

(19) (KR)
(12) (A)

(51) 。 Int. Cl.⁷ (11) 2003-0053215
G02F 1/1333 (43) 2003 06 28

(21) 10-2001-0083284
(22) 2001 12 22

(71) . 20

(72) 1005 1403

2 408 301

152 1 106

1736-2

(74) :

(54)

，
，
， 가

， 4 .

6h

1 .

2 1 ， .

3a 3h 5 1 , 2

4a 4j 4 1 , 2

5a 5h

6a 6h 5a 5h , 가

*** ***

400: 402:

404: 408:

410: 412:

414: 416:

420: 422:

423: 424:

425: 426:

430: 432:

434: 436:

438: 440:

441: 450:

461 464: 1 4

(liquid crystal display : LCD)

(matrix)

(integrated circuit : IC)가

(color filter)

가 가

가

1

가

1

가

가

가

가

가

가

가 가

4

6

, R,G,B

가

(rubbing)

(seal pattern)

(sp

acer)

가
가

(break)

(scribe)

가 가

1

1
13)

(100)

(114)

(113)

(115)

(1

(114)

(115)

(102)

(101) 가 , (114) (115)
 (113) ,
 (113) .
 가 , (113) (101)
 가 가 ,
 ,
 ,
 , (113) (102)
 , (101)
 .
 - (cell-gap) , - (101) (102)
 (102) (113) 가 (116) (101)
 2 1 , (113) (101)
 .
 2 , (4) (2)
 , (4) (2) , (14)
 (2) (4) , (TFT)
 (4) (TFT) (10)
 (2) (8) , (10) - (overlap)
 ,
 (12) (10) (8) (14) (12) (12)
 ,
 (12) (TFT) (4) (10) (8)
 (12) ()
 (TFT)가 (4) (8) ()
 12) (2) (8)
 12) .
 , (16) (12) (14) ITO(indium tin ox
 ide) , (14) (12)
 ()
 가 가 ,
 (14)
 , (22) (14) (20) (4) (TFT)
 (18) , (20) (4)
 ()
 (18) (4) 가 가 - (turn-o
 n) , - (turn-off)
 (14)
 3a 3h 1 , 2
 5 가
 , 3a
 가 (200) (Mo, Al , Cr) , (sputtering) , 1

(210) 2 (200) (210) (200) (204) (204) ,

, 3b (204) (210) (200) SiNx (230)

, 3c (230) (amorphous silicon) (232) , (P) (Ohmic contact layer, 234) 2 (210) (236)

, 3d (236) (230) (208) 3 (236) (230) (204) (202) (212) (220) , (230) (230) (208) , (208) (212) (236) (230)

, 3e (234) (blanket) (208) (212) (232)

, 3f (220) (202) (132) (230) (208), (212), (chemical vapor depo sition : CVD) SiNx (passivation layer, 238) , (38) Acryl BCB(benzocyclobutene), SOG(spin on glass)

, 3g (238) (238) (230) 4 (222), (204) (223) (202) (224) (220), (216),

, 3h (238) 5 (216) (212) (222) (223) (204) (202) (214) , (225) , (226) (224)

5 (210), (236), / (208,212) 1 3 (2)

, 5 (photolithography) (photosensitive film) 가가 ,

4 , ,

, 4 가 1 ,

4 4a 4j , ,

4a
가 (300) (300) (304) 1
(300) (310) .

4b (304) (310) (300)
(330), (336), (340) (336)
(332) (334) .

4c (340) (341)
(310) (341) 2
(341) .

2 (341) (341)

4d (330) (341)
(340) (336) (330)
(304) (320) , (330)
(302) .

4e 2 (341) (341) (341)
가 (341) (340) .

4f (340) (334)
(341) .

4g (334) (332)
(332) (308) (312) .

4h (332) (308), (312),
(320) (302) (330) SiNx
(338) .

4i (338) (338) (330) 3
(312), (320),
(304) (302) (316),
(322), (323) (324) .

4j (338) 4
(338) (316)
(312) (322)
(320) (314) , (323)
(304) (325) , (324)
(302) (326) .

4 (336) /
(308,312) 2 .

(304) (320) (330) (336)
(302) (330) (336)
(304) (330) (336)
(323) (325) .

