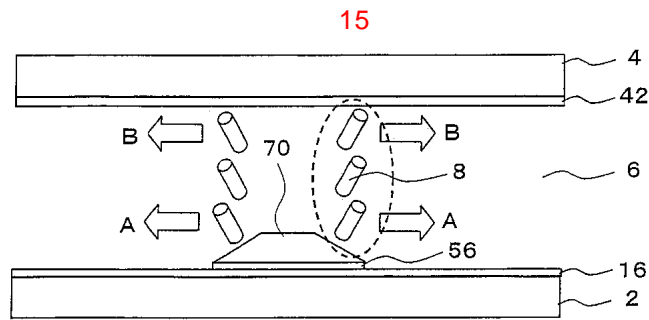
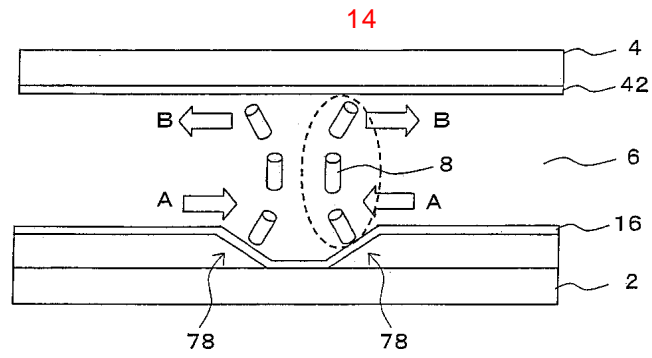


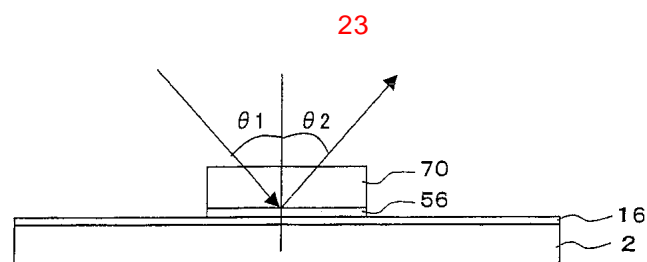
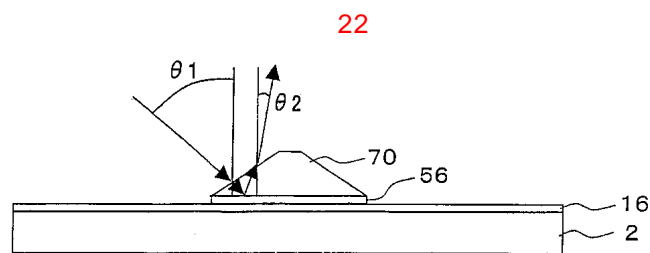
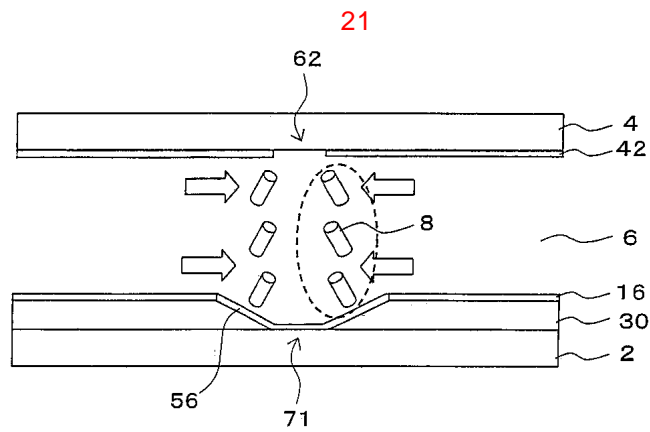
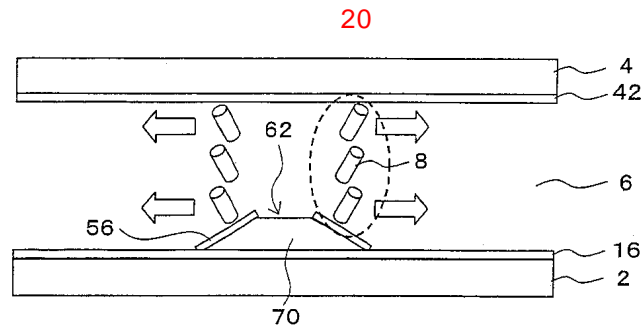
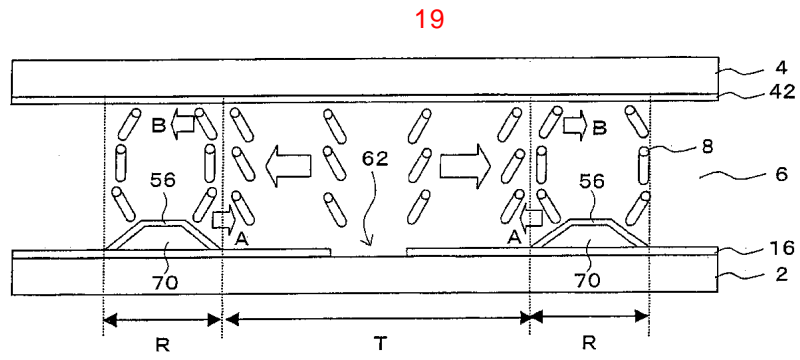
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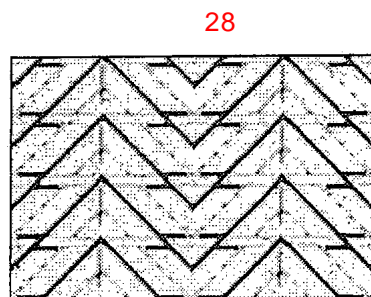
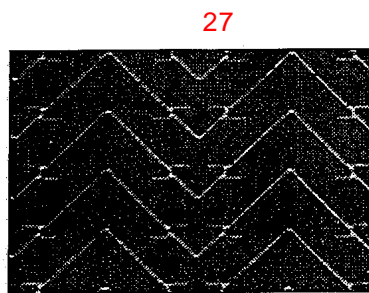
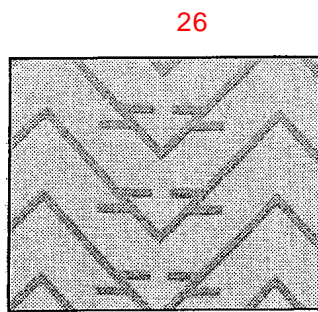
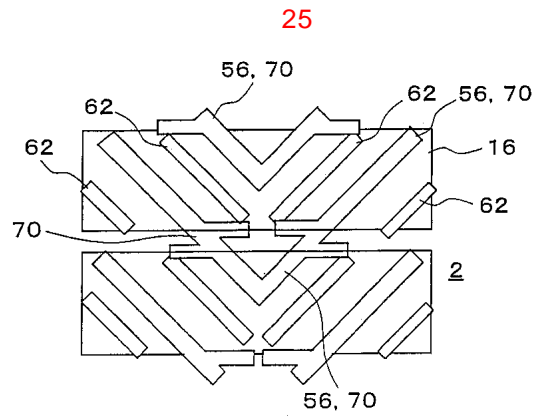
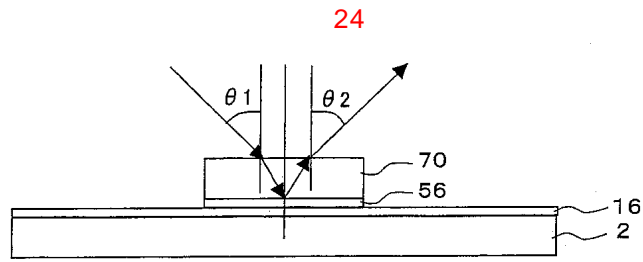


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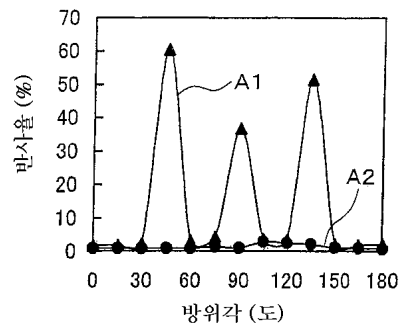




