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2002 - 0075304
2002 10 04

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(22) 2002 03 22

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(71) 가 가
5 7 1

(72) 5 7 1 가 가

(74)
:

(54)

r) (flicke
, 1 2 1 2 1 2 ,
1 2 1 2 .

2

, , ()

1 1 LCD ,

2 1 A - A ,

3	1	B - B	,		
4	1	LCD	2	LCD	,
5	1	LCD	2		,
6		1			,
7		1			,
8		2	LCD		,
9	8	C - C	,		
10	8	LCD	2	LCD	,
11		2	2		,
12		2			,
13		3	LCD		,
14	13	D - D	,		
15	13	E - E	,		
16	20		3	LCD	,
21		3	LCD		,
22	21	(A B)	,		
23	25		3	LCD	,
26		4	LCD		,
27	26	F - F	,		
28	26	G - G	,		
29		5	LCD		,
30	29	H - H	,		
31	29	I - I	,		
32		6	LCD		,
33	32	J - J	,		

- 34 32 K - K ,
- 35 IPS LCD ,
- 36 35 L - L ,
- 37 35 36 LCD ,
- 38a 38c LCD ,
- 39 LCD ,
- 40 39 (A B) ,
- 41a 41b LCD ,
- 42a 42b LCD .

가 , , 가
 , LCD LCD 가

2001 3 23 2001 - 085545

LCD가 . LCD , ()
 (TFT)가 / ()
 TFT () ,
 (Twisted Nematic; TN) LCD (In - Plane Switching; IPS) LCD .
 TN LCD , TFT 가
 가 , TFT
 , IPS LCD , TFT 가

LCD가 , IPS LCD , TFT 가 , LCD가 , IPS LCD .

35 IPS LCD . 36 35 L - L . 3
 5 36 , (100) . 35 36 , (103) TFT (101)
 (102) . TFT (101) , 1 (106),
 1 (106) 1 (107), 1 (106) ((109)
 , 108), 1 (106) (109), (108) (109)
 (110), (108) (110)
 (113), (113) (116) (117), (1
 10) (117) (116) (121) (122),
 (121) (122) (125), 1 (127)
 (121) (122) (125) (121) (122)
 1 (127) . (108), (113), (11
 6) (117) TFT(129) .

, (102) 2 (131), 2 (131)
 (132) 2 (131) 2 (133), 2 (131)
 (134), (134) (135), (134)
 (135) (136), (136) 2 (137)
 (139) (103) .

LCD , (100)
 (121) (103) 가 , 가 . , (Ve)
 (122) TFT(129) (121) . 37 , (Vc)
 (109) 가 , (103) (Ve) (Vc) (Vd1 Vd2) (
) , (103)

, (Ve) (121) (103)
 , 가 , (one - horizontal - rever
 se driving method)" (10
 0) 38a (100)
 , " " , ,
 (100) 38b (100)
 , " " , (100)
 38c .

39 LCD , 40 39 (A B) .

39 , (151) (100) (108)
 (108) (100) (152)
 (122) (122) (100)
 (153) (120) (Vc) (120) (100)

40 (A) (122) (122A) (122A)
 ITO(Indium Tin Oxide) (122a) (B) (108)
 (108A) ITO (108a) (120) (120A)
 ITO (120a)

LCD (100) 가
 (flicker) 가 41a
 41b
 LCD가, (100) (Ve)
 (122) (121) TFT(129) ON (103)
 37 (Vd1 Vd2)
 (Vc) (Vd1) (Vd2)
 (100)

CD가 (100) L
 2000 - 235371 42a LCD
 42b 42a LCD 42a 42b
 (201c), (202c), (202d), (209), (201c) (20
 2c) TFT(203c), (201c) (202d) TFT(203d),
 (204c), (211) (204c) (210d), (209)
 (211) (204d) (209)
 (204c) (208c), (209) (204d)
 (208d)

LCD , 38a
 가 (204c) (100)
 (204d)
 (100)

LCD (100)
 가 (100)
 (aperture ratio)가 가 2000 - 235371 LCD
 , 42a 42b , TFT(203c) (204)

(202c) TFT(203d) (204d) (202d)

가 , (100) 가 ,

IPS LCD , 35 36 , (109) IPS LCD

(121) , LCD , LCD , 42a 42b , LCD LCD

1 (LCD) ,

가, 1 2 , 1 2 1 2

1 2 , 1 2 1 2 가 ,

1 2 , 1 2 1 2 1

1 2 , 1 2 1 2 1 2

1 2 , 1 2 1 2 1 2

가 1 2 1 2

1 2 1 2

, 2 1 1 2 2

, 1 2 2

, , .

, , 가 , ,

2 1 2 , 1 2 가 1 2 1

1 1 ; 1 1

1 2 ; 1 2 1 2

2 , 1 1 2 2 2 2 2 2

, 3 , 3 , 2 , ,

1 , 2 , 1 2 TFT 1 2 , ,

, 가 , LCD 가 ,

[1]

1 , 3 LCD , 1 B-B , 4 1 LCD 2 1 A-A (24)
 LCD . 5 1 LCD 2 (24)
 . 6 1 (21) 2 (23) 1 (22) 2 (24) 1
 (22, 24) (Ve1, Ve2) . 7 1
 PS LCD (5) 가 . 1 , I

1 LCD , 1 5 , (3) TFT (1) (2)
 . TFT (1) , 1 (6), 1 (6) 1
 (7), (Al), (Cr), (Mo) 1 (6)
 (8), Al, Cr, Mo 1 (6)
 (9), (SiO_x) , (SiN_x) , SiO_x SiN_x
 1 (10), (a-Si) n⁺ (n
 + a-Si) (ohmic) 1 () 가 1 (13), a-Si (n
 n⁺ a-Si 2 () 가 2 (14) . 1
 (13) 2 (14) , (8) 1 (10) , 1 2 (13
 14) (8) 1 (10) . , TFT (1) , Al, Cr, Mo
 1 (13) 1 () 1 (16), Al, Cr, Mo
 1 (13) 1 () 1 (17), Al, Cr, Mo
 2 (14) 2 (12A) 2 (18), Al, Cr, Mo
 2 (14) 2 (12B) 2 (19), Al, Mo, (Ti)
 1 (10) 1 (17) 1 (16) 가 1 (2
 1) 1 (22), , Al Mo, Ti 1 (10) 2 (19) 2
 (18) 가 2 (23) 2 (24) . 2 (24) 1
 (22) 2 (24) (25) 1 (22) 2 (24)
 . , TFT (1) , SiO_x , SiN_x , SiO_x SiN_x ,
 1 2 (13 14) (25) 2 (26)
 , 1 2 (21 23) 2 (24) 1 (27) .

