

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl.⁷
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(11)
(43)

10-2005-0002563
2005 01 07

(21)

10-2003-0043946

(22)

2003 06 30

(71)

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20

(72)

2 4 404-302

875 353-1602

1 221

가 4 108-201

606 1302

4 885-627/7

(74)

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(54)

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5 4 ，

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(，) (，) /

(() ， /

.

(Cr)， (Ti)， (Ta)， (TaN)， (TiN)， (Ni)， (W)， (In)， (Mo)， (Sn)， (Au) ，

，

.

6i

1 ,
2a 2f 3a 3f 4a 4f 1 - ` , - ` , - ` ,
5 2f D .
6a 6i 7a 7i 8a 8i 1
9 2 ,
10a 10h 11a 11h 12a 12h 9 X-X` ,XI-XI` ,XII-XII` ,
2 .

< >

- 121 : 131 :
- 133 : 135 :
- 137 : 139 :
- 141 : 149 :
- 151 : 153 :
- 155 : 157 : -
- 159 : 169 :
- 171 :
- 173 :

(liquid crystal display device) , .

1

(21) (T) (33) (T)가 (53) (matrix type) ,
(33) (33) 가 (35) , (35)
(53) (53) 가 (55) , (55)
(71) (35) (73) (55) 가
, (33) (53) (P) .
(33) (C_{ST})가 .
(T) (31) (49) (51) , (31)
(39) .
(C_{ST}) (33) 1 ,
(69) (33) (63) - (57) (49,51) 2 .
, 2a 2f 3a 3f 4a 4f ,
2a 2f 3a 3f 4a 4f 1 - ` , - ` , - ` ,
(2a 2f , 4a 4f , 3a 3f .)
, 2a 3a 4a (21) (T), (P),
(G), (D) .
(T,P,G,D) (21) (Al) ,
(35) (33) (33) (31) (33) .
(33) (signal delay)
(hillock)
, .
, .
, .
(Cr) (Mo)) , 가 , 가 (,
, 4a (D) .
2b 3b 4b (33) (35) (31)
(21) (SiN_x) (SiO₂)
, 1 (37) .

(n+a-Si:H) (31) (37) (a-Si:H) (39) (41) .

Mo, 2c 3c 4c (Al) (Mo) , 1,2,3 (41) (21) , (43,45,47) .

(Mo/Al/Mo) 3 2d 3d 4d , 1,2,3 , / / (51) (49) (41) (49) (55) (53) .

(49,51) (33) - (57) .

(49,51) (53) (Mo) (Cr) ,

가 .

(49,51) (53) .

(49,51) (45) .

(39) (41) , 가 (spiking) 2 (Mo) .

(49,51) (53) (Mo/Al/Mo) .

(39) (49,51) (41) .

2e 3e 4e (59) (49,51) (21) , 2 .

(59) (51) (61) , - (57) (63) , (35) (65) , (37) (67) .

2f 3f 4f (59) (21) - - (ITO) (5 (IZO) (57) (69) , 1) - .

(35) (71) (55) , (73) .

(49,51) (53) (55) , (Mo) 가 () ,

(59) (45) , .

가 .

, 5 . 5 2f D .

, (45) (Mo) (47,53)

, .

5) , (49, 2f 51) (2f 53) (2f 5

(59) (45) (E)

가 .

, (59) (39)

(41) . 가 . (

, (hillock)

, (Cu) ()

1 , 2 ,

4

1 , 2

1 , 2

1 , 2

1 ; , 2

1 ; ; , 2

1 ; ; ;

1 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (Ti

2 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (TiN),

1 100 ~500 , 2 100 ~100

1000 ~5000 .

1 1 1 ; 1 ,

2 ;

3 ; 4 ;

5 .