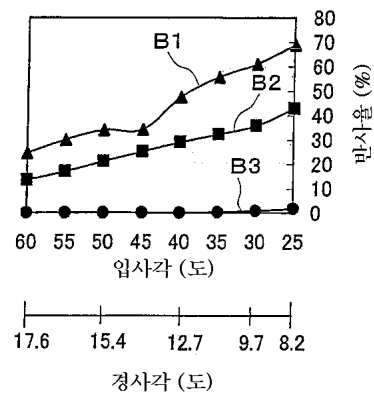




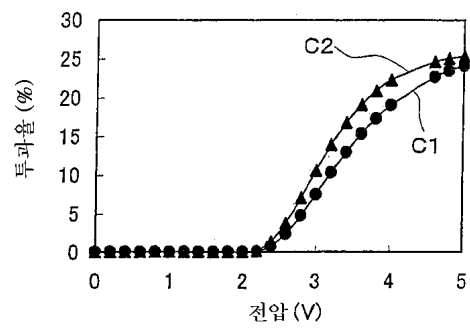
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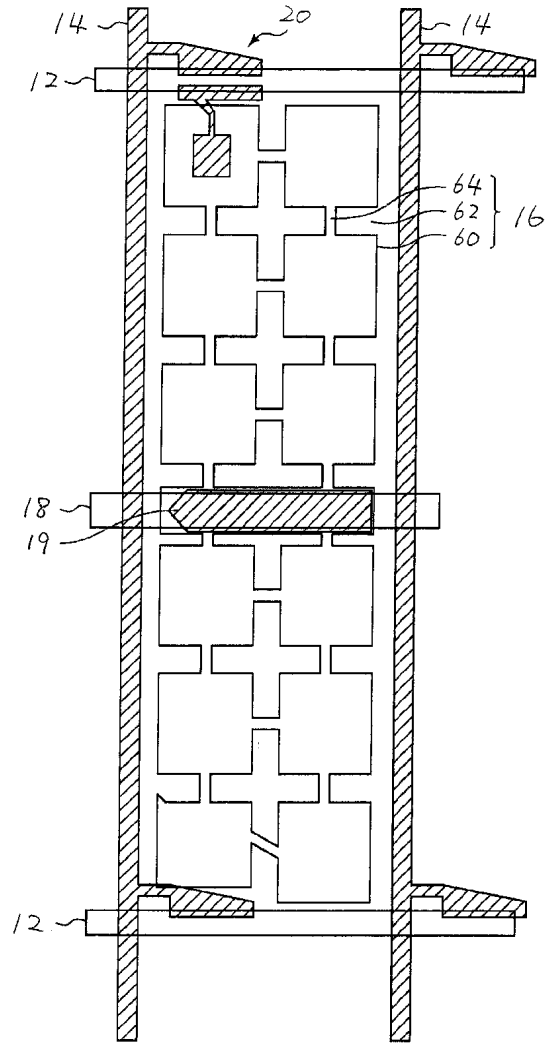
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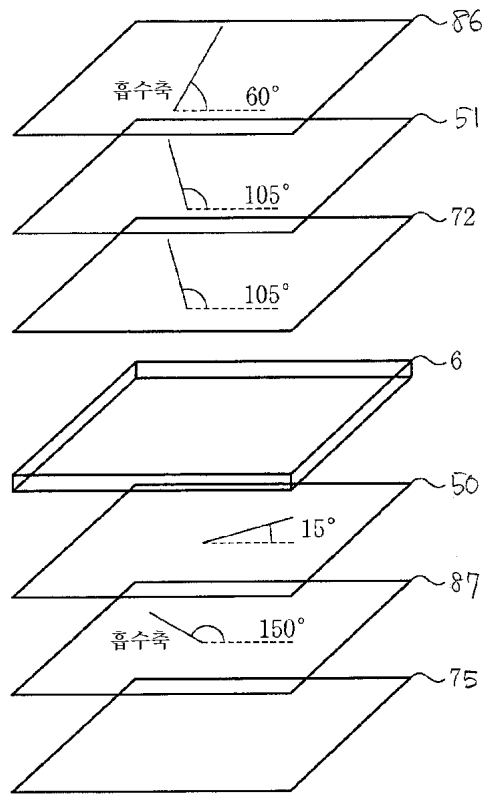
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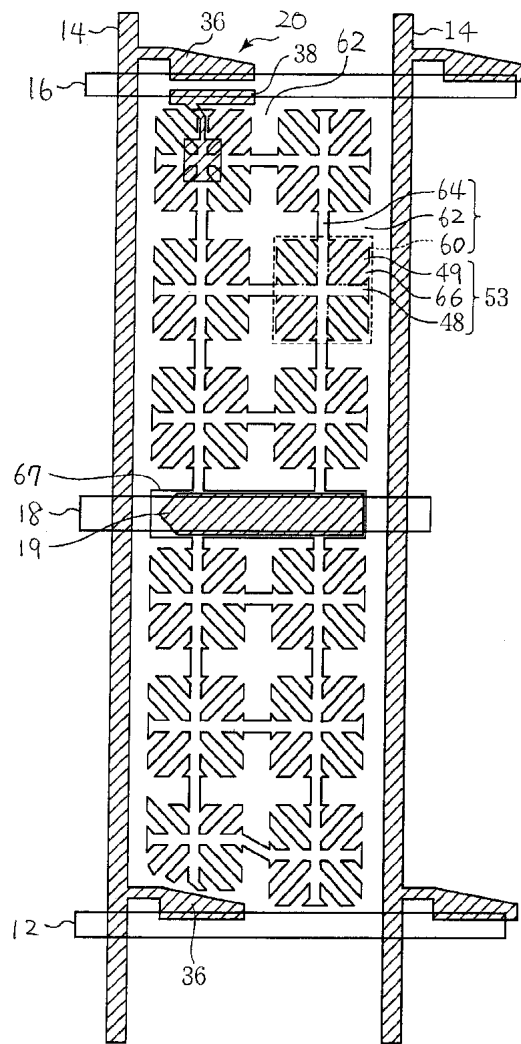
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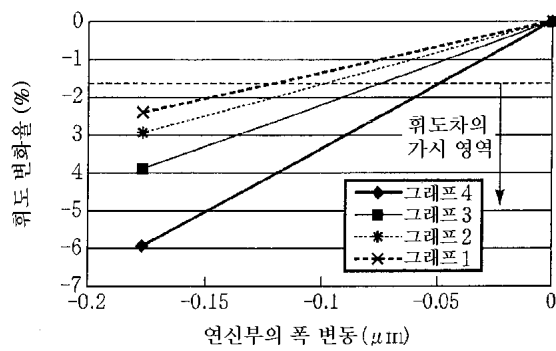
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36



37



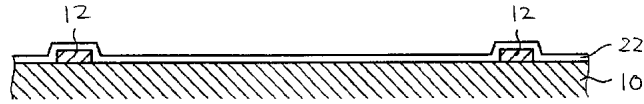
38a



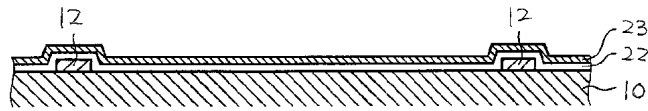
38b



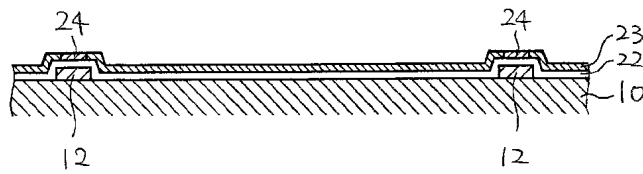
38c



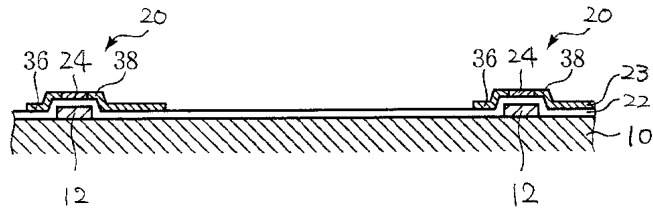
38d



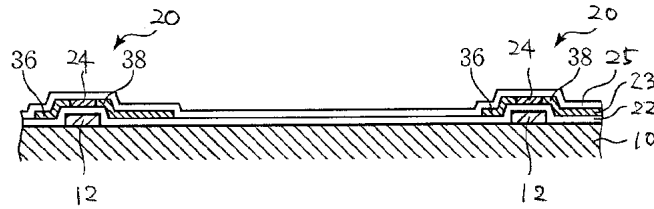
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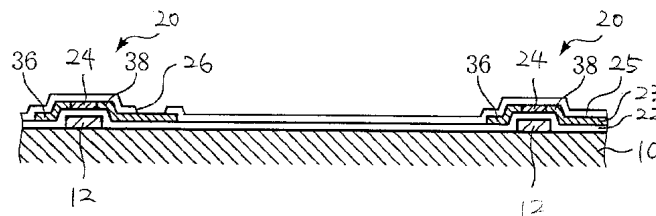
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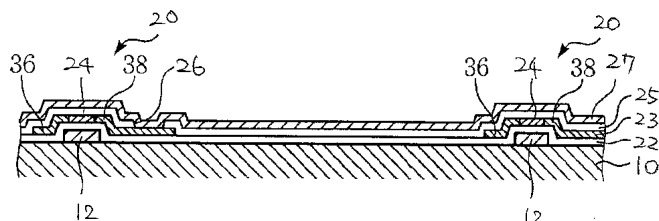
39c