(2) 2 (31), 2 (31)
 (32) 2 (31) 2 (33), 2 (31)
 (34), (34) (35), (34) (35)
 (36), (36) 2 (37) . (39) (3)

LCD , (8), 1 (13), 1 (16) 1 (17)
 1 TFT(29) . 가 , (8), 2 (14), 2 (18), 2 (19) 2 T
 FT(30) . 1 TFT(29) 2 TFT(30)가 1 (10) (8)
 , 1 2 TFT (29 30) (8) . 1 (22) 2
 (24) 가 . 1 (22) 1 (22) 1 TFT(
 29) 1 (16) , 2 (24) , 5 가 ,
 (25) 2 (26) (28) 1 TFT(29) 2 TFT(30)
 2 (18) . , 1 (22) 1 TFT(29) 1
 (21) 가 . , 2 (24) 2 TFT(30) 2 (2
 3) 가 . 6 1 1 2 (22 24) 1 2 (21 23)

22) LCD (7) (24) (Ve1) (Ve2) (Vc) t1 (V1) t2 (V2) t3 (V3) (Ve2) (Vc) t1 (Ve1) (-V1) t2 (-V2) t3 (-V3) (21) 가 (21) (Ve2) 2 (24) 2 TFT(29) 1 (23) 가 (23) 가 (3) 가

(21 23) 가 (5) 가 (5) LCD (22 24) 1 (22) (25) 2 (24) (5) (22, 24) (22 24) 가 (2) 1 23) (9) IPS LCD가 Al, Cr, Mo (2

1 2 (21 23) 2 (24) (3) 1 (27) (3) (27) 50nm (3) Al, Mo, Ti, (22 24) 1 (22) 2 (24) (24) 가 (24) 1 (22) (24) 가, 1 (22) 2 (24) (25) 가 1 3 (25) (1) (2) (3)

[1]

(1)				
SiN _x	1 3μm	6.4	CVD	
SiN _x /SiO _x	1μm/0.5μm	6.4/4.0	CVD/	
	1 2μm	4.5		
SiN _x /	0.15μm/1 2μm	6.4/4.5	CVD/	

[2]

(2)				
SiN _x /	0.15μm/1 2 μm	6.4/3.3	CVD/	/SiN _x
SiN _x /	0.15μm/1 2 μm	6.4/ -	CVD/	/SiN _x

[3]

(3)				
BCB(benzocyclobutene)	1 2μm	4.5		
	1 2μm	3.8		
(siloxane)	1 2μm	-		

IPS LCD , 가 1 2 (21 23) (9)
 , 1 2 (21 23) (25) , (3)
 가 2 (25) 가 (3)

LCD , 1 2 TFT (29 30) 1
 2 (21 23) 가 1 2 (22 24) , 1 (22) (
 25) 2 (24) , (5) 1
 2 (22 24) 가 (22, 24)
 (22 24) 가
 (5) ,

[2]

8 2 LCD LCD 9 8 C-C
 , 10 8 LCD 2 (44) , 11
 2 LCD 2 (44) . 12 2 (2
 2, 44) (21, 23)
 2 LCD , (21, 23) (22, 44)
 (22, 24) 가 , 1 .

, 2 LCD , 8 11 , 1 2 (24) , 2
 (24) 2 (44) LCD , 1 (22)
 1 TFT(29) (5) 1 (21) (5)
 2 (44) 2 TFT(30) 2 (23) 12 1 2 (2
 2 44) 1 2 (21 23)

, 12 , 1 1 (21) 가 1
 (22) 1 2 (5) 2 (23) 가
 2 (44) , 1 (22) 2 (44) (25) 2 (4
 4) , 1 (22) 1 (22) 2 (44)
 가 , (22 24)
 8 10 , 1 4 , ,

, 1 가 2 , 2
 , (22, 24)

[3]

13 3 LCD 14 13 D-D
 , 15 13 E-E , 16 20 3 LCD
 , 22 21 (A B) 21 3 LCD
 , 1 2 (22 24) (9) 3 LCD , 13 15 LCD
 (9) 1 2 (41 43) (9) , 1

, 3 LCD , 13 15 , 2 (40) 1 (21), 2
 (23) 2 (24) 2 (40) , 2 (26) 3
 (42) 3 (42) ITO 1 2 (41 43) ITO
 (9) 1 (41) (25) 2 (26) (38) 1
 (17) , 2 (43) (25), 2 (26) 3 (42)
 (38') 2 (19)

LCD , 14 15 , 가 1 (21 41), 2
 (23 43) (9) , 1 2 (41 43) (9) 가 (
 3) 1 (27) (3) , 가 (3) 가
 (9) , (34)

, LCD
 M - M, N - N O - O 16 20
 22 M - M , N - N O - O 16 20 ,

, 16(a) , Cr 1 (6)
 , Cr , (8) (9)

, 16(b) , SiO_x SiN_x
 1 (10) CVD (8), 1 (6) (9)
 16(c) , a - Si (12) n⁺ a - Si (15) 1 (10) CVD

, 16(d) , a - Si (12) n⁺ a - Si (15)
 a - Si (15) 1 (10) (14) , 16(e) , n⁺
 (22) , 2 (18), (19), 1 2 (21 23) 1
 6(f) , 16(e) 1 (22) , (20)가 1
 , 2 TFT(30)가 , 1 TFT(29) 1 (6)

, 17(g) , SiN_x (45)
 CVD (46) , 17(h) , 2 (26)
 38A) SiN_x (45) , 17(i) , (28A)
 (28B 38B) (46) , 18(j) ,
 , SiN_x (45) , (28A 28B)
 , (28)

, 18(k) , Mo
 Mo , 2 (24) 2 TFT(30) , (18)
 , 19(l) , 3 (42) (47)
 (47) , 19(m) , (38C)
 , (38A, 38B 38C)
 , (38) (46) 2 (26)
 (47) 3 (42)

, 20(n) , ITO , ITO
 , LCD 1 2 (41 43) (9)
 LCD , 가 LCD

21 22 , (51) (8) (8)

(22 24) (53) (4) 가 1 2 (22, 24) (52) 1 2 (4)

22 , (A) , 1 2 (22A 24A) (22A 24A)(22) (22A 24A) 1 2 (22) 2 (24) (22b) 가 , 2 (22A) ITO (22a) 1 (24b) 가 (24A) ITO (24a) 2

, 22 , (B) (8) (8A) (4) (4A) , (8A) , ITO (8a) (8b)가 (4A) , ITO (4a) (4b)가

, 2 (26) LCD
 22 M - M , N - N O - O 23 25 , M - M, N - N O - O

, 23(a) , Cr 1 (6) (8A)
 , Cr (4A)가

, 23(b) , SiO_x SiN_x 1
 (10) CVD , 23(c) , a - Si (12)
 n⁺ a - Si (15) CVD

, 23(d) , a - Si (12) n⁺ a - Si (15) 가 , Cr
 , CVD SiN_x (45) (22) , 23(e)

, 23(f) , 2 (26) (46)
 , 24(g) , (46)
 , (55A, 56A 57A) , 24(h) ,
 (55B, 56B 57B) SiN_x (45)

, 24(i) , Mo , MO
 , 25(j) , 3 (42) (24) 2 TFT(30) (18)
 , 25(k) , 가 (47)
 , (55C, 56C 57C) , (55A 55C, 56A 56C,
 57A 57C) , (55, 56 57)

22a) 25(I) , ITO , ITO
 (24a)가 , 가 ITO (8a, 8b), 1 (A B)

1 가 3

3 (3) , 1 2 (21, 23) (9) (3) , 가 (22, 24)
 (34)
 , (9) LCD 가

[4]

26 4 LCD , 27 26 F - F
 , 28 26 G - G . 4 LCD ,
 , 1 (22) , 1 2 (21 23) LCD , 27 (25)

4 , 1 2 (21 23) , (25) , ()
 3) (3) , 1 2 (21 23) Al, Mo, Ti
 , (21, 23) 가
 , 1 가 4
 , (21,23)

[5]

29 5 LCD , 30 29 H - H
 , 31 29 I - I . 5 TFT
 2 1 (21 23) 1 (22) 5 LCD , (35B) TFT (10) 1 (35B)
 (35G) (35B) (35R)
 (34) (36) , (34), (35G), (35B) (35R)
 . (36) 1 (22) 2 (24) (36), (34),
 (35B, 35G, 35R) (25) 1 (22) 2 (24)

, TFT (1) 1 (22), (25), (35B, 35G, 35R),
 (34), (36) 2 (24) , , (2)
 , (3) TFT (1) (2) , TFT (1)
 (2) 가 , 가 ,

가 .

, 1
가 가 .