4 4 5

가

,
 ,
 , 4 1 가 ,
 2 가 .
 , 가 4

4

5a 5h
 , 5a (400) , 1 (461)
 (410)
 , 5b (410) (400) (430),
 (436), (440) (450) , (436)
 (432) (434)
 (440) 1
 2 (Cr)
 1
 , (450) (loading effect) (436)
 (Mo)
 2 , 5c (450) (441)
 (462) (450)
 (441)
 , 5d (441) (450) (440)
 (441) (440)
 (450) (434)
 , 5e (450) (440) (434)
 (432) , (440) (450)

(434) (434) (Mo) (450)

(434) (432)

(450) (434) $SF_6 : Cl_2 : H_2$ or O_2 가
 $SF_6 : Cl_2 : H_2$ or O_2

5 30% : 40 90% : 5 30% ,
 가 가 10 100[SCCM] : 50 500[SCCM] : 10 100[SCCM]
 $SF_6 : Cl_2 : H_2$ or O_2 가 30[SCCM] : 300[SCCM] : 30[SCCM]

(440) , 5f (450) , (434) (432) (412)

(440) (440) (408)

(450) (434) 가 (450) (440)

(434)

(434) (432) (408) (412)

5g (430) (438) (416) , 3 (463) (438) SiNx
 (412) (step coverage)

BCB, SOG Acryl

(412) (438) (416) (412) , 4 (464) (438)

5h (414) (416) (412)

(436) (434) (Mo) (450) (P)

(400) (436)

가 4

5a 5h , 4 , 6a 6h 가

6a 가 (400) , 1 (461) (404)

(400) (410)

6b (430), (436), (440) (404) (450) (410) (400) (436)

(432) (434)

(440)

1 1 (Cr) 2

(450) (loading effect) (436)

(Mo)

6c (450) (441)

2 (462) (450)

(441) , (441)

6d (430) (441)

(440) (450) (430) (441) (404) (420)

(436) (436) (402)

(440) (450) (434)

6e (450) (440) (434)

(432) (440) (450)

(434) (434) (Mo) (450)

(434) (432)

(450) (434) $SF_6 : Cl_2 : H_2$ or O_2 가

5 30% : 40 90% : 5 30% $SF_6 : Cl_2 : H_2$ or O_2

가 가 10 100[SCCM] : 50 500[SCCM] : 10 100[SCCM]

$SF_6 : Cl_2 : H_2$ or O_2 가 30[SCCM] : 300[SCCM] : 30[SCCM]

(440) (450)

(434) (432) (450)

(450) (440) (450)

(434) (440)

(450) (440)

(434)

(440) (450)

(434) (450)

(450) (450)

6f (450)

(440) (434) (432) (412)

(440) (408)

(450) (434) 가 (440)

(434)

6g (432) (408), (412),

(420) (402) (330) (438)

(438) (430) 3 (463) (404)

(412), (420), (416), (422),

(402) (424) (438) SiNx

(423) (step coverage) BCB, S

OG Acryl

6h (438) 4 (464)

(438) (416)

(412) (422)

(420) (414) (423)

(404) (425) (

424) (402) (426)

(450)
(434)

(434)
(434)

(400)
4

(436)

(436)

가

가

4

가

(57)

1.

2.

1

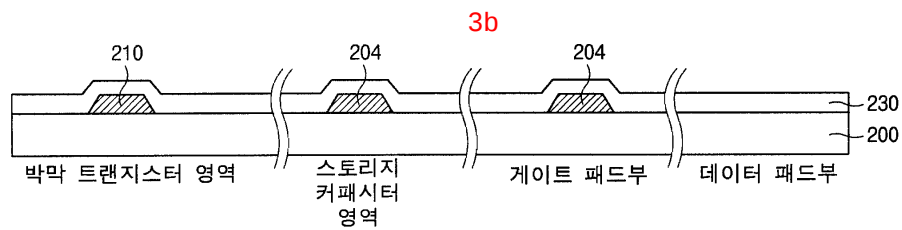
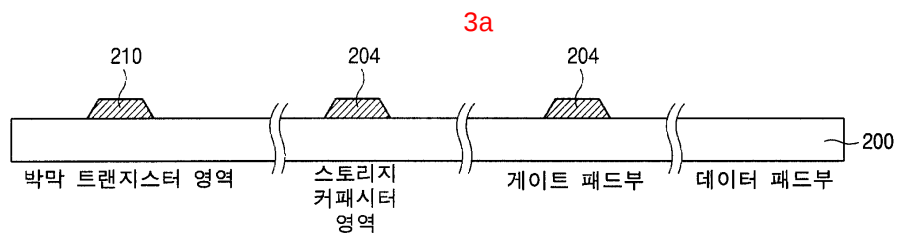
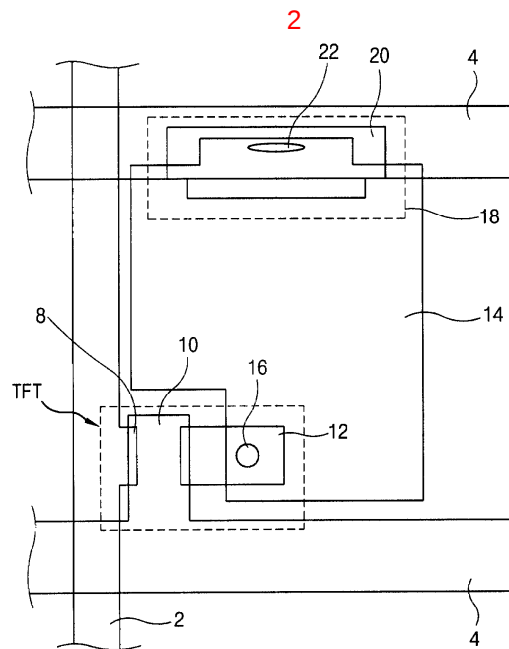
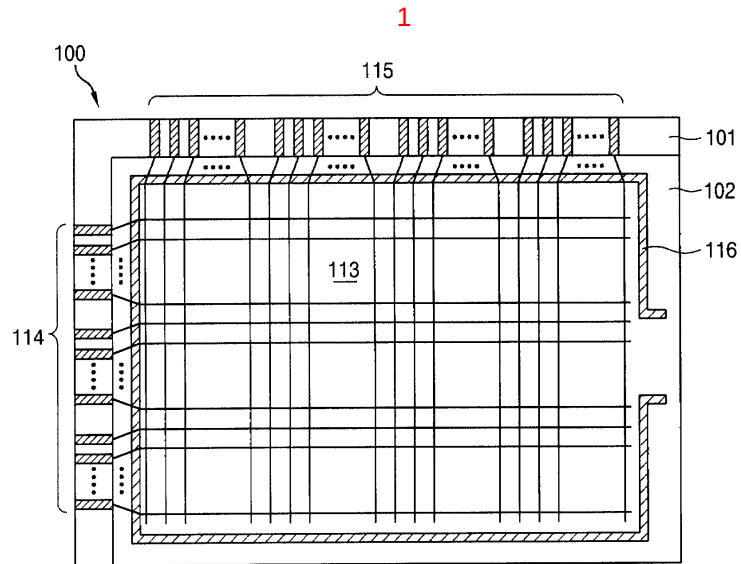
2