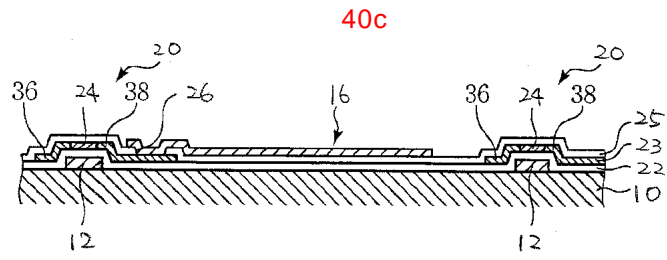


40a

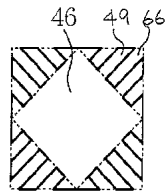


40b

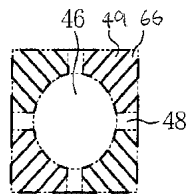




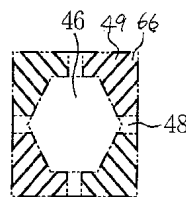
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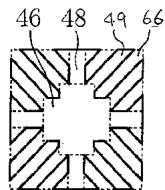
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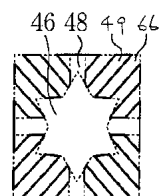
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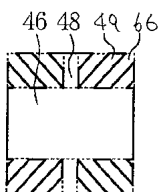
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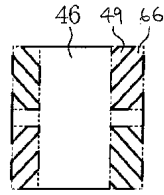
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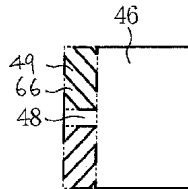
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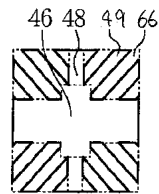
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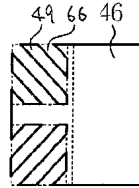
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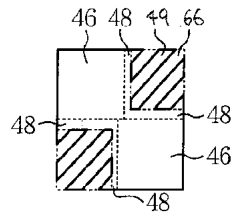
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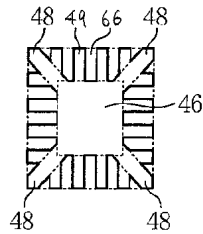
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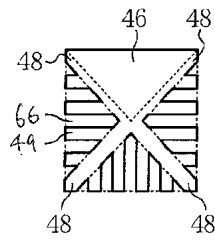
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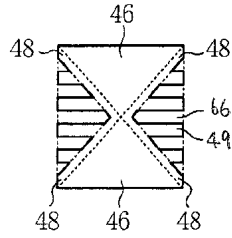
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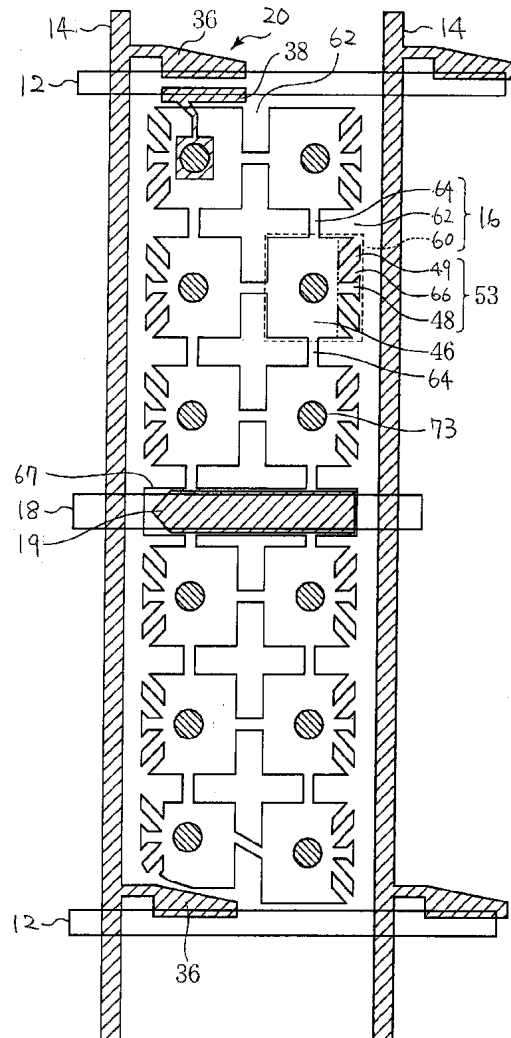
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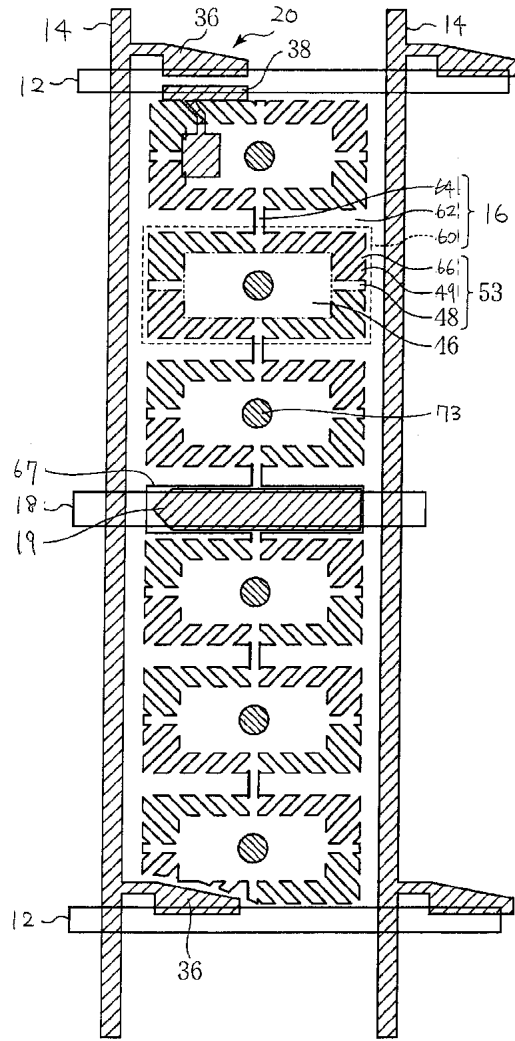
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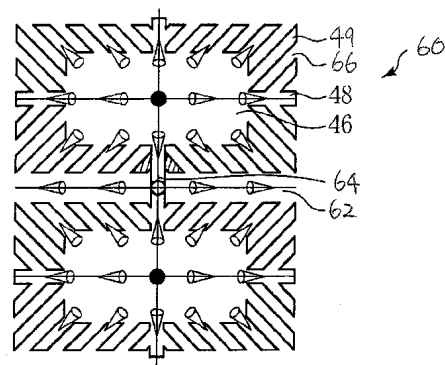
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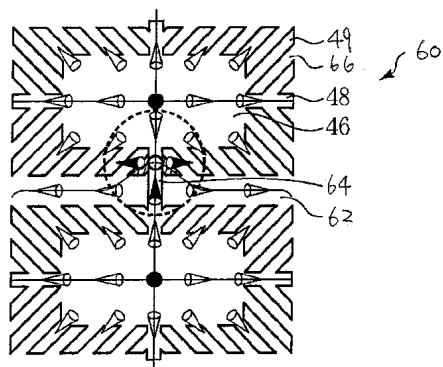
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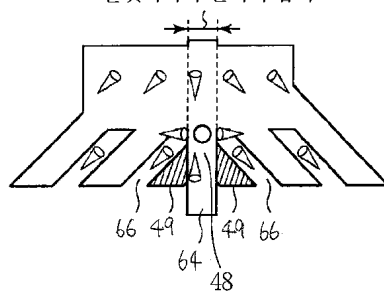