가 5 . ,

[6]

32 , 34 6 32 K - K LCD , 33 32 J - J
T (1) 1 (10) 1 (22) 1 TTF(29) 32 34 TN LCD , TF
, 2 (24) , 1 (22) 2 (24) 1 TTF(29) 1 (21)
24) 1 (22) , 1 (27) 2 (25) 2 (24) (2)

, (2) (36) ITO (9) 2 (37) (9)

, 6 LCD 1 , 32 34 ,
1 4

6 LCD TTF (1) , IPS LCD (25) 2 TN LCD 1
(22) TTF (1) ,

, 1 6 TN LCD , 가 6 가 가 . ,

TFT MIM(Metal Insulator Metal) , TFT가 ,
2 , , LCD LCD

1 2 , 가 1 2 , 1 2 TFT () ,
, 가 , 가
() . ,

(57)

1.

가,

1 2

, , 1 2
1

2

1 2
1 2
,

1 2
가 ,

1 2

, 1 2
1 2

1

2

1

2.

1 , , ,

3.

1 , 1 2 , , 1 2

4.

1 , 1 2 1 .

5.

1 , 1 2 2 .

6.

1 , 가 1 2

7.

6 , 1 2 1 2

8.

1 , .

9.

3 , .

10.

9 , 2 , 2 1 2 1

11.

1 , 1 2 2

12.

11 , .

13.

1 , , ,

14.

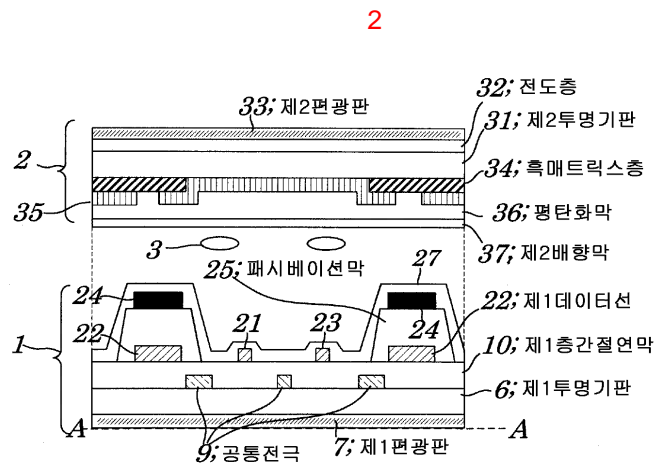
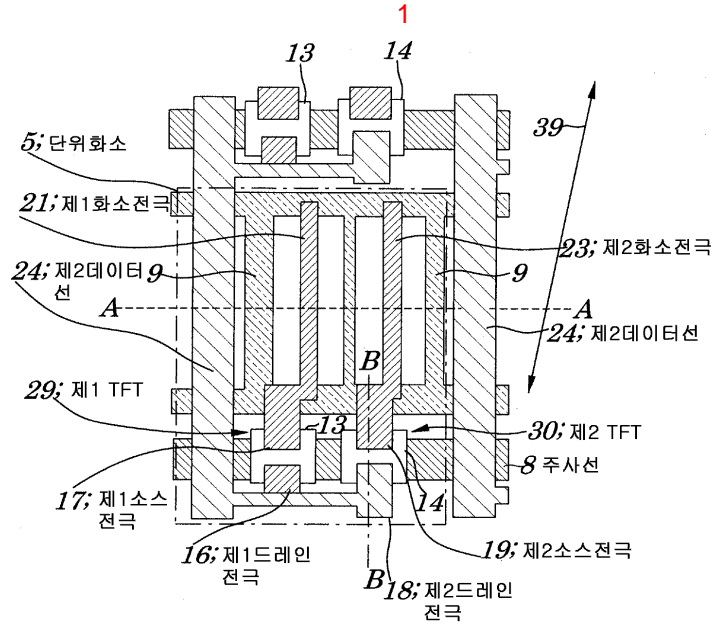
가 1 2 , 1 2 1 2 , 1 2 1 2 1 2 ;

1 2 ; 1 2 1 2 1 2

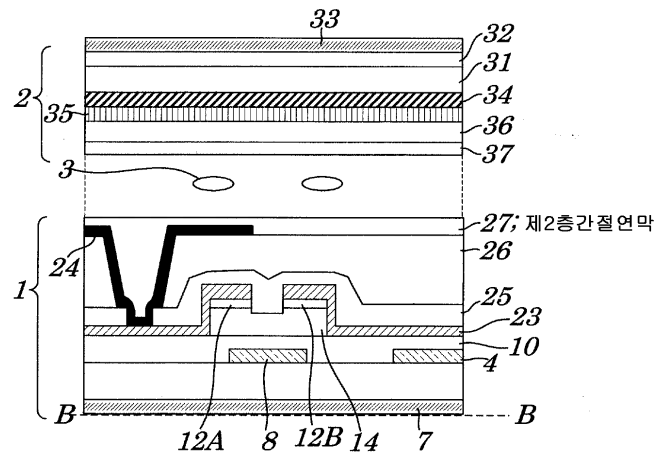
2 , 1 2 2 1 2 2 2 2 2

15.