3

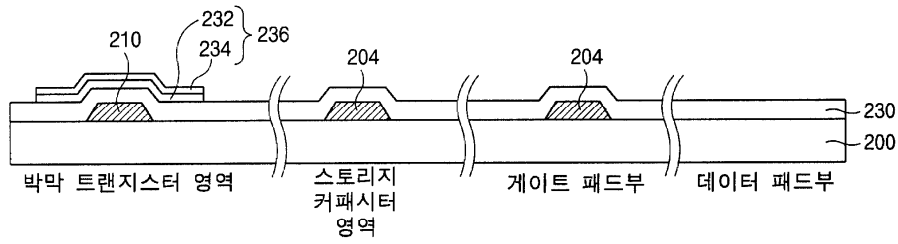
4

3.

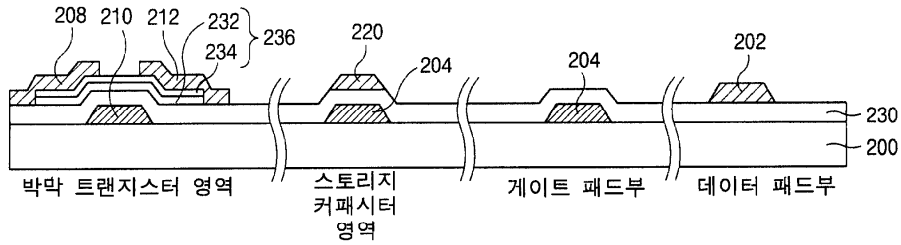
- 1 2 , 2
1
4.
1 3 , (Cr)
5.
1 2 , (loading effect)
6.
1 , 2 5 , (Mo)
7.
1 , 2 5 , (P)
8.
1 2 ,
SF₆ : Cl₂ : H₂ or O₂ 가 5 30% : 40 90% : 5 30%
9.
1 , 2 8 ,
SF₆ : Cl₂ : H₂ or O₂ 가 10 100[SCCM] : 50 500[SCCM]
: 10 100[SCCM]
10.
1 , 2 , 8 9 ,
SF₆ : Cl₂ : H₂ or O₂ 가 30[SCCM] : 300[SCCM] : 3
0[SCCM]
11.
1 2 ,
12.
1 2 ,
13.
1 2 , BCB(benzocyclobutene), SOG(spin on glass) Acryl