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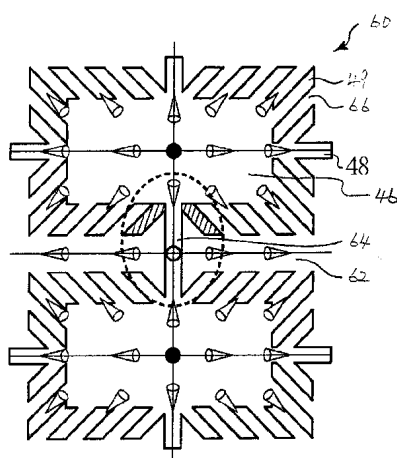


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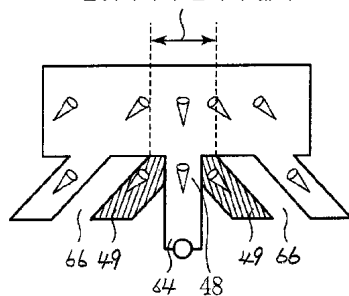


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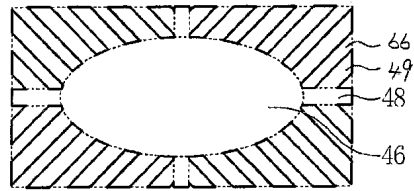


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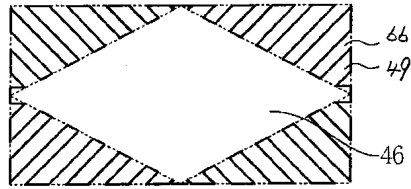
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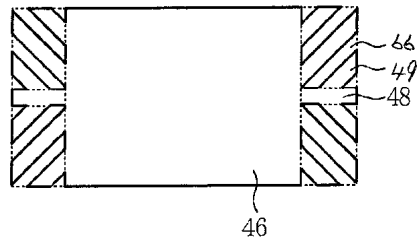
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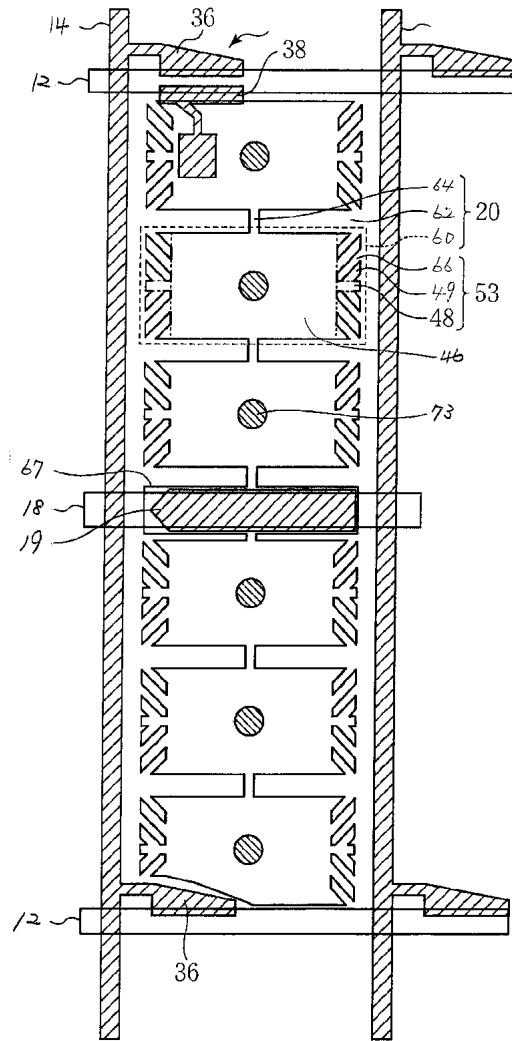
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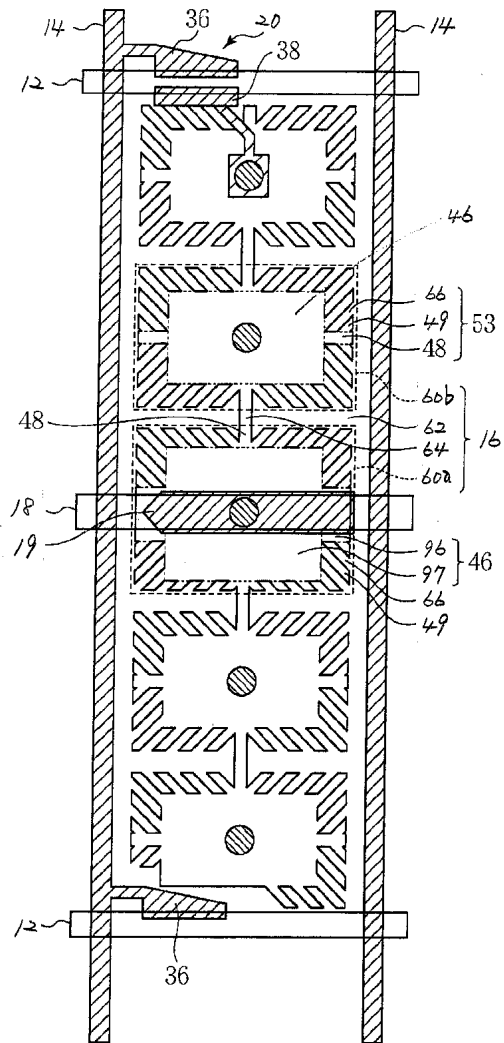
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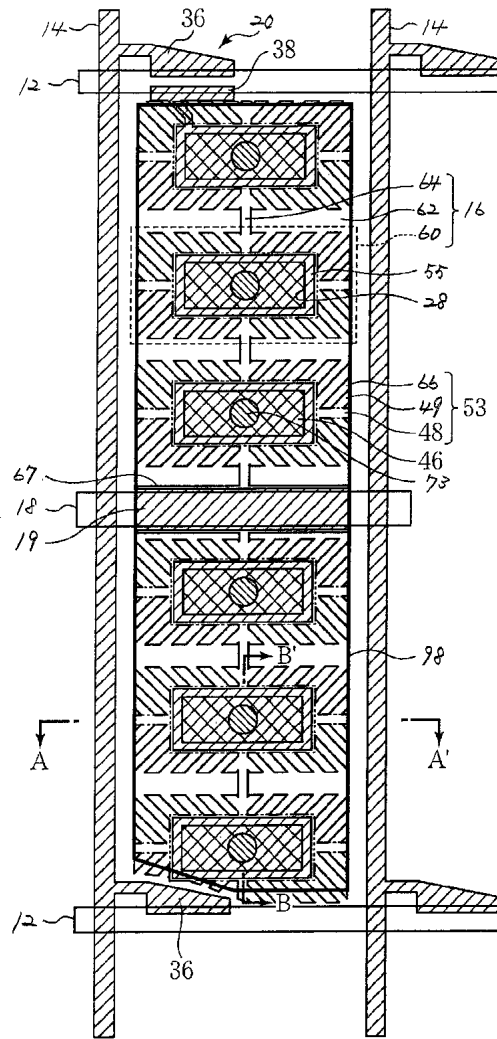
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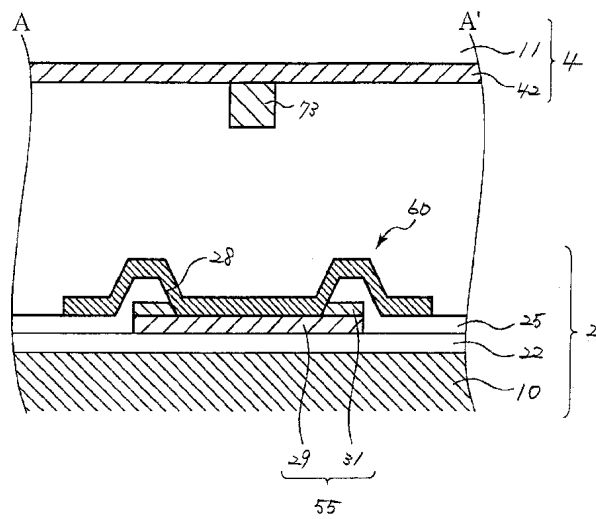
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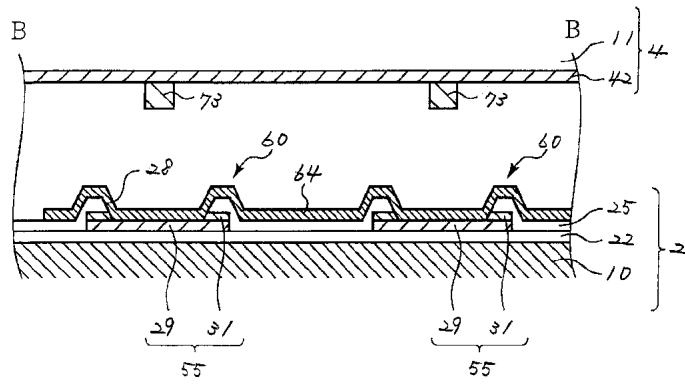
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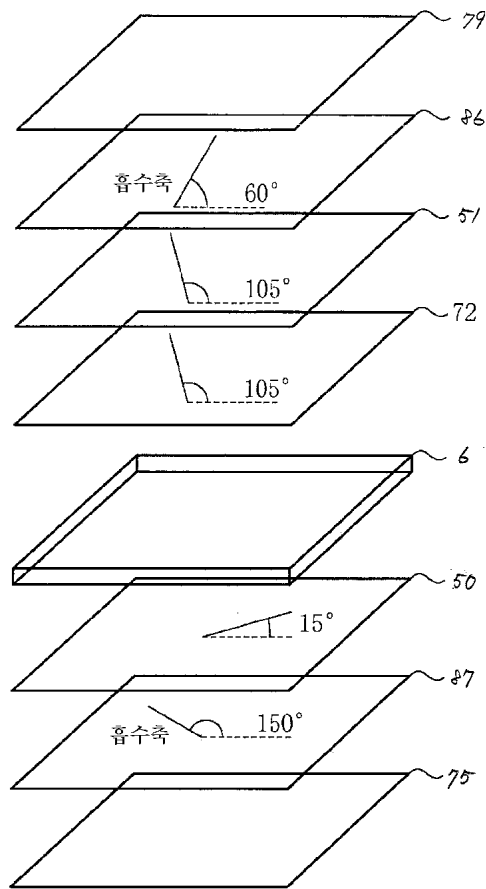
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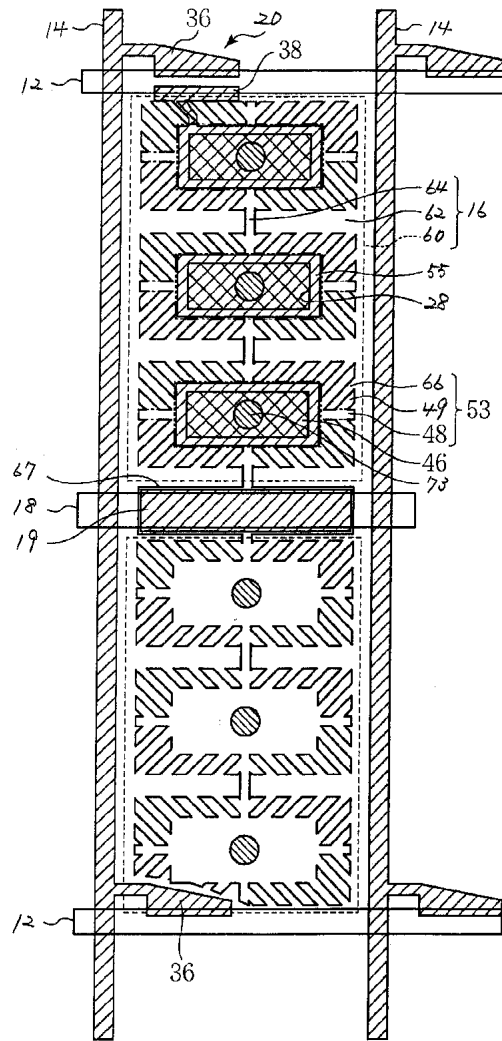
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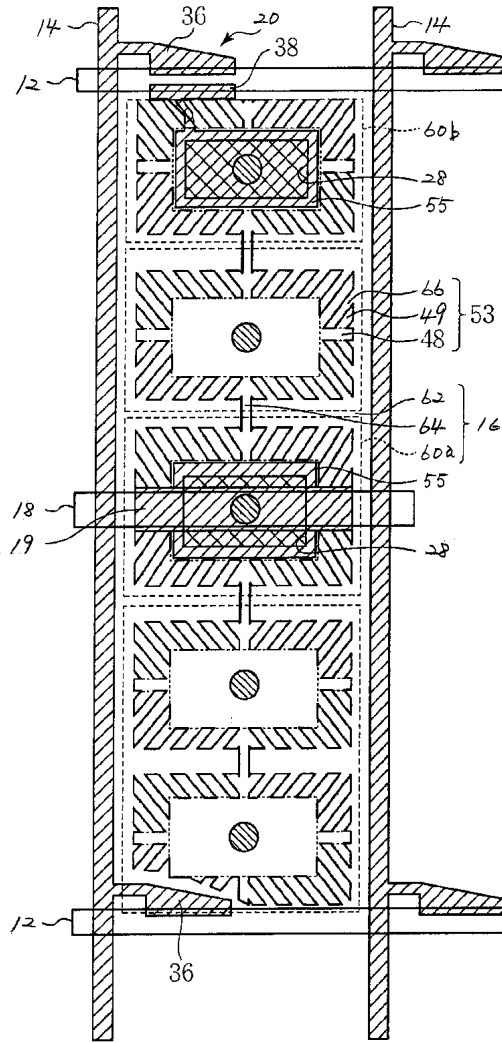
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52