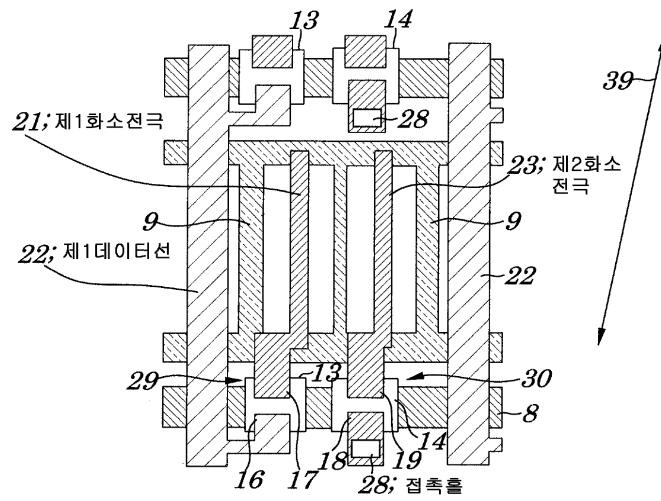
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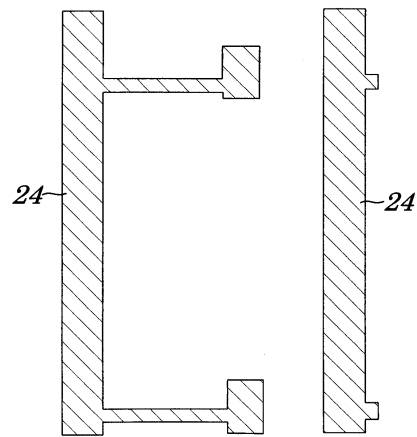
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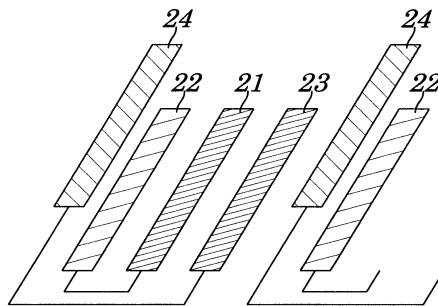
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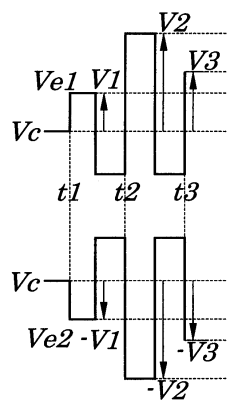
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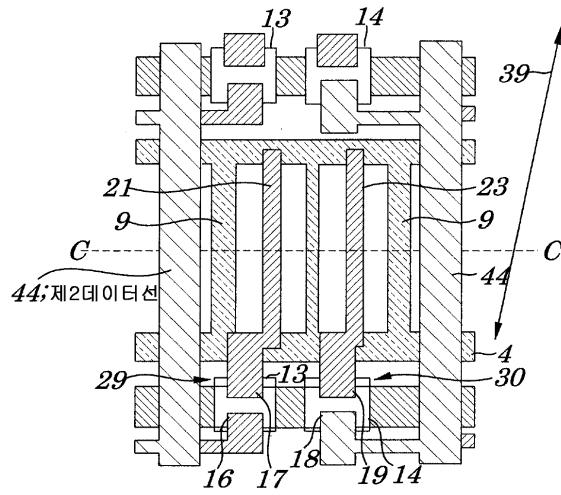
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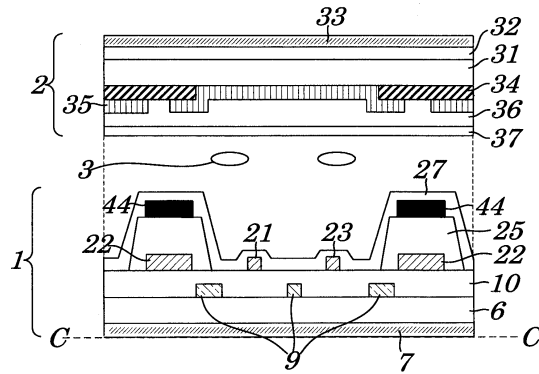
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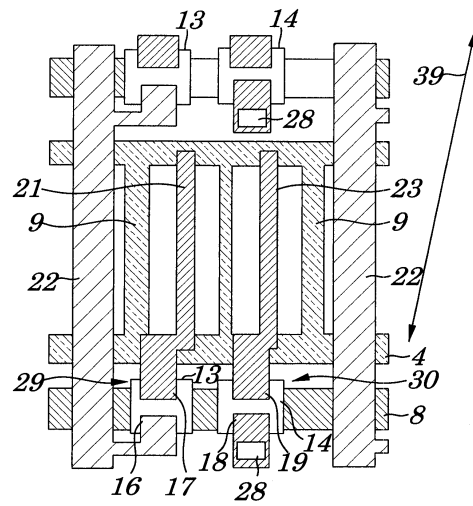
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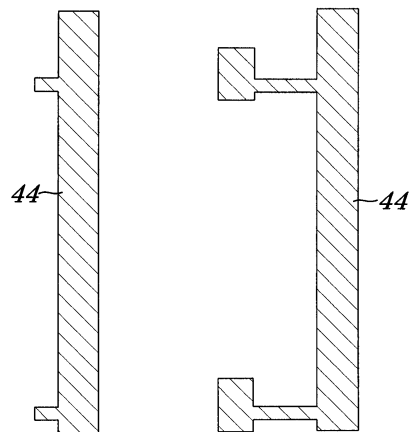
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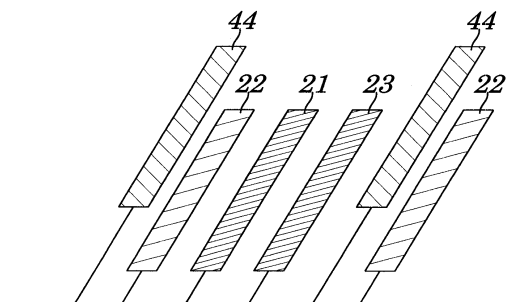
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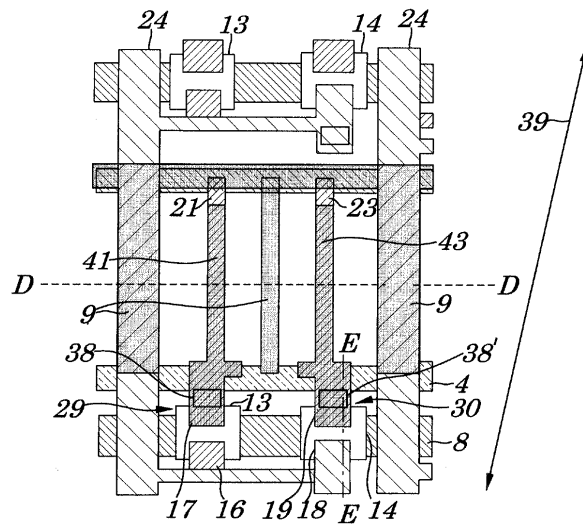
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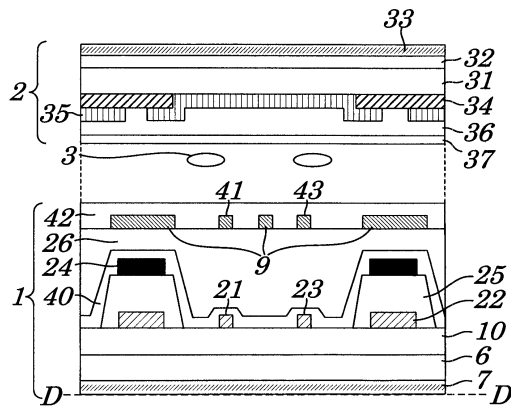
12



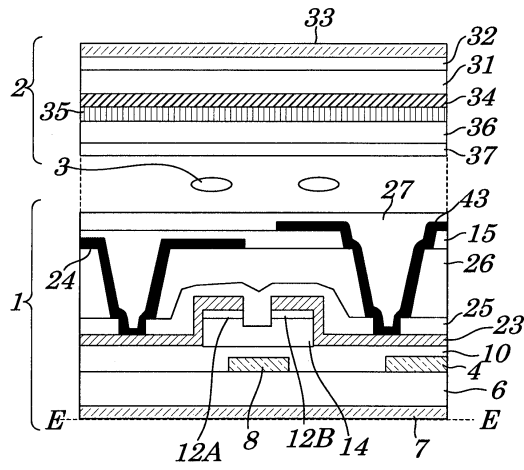
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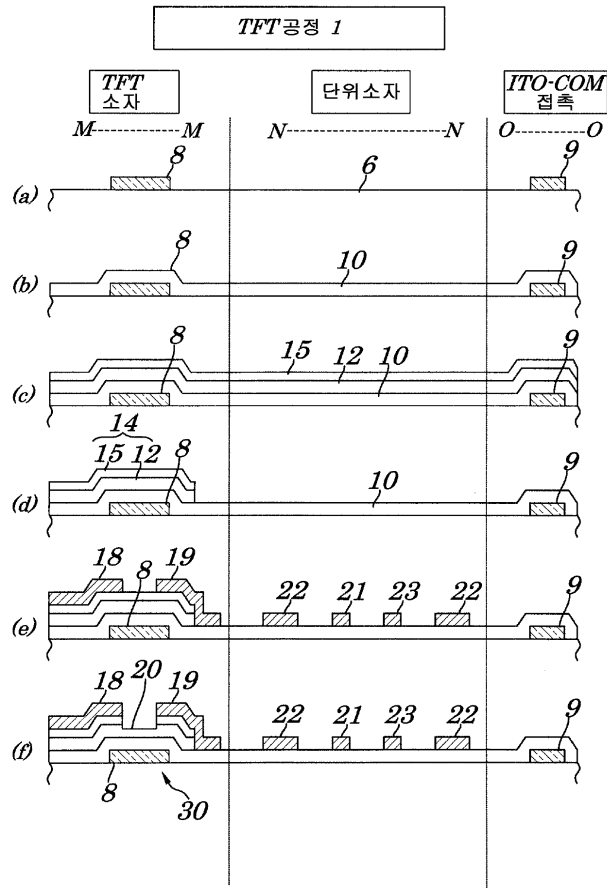