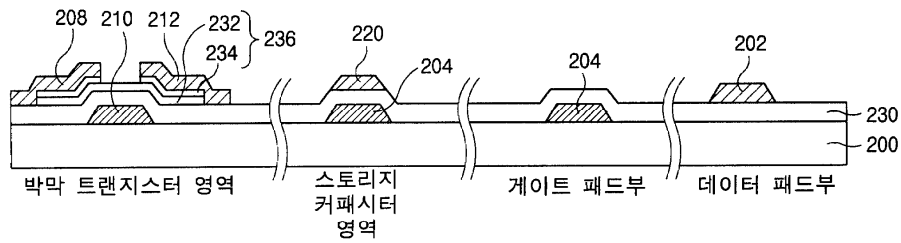
3c



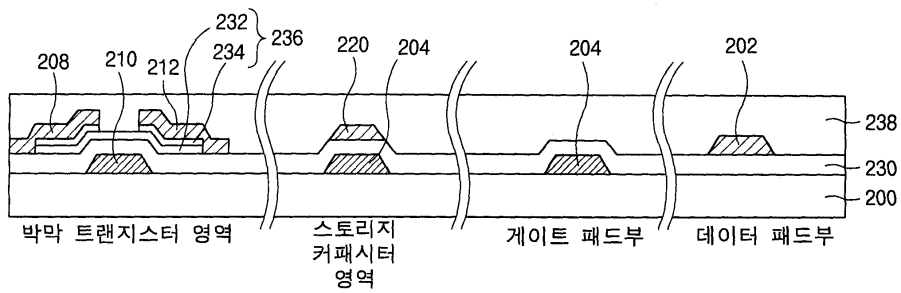
3d



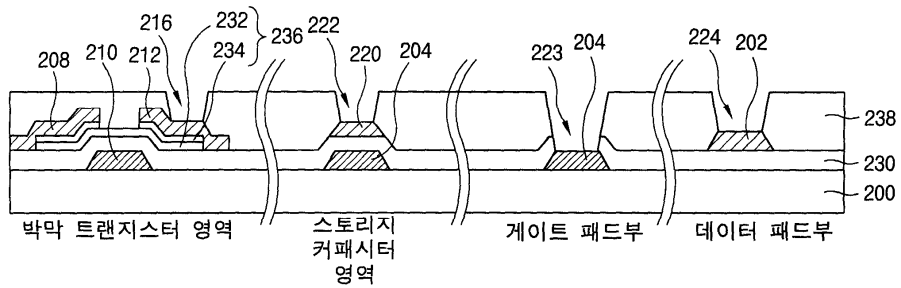
3e



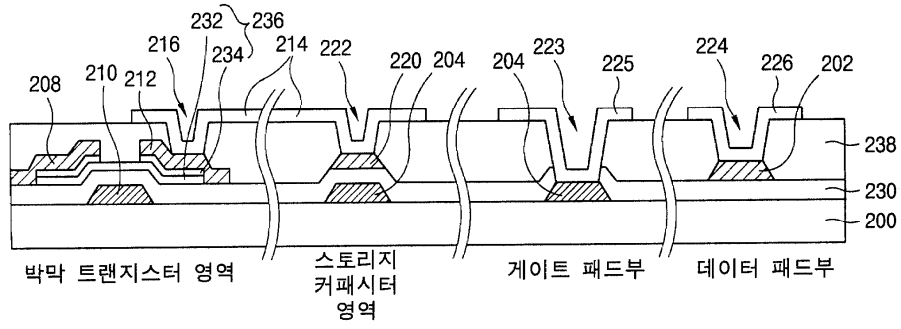
3f



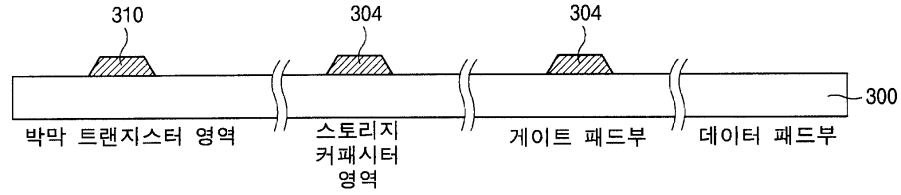
3g



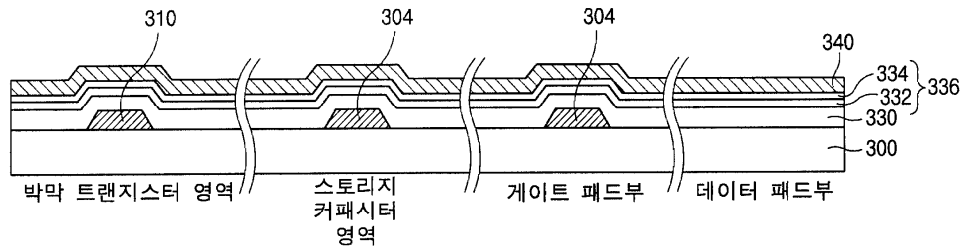
3h