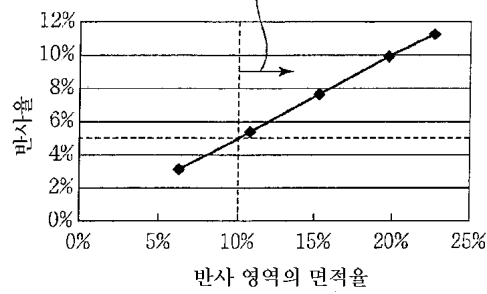


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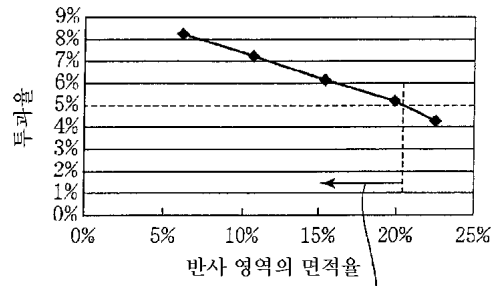


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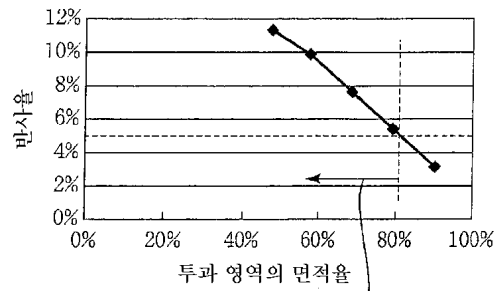


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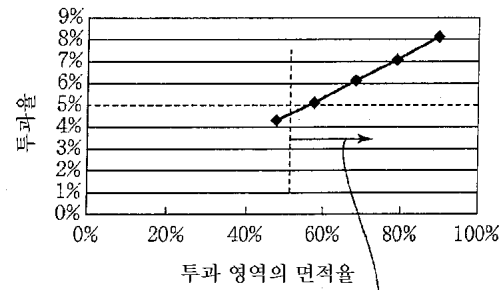
5% 이상의 투과율이 얻어지는
반사 영역의 면적율