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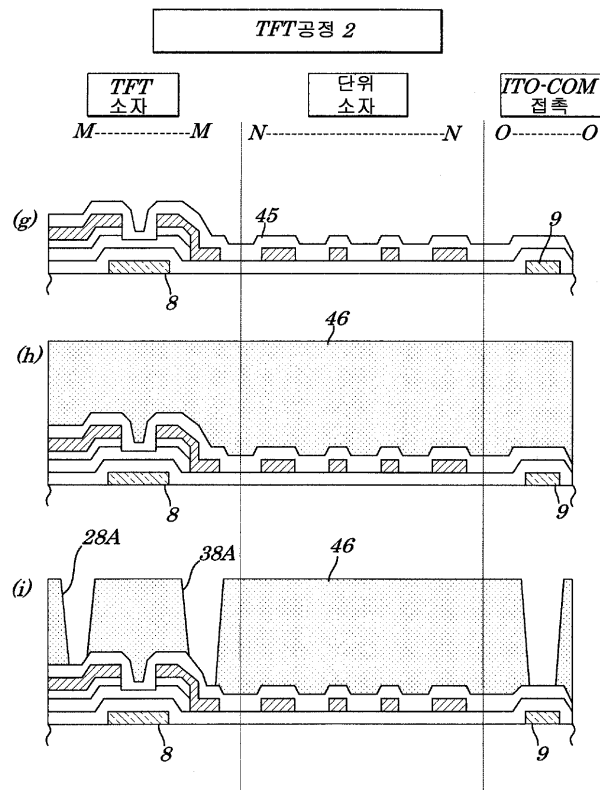