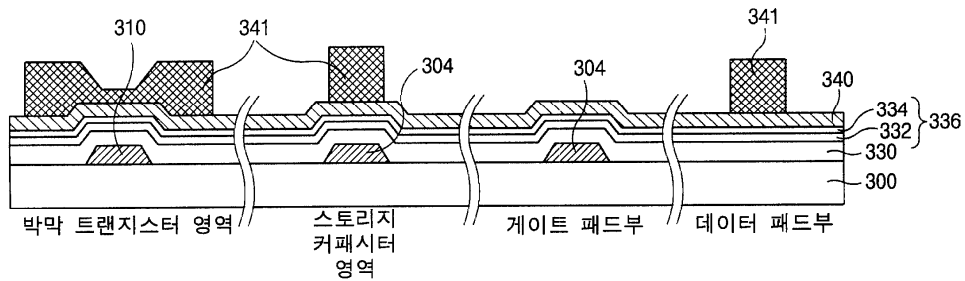
4a



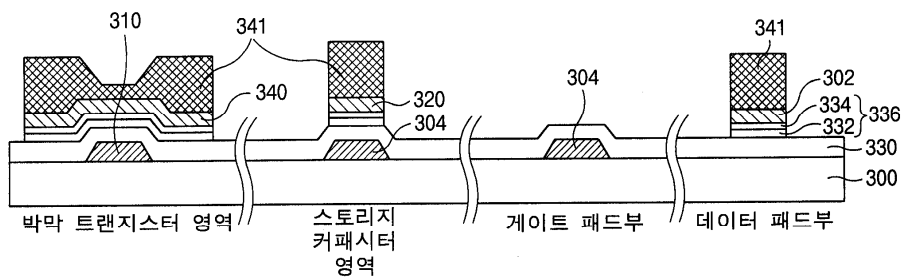
4b



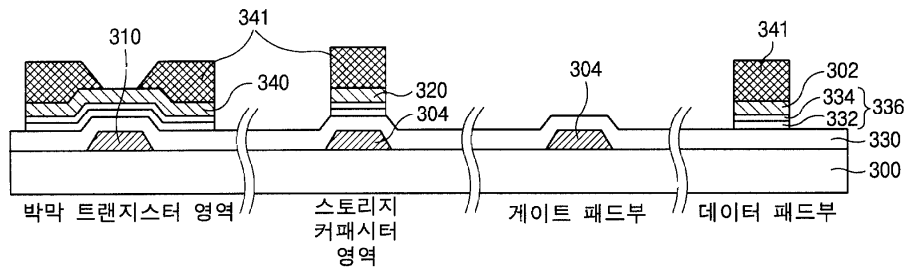
4c



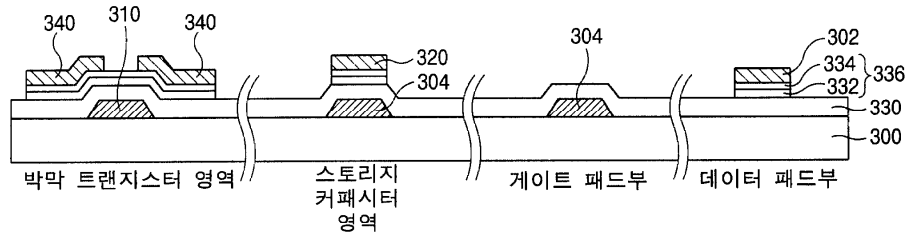
4d



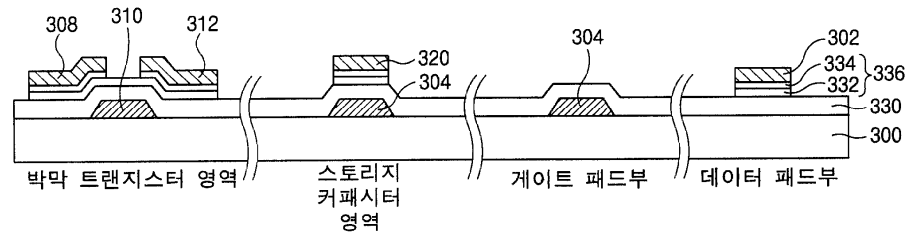
4e



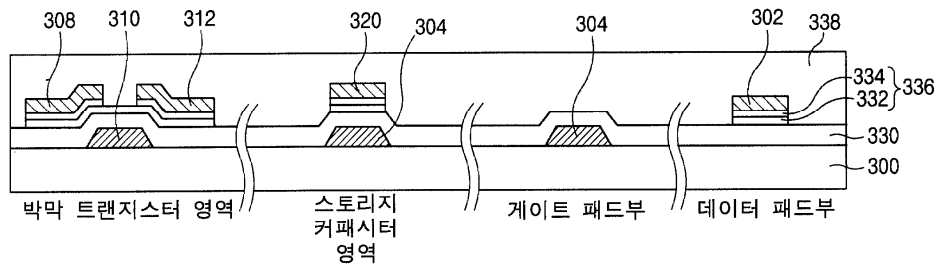
4f