55a



5% 이상의 반사율이 얻어지는
투과 영역의 면적율

55b



5% 이상의 투과율이 얻어지는
투과 영역의 면적율

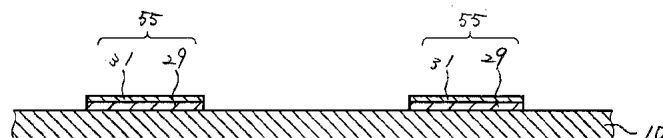
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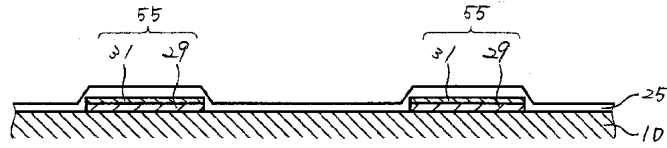
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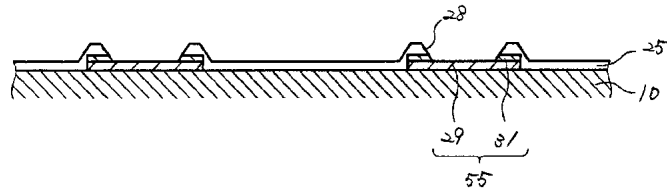
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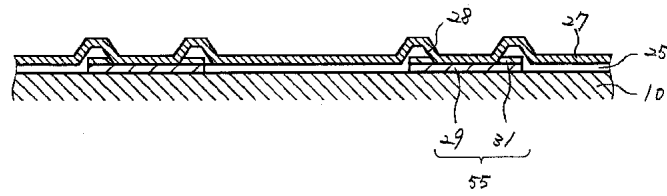
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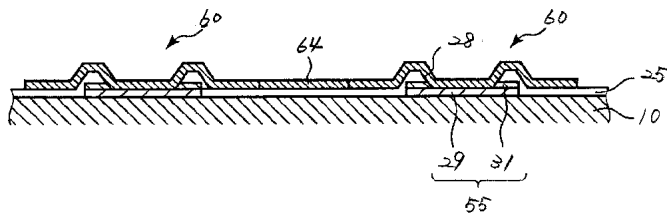
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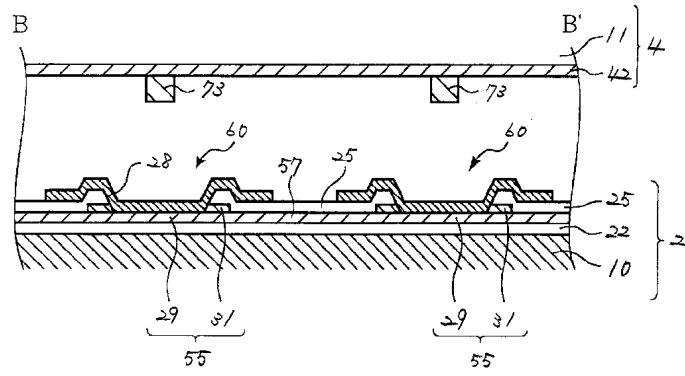
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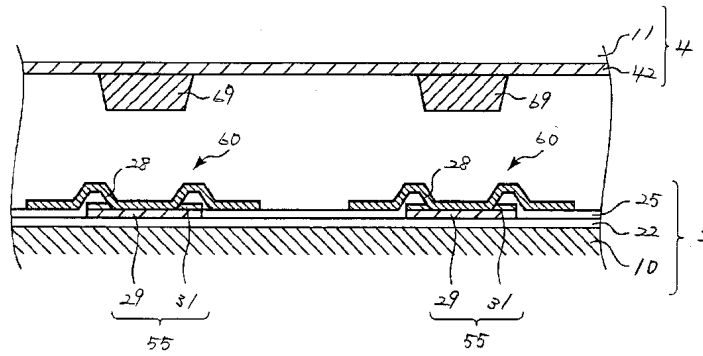
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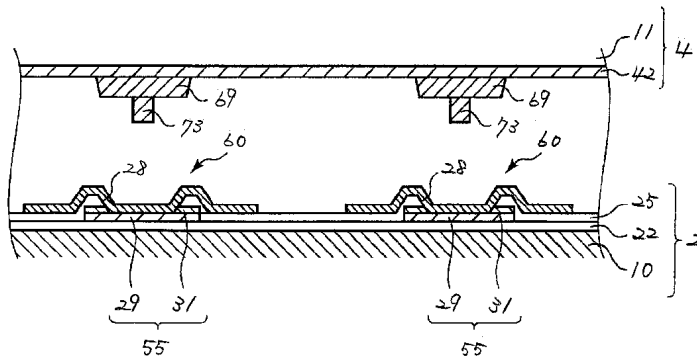
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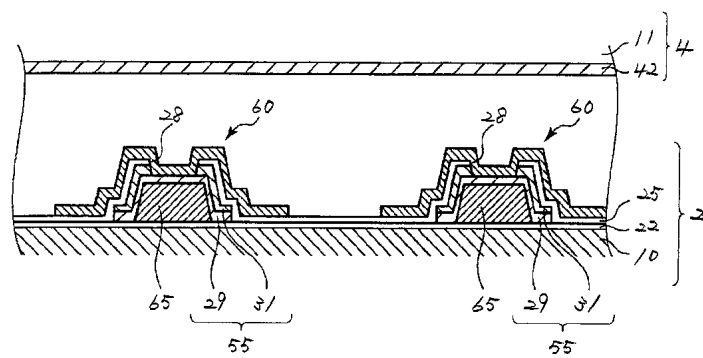
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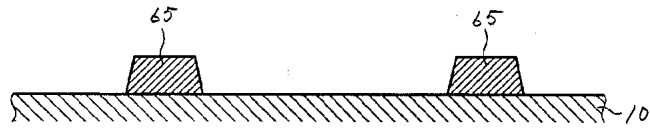
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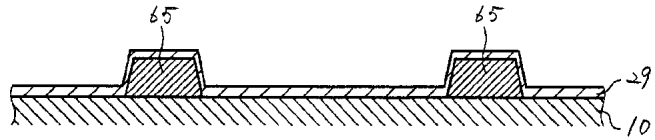
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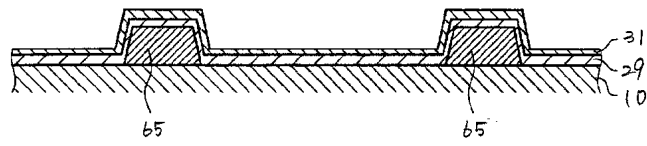
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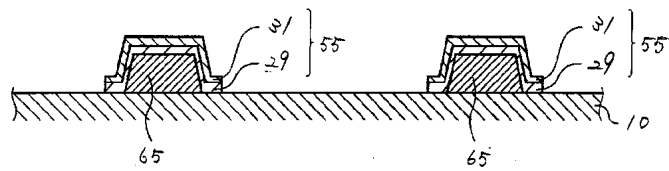
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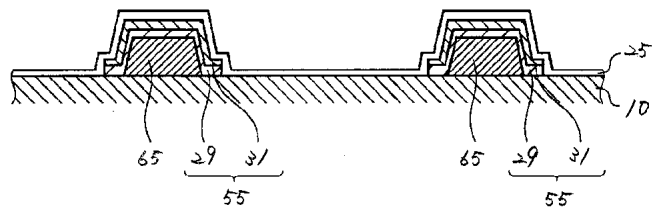
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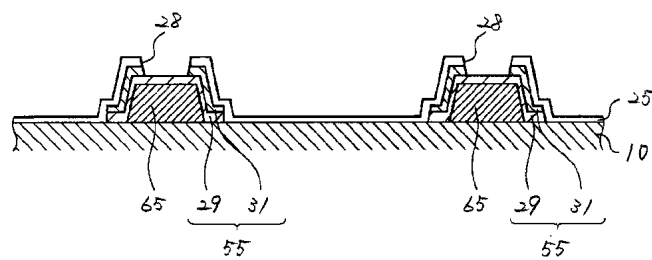
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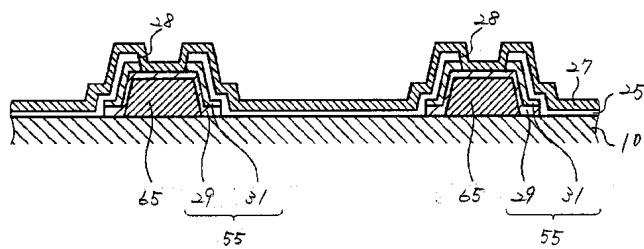
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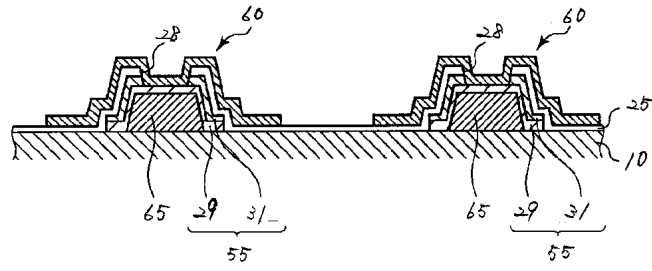
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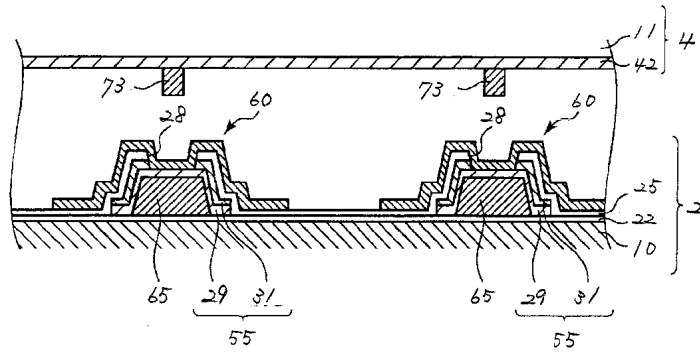
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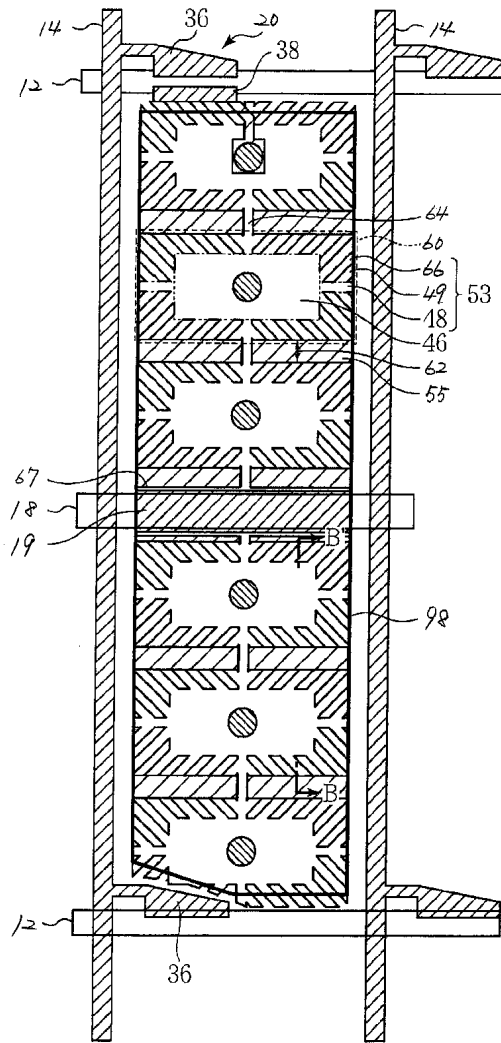