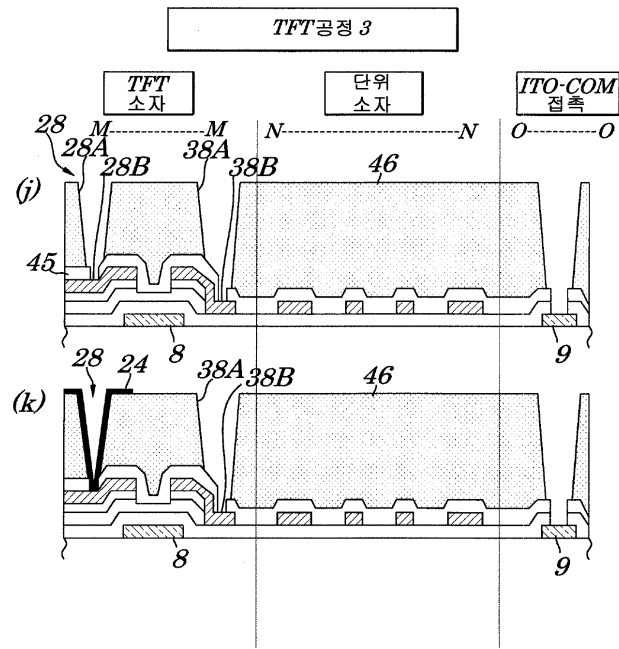
15



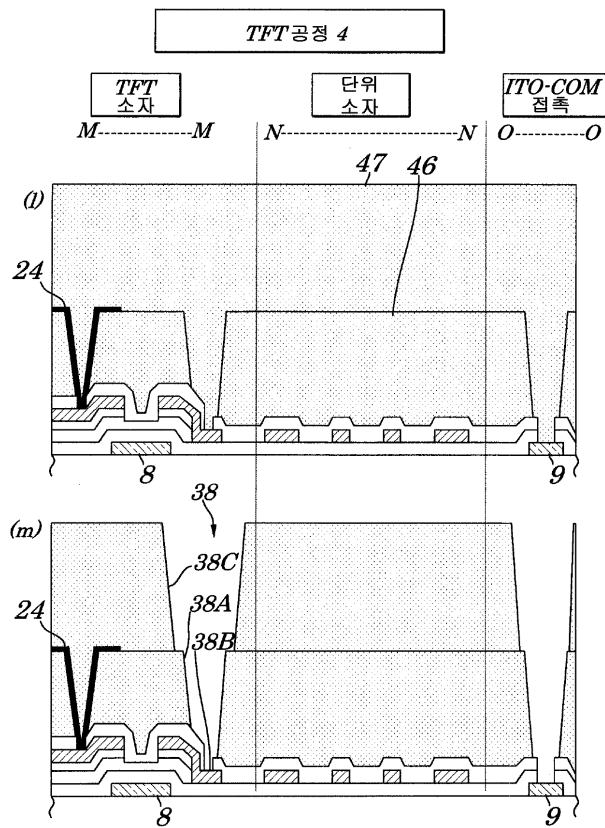


17

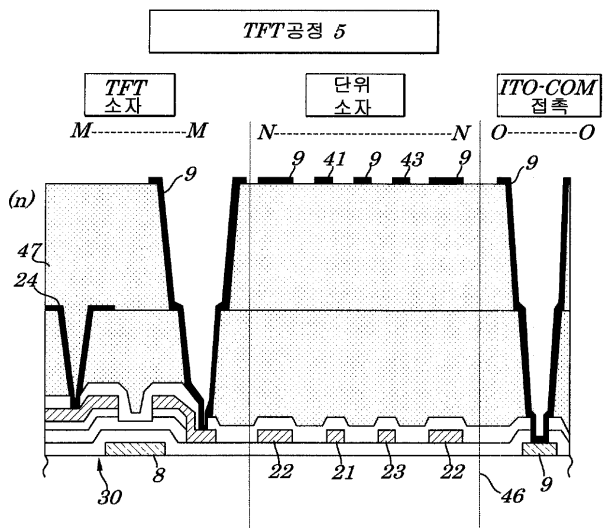


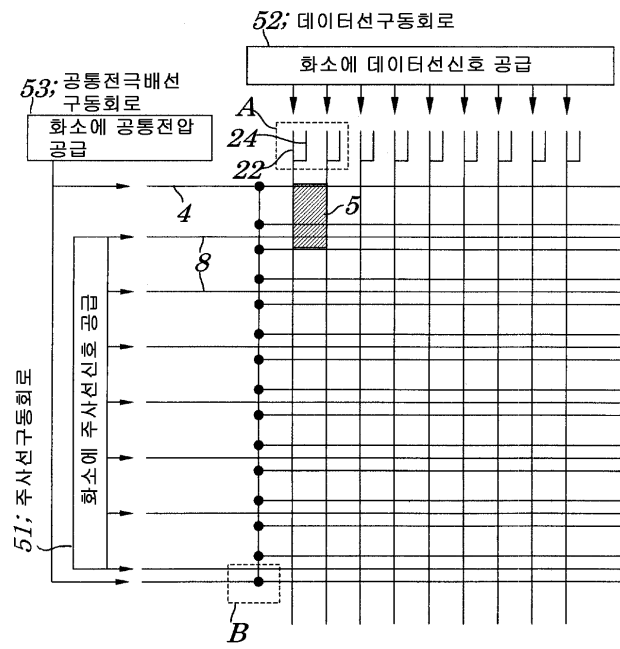


19

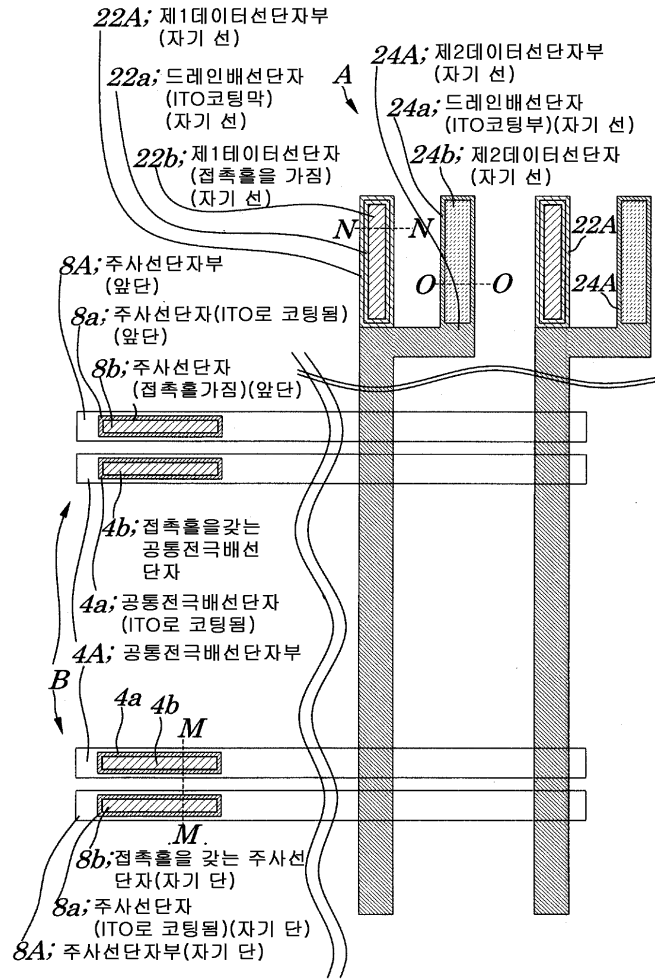


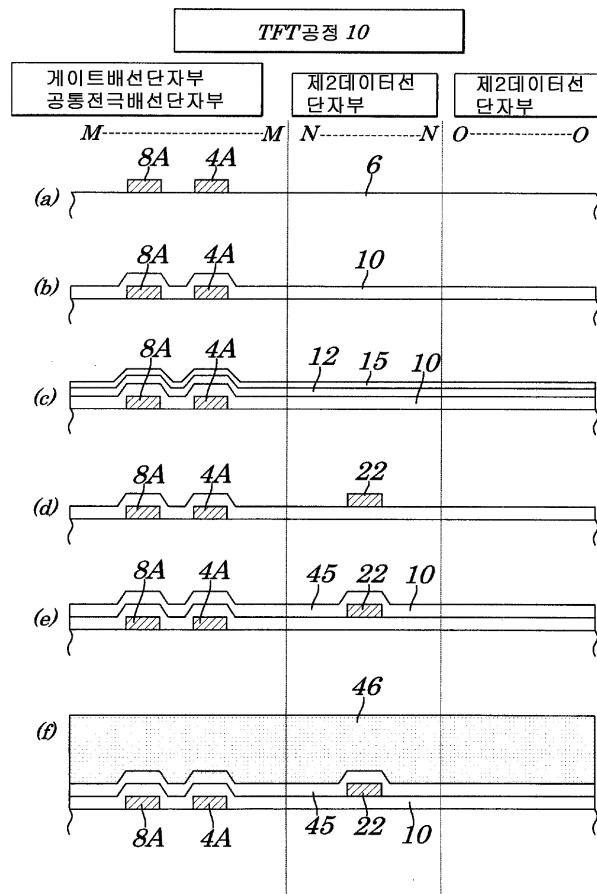
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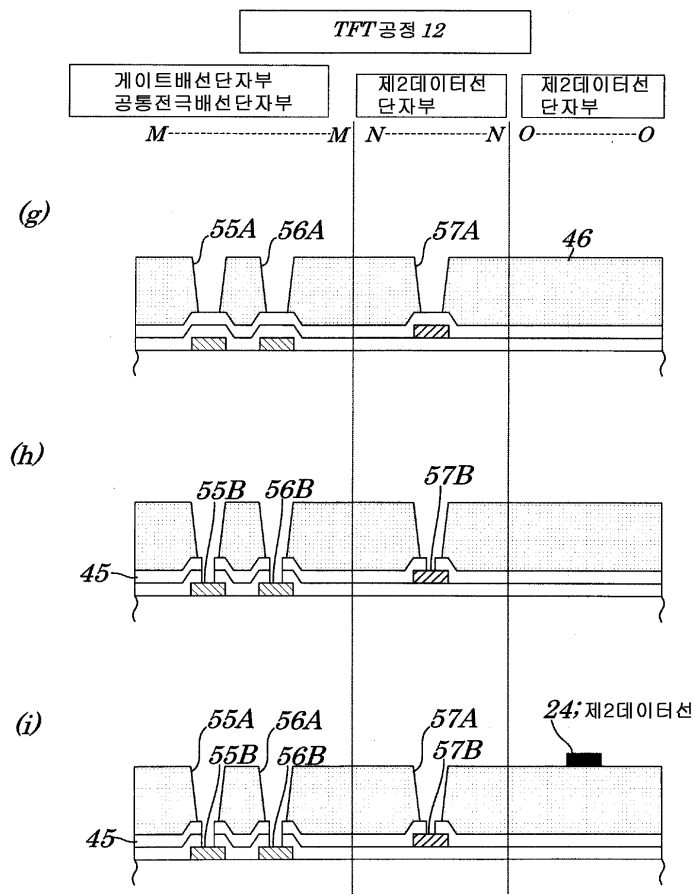


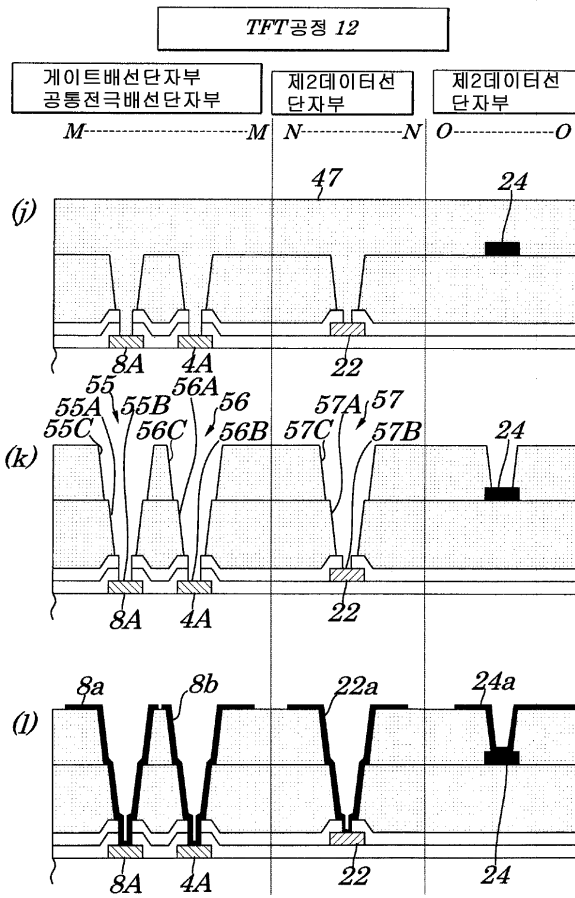


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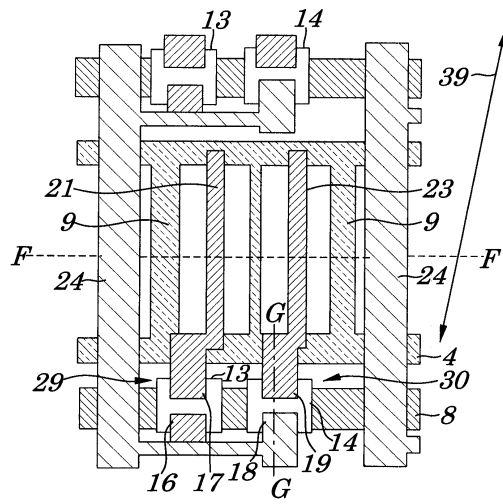