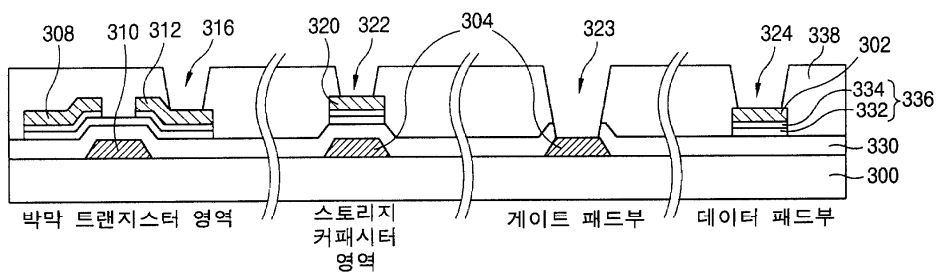
4g

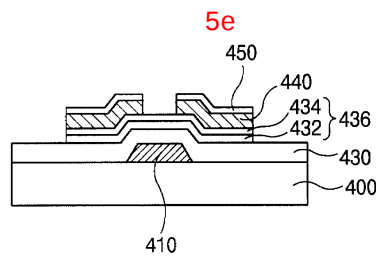
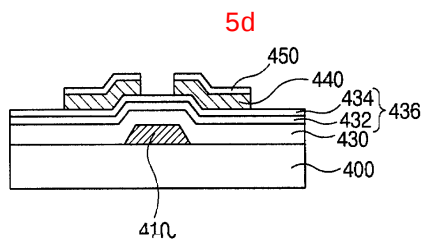
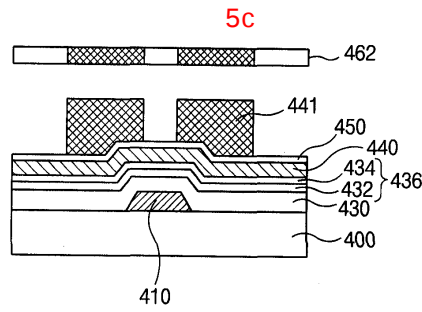
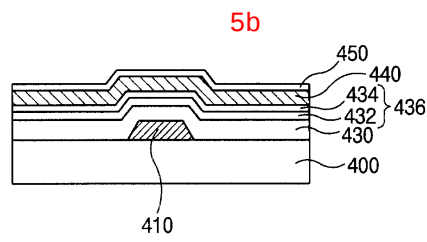
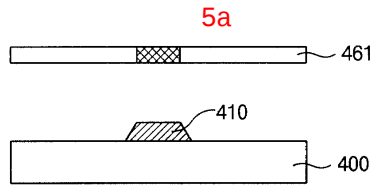
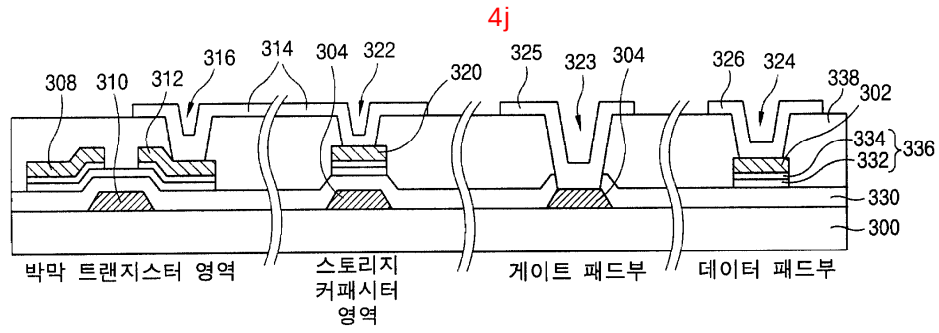