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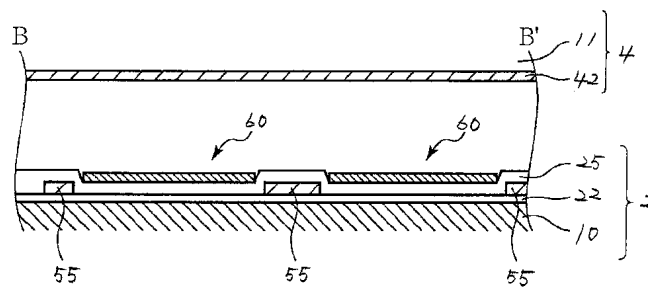
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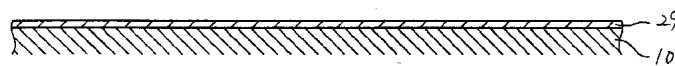
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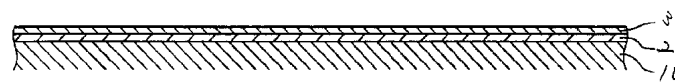
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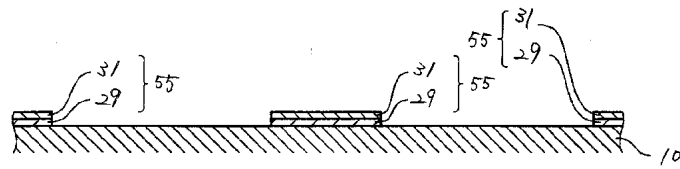
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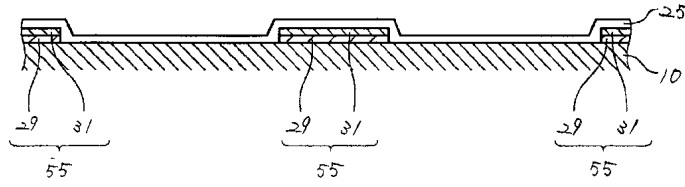
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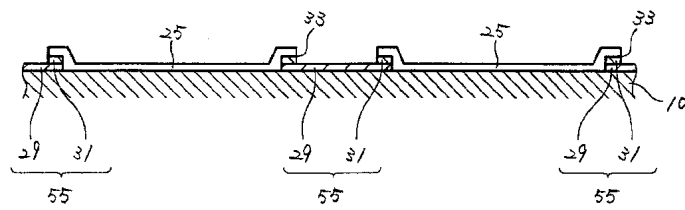
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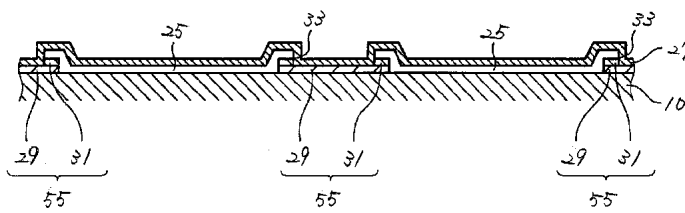
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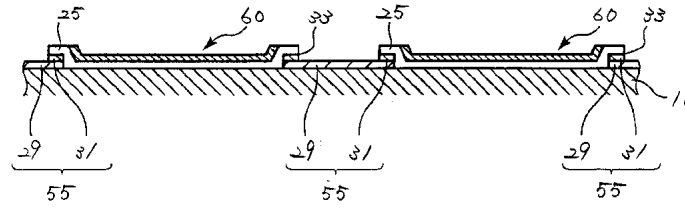
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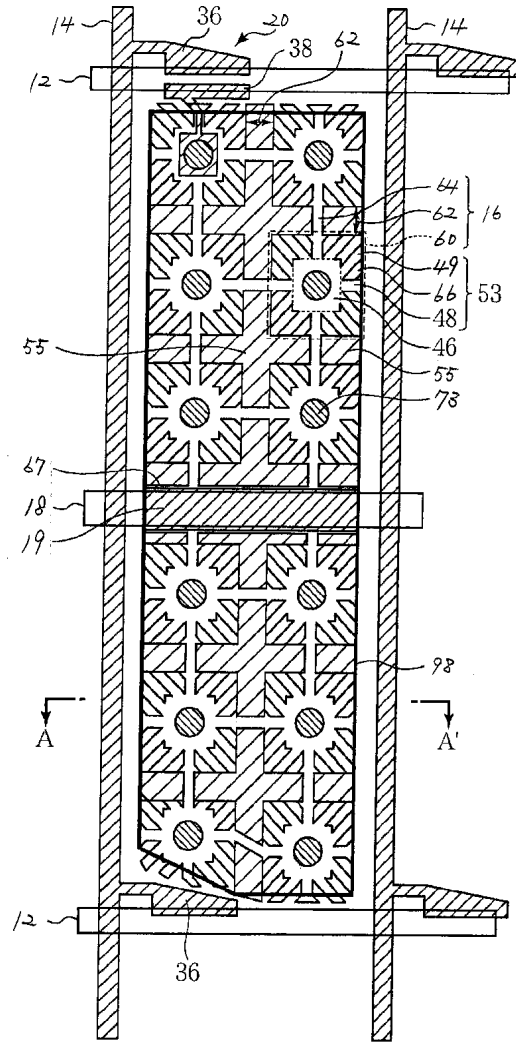
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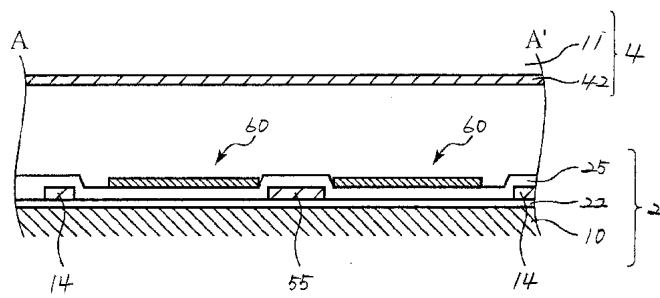
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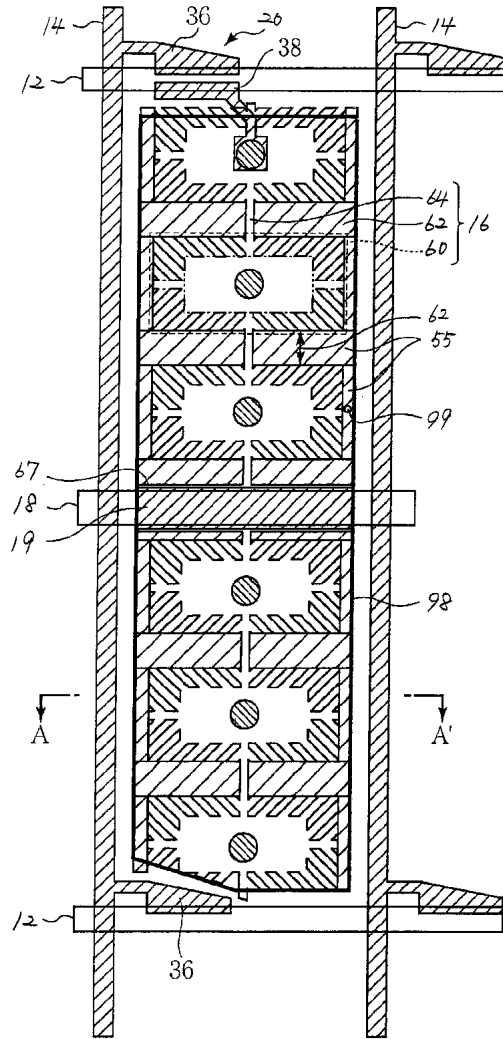
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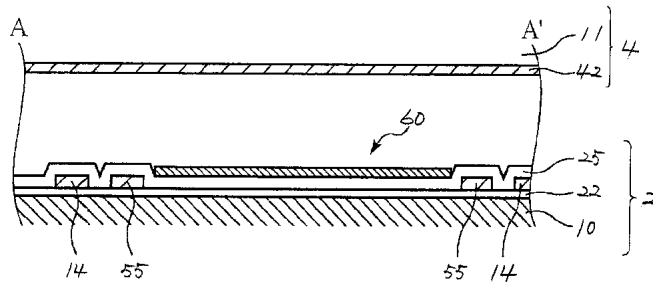
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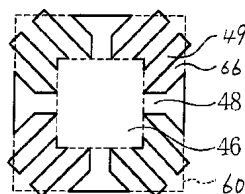
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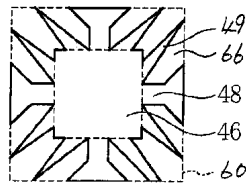
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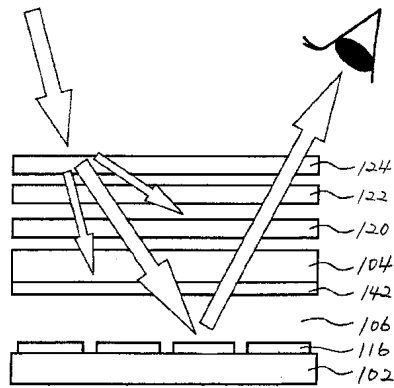
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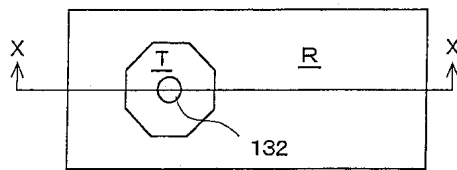
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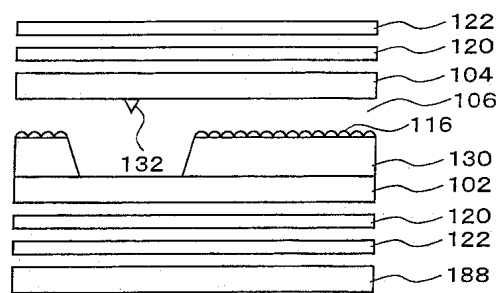
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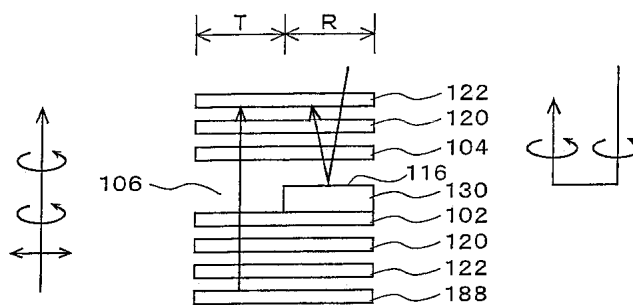
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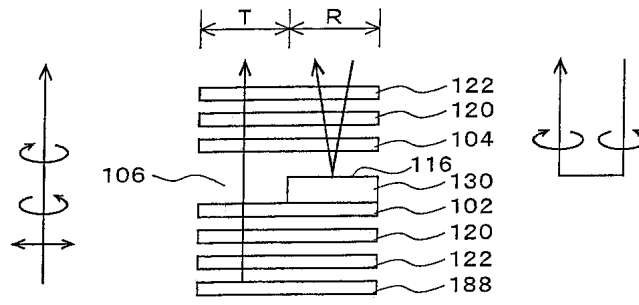
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78a