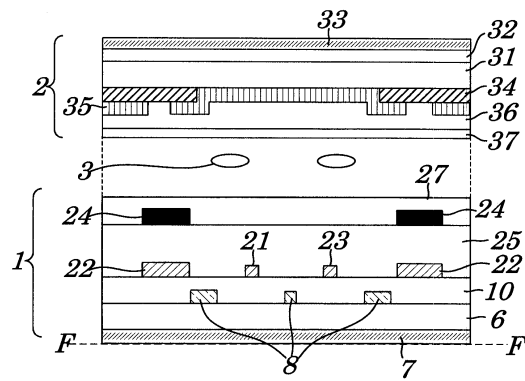




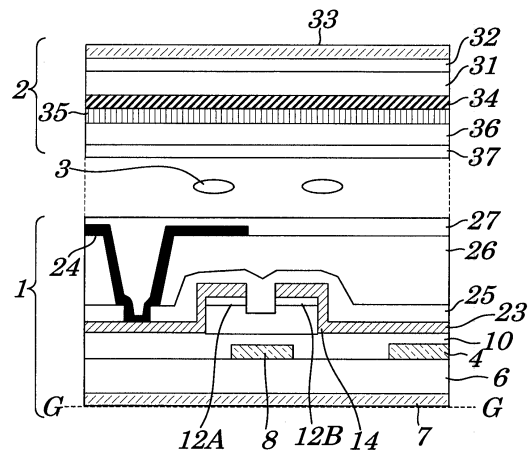
26



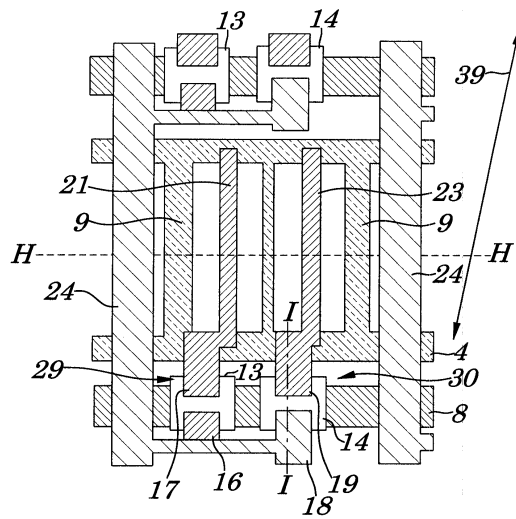
27



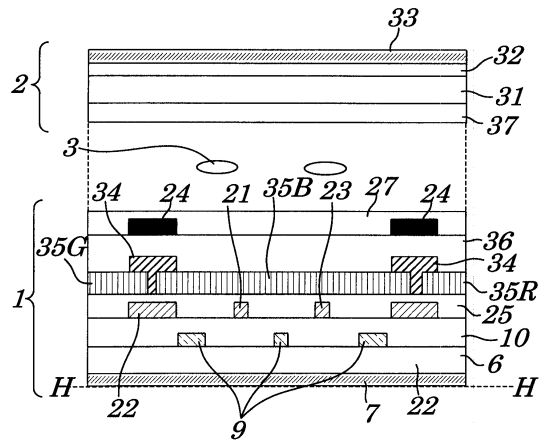
28



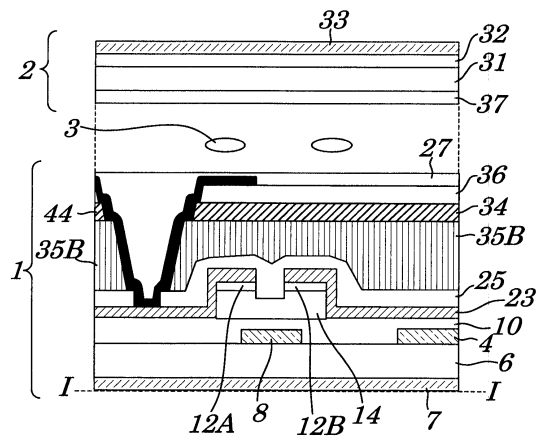
29



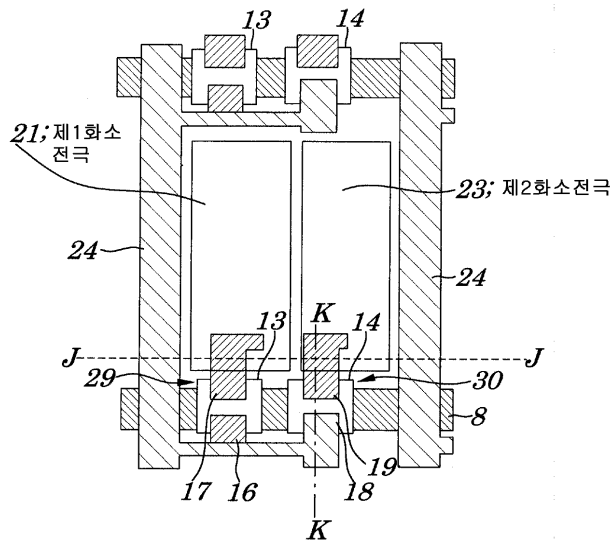
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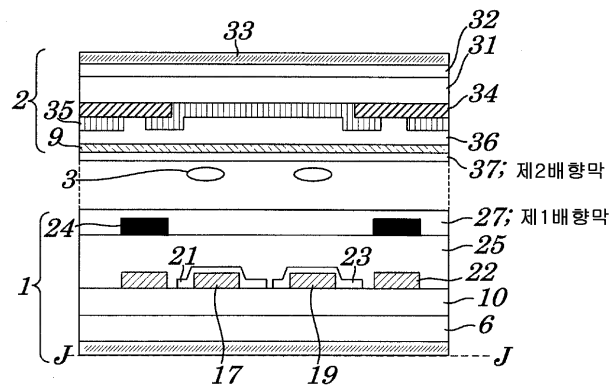
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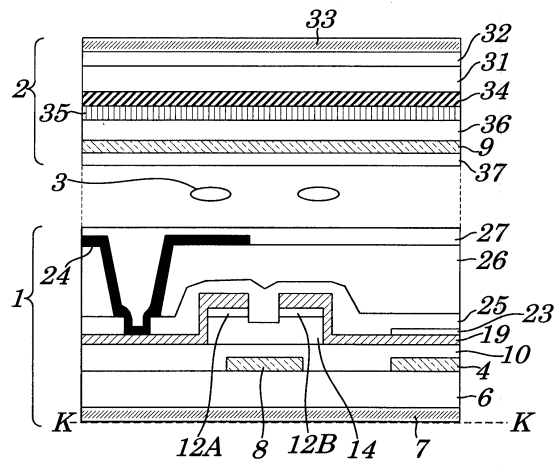
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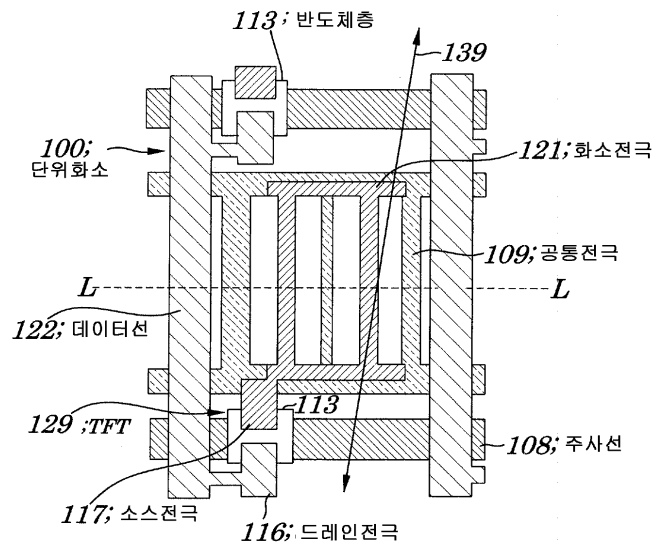
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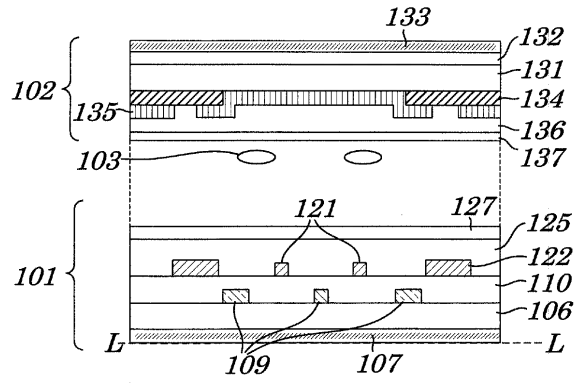
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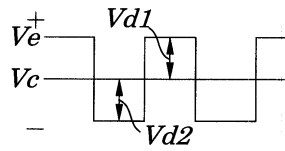
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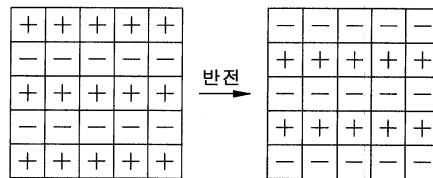
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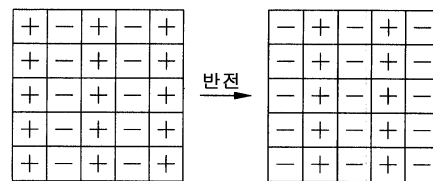
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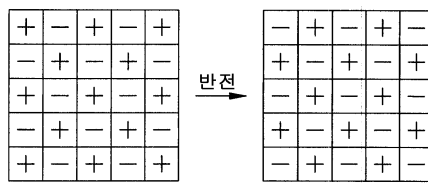
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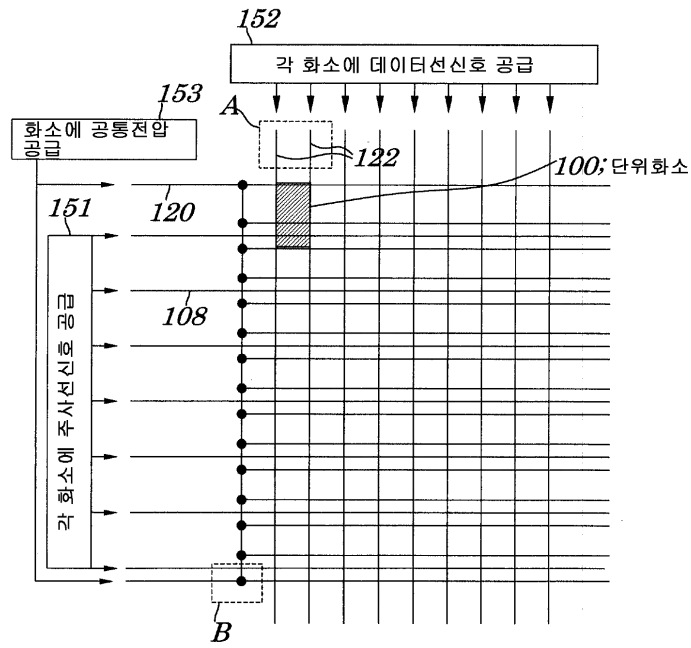
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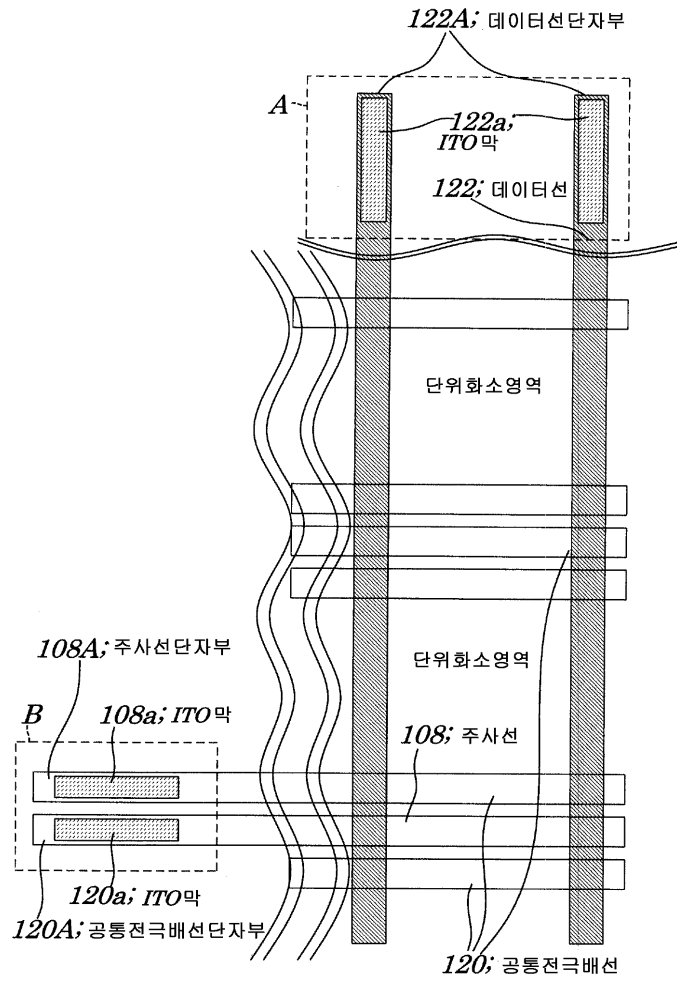