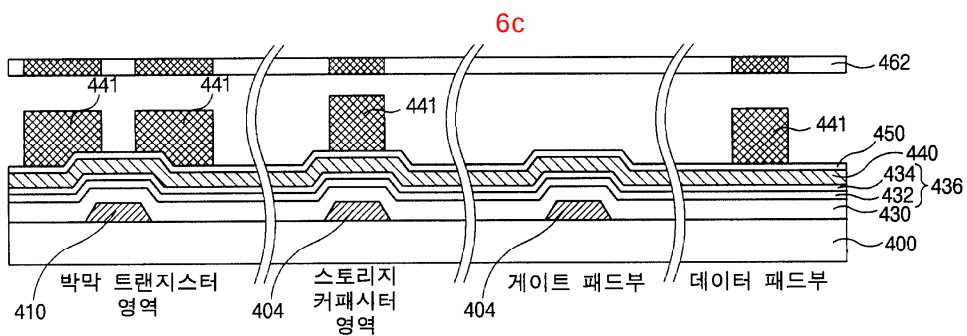
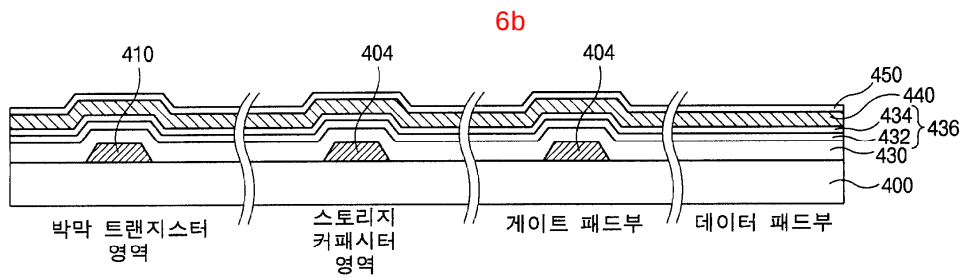
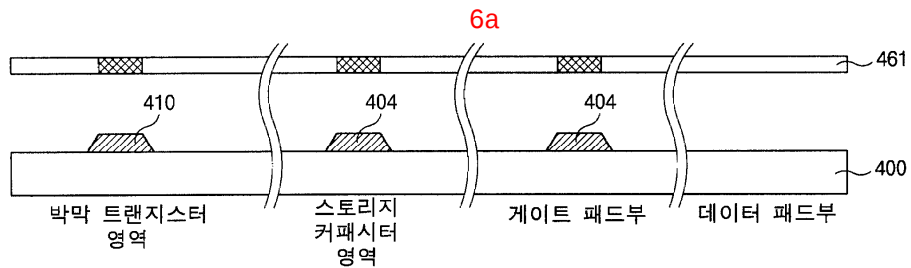
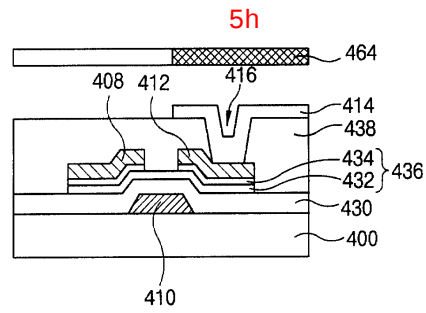
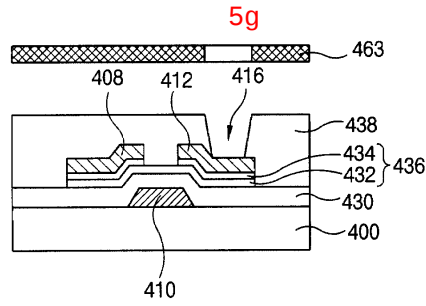
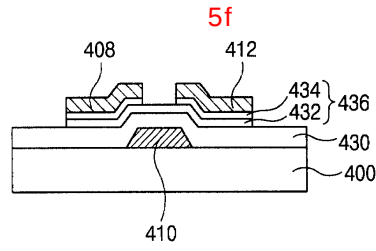
4h