78b



专利名称(译)	液晶显示装置及其制造方法		
公开(公告)号	KR1020040086782A	公开(公告)日	2004-10-12
申请号	KR1020040021667	申请日	2004-03-30
[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		
当前申请(专利权)人(译)	夏普株式会社		
[标]发明人	YOSHIDA HIDEFUMI 요시다히데후미 TASAKA YASUTOSHI 다사카야스또시 UEDA KAZUYA 우에다가즈야 KAMADA TSUYOSHI 가마다쯔요시 SHIBASAKI MASAKAZU 시바사끼마사까즈 TASHIRO KUNIHIRO 다시로구니히로 KOBAYASHI TETSUYA 고바야시데쯔야		
发明人	요시다히데후미 다사카야스또시 우에다가즈야 가마다쯔요시 시바사끼마사까즈 다시로구니히로 고바야시데쯔야		
IPC分类号	G02F1/139 G02F1/1343 G02F1/1335 G02F1/1333		
CPC分类号	G02F1/133504 G02F1/133371 G02F1/134336 G02F1/1393 G02F1/133707 G02F1/133555 G02F2001/133638		
代理人(译)	CHANG, SOO KIL CHU,晟敏		
优先权	2003095392 2003-03-31 JP 2003095769 2003-03-31 JP		
其他公开文献	KR100849292B1		
外部链接	Espacenet		

摘要(译)

本发明的目的是提供一种用于包括信息设备等的显示单元的液晶显示器和液晶显示器，其中获得了在不增加制造成本之后优异的指示特性作为其制造方法，并且制造方法它们。为了包括配备有反射区域的像素区域和透射配备有反射区域的光的透射区域，以及透射它组织的光的透射区域。液晶（6）被密封在基板（2,4）之间，并且几乎在基板周围的电压许可中垂直对准。具有几乎均匀反射表面并反射光的反射器（54）入射到基板（4）中。透射光的透射区域在基板（2）中入射到基板（4）。液晶显示器，电极单元，基板，液晶，像素电极，总线。