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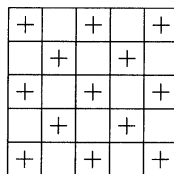
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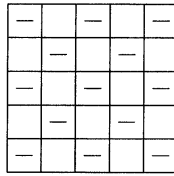
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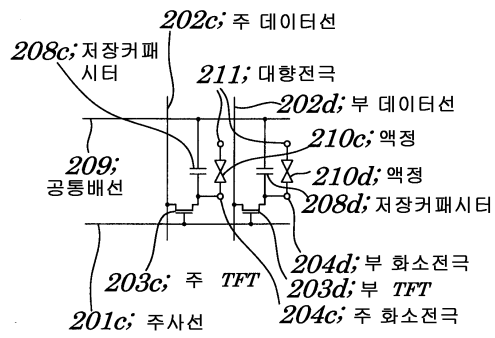
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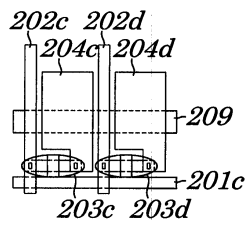
41b



42a



42b



专利名称(译)	液晶显示装置及其制造方法		
公开(公告)号	KR1020020075304A	公开(公告)日	2002-10-04
申请号	KR1020020015758	申请日	2002-03-22
[标]申请(专利权)人(译)	NEC液晶技术株式会社		
申请(专利权)人(译)	日元号技术可否让这个夏		
当前申请(专利权)人(译)	日元号技术可否让这个夏		
[标]发明人	MATSUMOTO KIMIKAZU		
发明人	MATSUMOTO,KIMIKAZU		
IPC分类号	G02F1/1335 G02F1/1333 G09G3/36 G02F1/1368 G02F1/133 G02F1/1345 G02F1/1362 H01L21/336 H01L29/786 G02F1/139 G02F1/1343		
CPC分类号	G09G2320/0247 G09G2300/0443 G09G2300/0434 G09G3/3648 G02F1/134363 G02F1/13624 G09G3/3614 G02F1/1345 G02F2001/13629		
代理人(译)	JO , EUI JE		
优先权	2001085545 2001-03-23 JP		
其他公开文献	KR100498255B1		
外部链接	Espacenet		

摘要(译)

每个相同的极性可以被称为液晶显示器，其可以抑制强闪烁的产生，它不会导致开口面积比的减小，它仅在具有屏幕的像素上显示，并且其制造方法也是如此。液晶显示器。第一和第二数据线分别通过第一和第二薄膜晶体管提供第一和第二像素电极，在该液晶显示器中具有不同极性的像素电压将绝缘层插入第一和第二数据线之间并且为了重叠利用第二数据线形成第一数据线。它与液晶和数据线重叠。