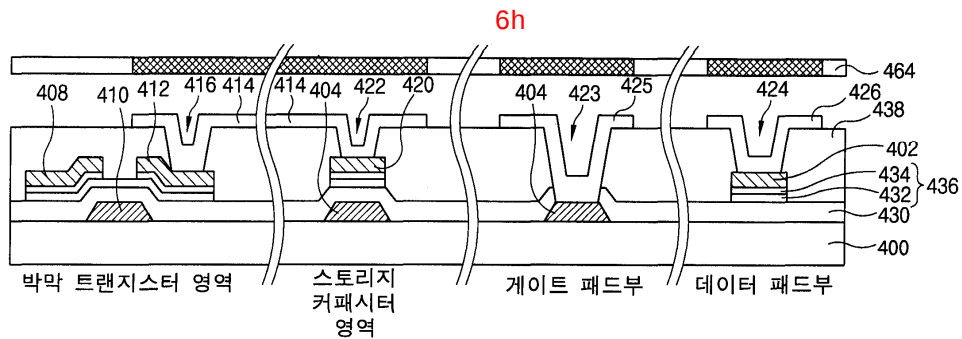
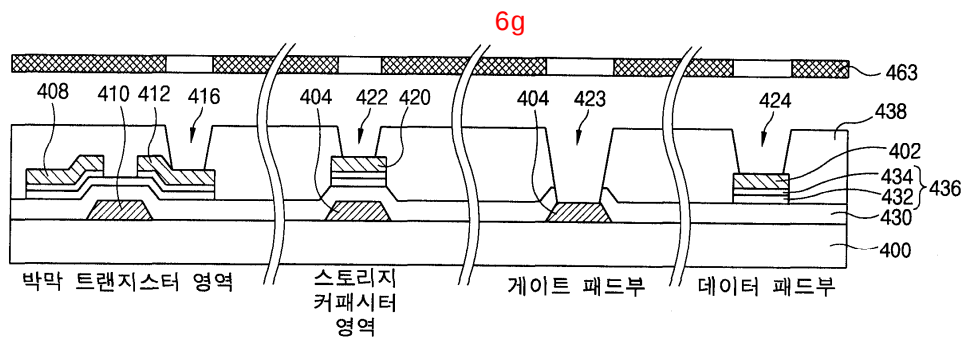
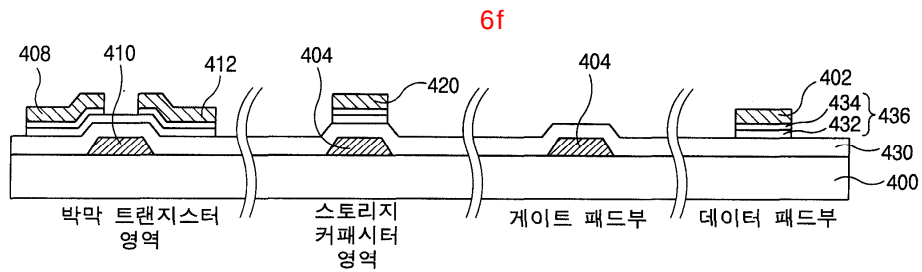
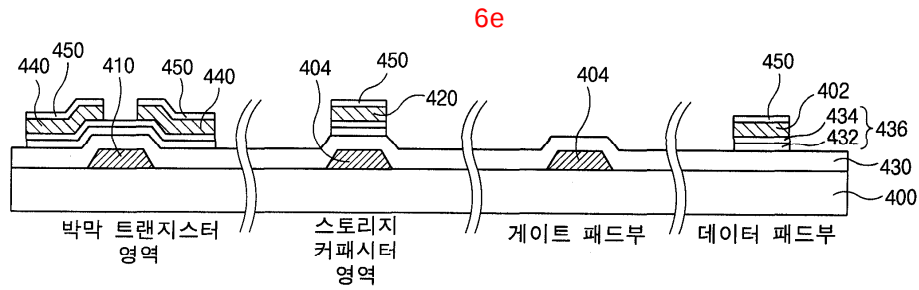
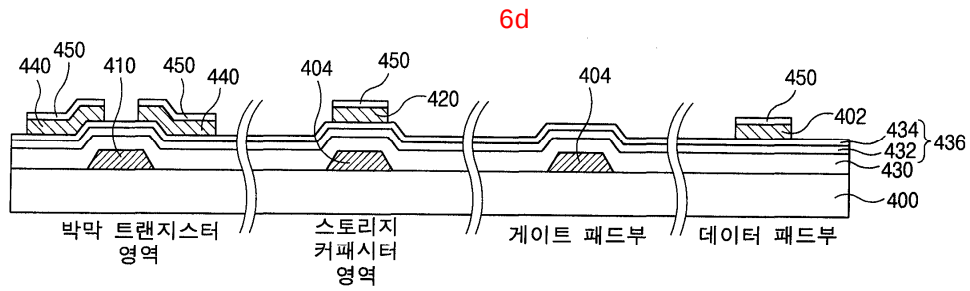


4i









专利名称(译)	液晶显示装置的制造方法		
公开(公告)号	KR1020030053215A	公开(公告)日	2003-06-28
申请号	KR1020010083284	申请日	2001-12-22
[标]申请(专利权)人(译)	乐金显示有限公司		
申请(专利权)人(译)	LG显示器有限公司		
当前申请(专利权)人(译)	LG显示器有限公司		
[标]发明人	KIM EUGENE 김유진 CHO HEUNGLYUL 조흥렬 LEE KYOUNGMOOK 이경묵 NAM SEUNGHEE 남승희		
发明人	김유진 조흥렬 이경묵 남승희		
IPC分类号	G02F1/1333		
代理人(译)	PARK , JANG WON		
其他公开文献	KR100442490B1		
外部链接	Espacenet		

摘要(译)

目的：提供一种制造液晶显示器的方法，以使用四个掩模制造薄膜晶体管阵列基板，而不使用衍射掩模。组成：在基板（400）上形成栅电极（410），并在基板上依次形成栅极绝缘层（430），有源层（436），金属层和干涉金属层。将金属层和干涉金属层图案化成预定图案。使用金属层和干涉金属层图案选择性地蚀刻有源层。蚀刻干涉金属层。金属层图案用作源电极和漏电极（408,412）。在半导体层，源极和漏极上形成钝化层（438），并选择性地蚀刻钝化层以形成暴露漏极的接触孔。像素电极（414）形成在钝化层上，以通过接触孔连接到漏电极。