1 2 1 ,
1 , 1,2 , 1 2 ;
, 2
;
3 ;
4 .
,
-- 1 --
1 / () , 5
.
6a 6i 7a 7i 8a 8i , 1
.
, 6a 6d 7a 7d 8a 8d , 1
.(
.)
, 6a 7a 8a , (121) (T), (P),
(G), (D)
.
(T,P,G,D) (121) (Al)
1 (123a)
,
1 (123a) (Mo), , (Cr), (Ti), (Ta),
(TaN), (TiN), (Ni), (W), (In), (Sn), (Au) 2 (123
b)
.
, 2 (123b) (photo-resist) (125)
.(, (positive) 가 .)
(M) , (125) (A1) (A2) (M) ,
PR (125)
,
(125)
6b,7b,8b , PR (127) 2 (123b)
,
PR (123b) (bake) ,
6c 7c 8c , PR (127) 2 (123b)
1 (123a) , 1 (129a) 2 (129b)
.
, PR (127) 6d 7d 8d , ' (Ti,Ta,Cr,M
o,W,Ni)/ ()' (133) , (13)
3) (135) , (131)
/
8e 2 (131) (133) (135) , 6e 7e

6e 7e 8e (131) (133) (121)
 1 (137) .
 (137) (SiN_x) (SiO₂)
 .
 (131) (137) (a-Si:H)
 (n+a-Si:H) 2 (139)(active layer)
 (141)(ohmic contact layer) .

6f 6g 7f 7g 8f 8g 3
 , 6f 7f 8f (141) (121) (Mo)
 , (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (TiN), (Ni), (W), (In),
 (143) (Cu) 2 (145) 1 (143) , 1
 , 1 (143) 2 (145)
 , 6g 7g 8g , 1 2 3
 , (149) (149) (155) (153) (151) ,
 , (133) - (157) .
 , (149) (151) (141)
 (139) .

6h 7h 8h 4
 (SiO_x) , (149,151) (121) (SiN₂)
 (resin) , (BCB) / (acryl)
 (159) . 4

4 (159) (151)
 (161) - (157) (163) (135)
 (165) , (137) (167)
 .

6i 7i 8i 5
 , (159) - - (ITO) - - (IZO)
 (157) (169) , 5 (151) -
 (137) (173) (171) ,
 , (169) - (157) , (157) 1
 2 (C_{ST})가 .
 , , - (157) (169) (1
 37) , , (169) 1 , (169) (1
 1 2 .
 가 .

1

가

가

2

4

2

2

1

4

9

2

(200)

(202)

(202)

(227)

(227)

(P)

(202)

(202)
(226)

(227)

(T)

(206)

(230)

(224)

(202)

(206)

(227)

(224)

1

(202)() (/)/

(227)() /

2

4

4,226) , -
(B1,B2,B3)

(230)

(B1,B3,B3)
(224,226)

(227)

(227)

(22

2

10a

10h

11a

11h

12a

12h

9

-

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XI-XI`

XII-XII`

2

10a

11a

12a

1

10a

11a

12a

(200)
(M2)

1

(M1)

(200)

1

2

1

(202)

(204)

(202)

(206)

N),

(M2)
(TiN), (Ni),(Mo),
(W),

(In),

(Mo-alloy),
(Sn), (Au)

(Cr),

(Ti),

(Ta),

(Ta

(204)

(202)

(206)

1

10b 10f 11b 11f 12b 12f 2 .

6) , 10b 11b 12b (202) (204) (20) (214) (200) (216) (208) (210) (212) .

, (208) (SiN_x) (SiO₂) (BCB) (acryl) (resin) .

, (214) (Mo), (Cr), (Ti), (Ta), (TaN), (Ti) (N), (Ni), (W), (In), (Sn), (Au) .

, (216) (photo-resist) , (218) .

(300) (218) (100) (G1) (G2) (G3) .

, (T) 가 (G2) (G3)가 , (D) (G3) .

(218) .

10c 11c 12c , (300) (G2) (220a,220b) .

, (T) (220a) .

, (206) (206) .

, (n+a-Si:H, 212) (220a,220b) (216) , (214) (a-Si:H, 210) .

, (wet or dry) , .

, 10d 11d 12d (220a,220b) (T) 1 (T1) , 1 (T1) (202) 3 (T3) . 2 (T2) ,

, 1 (T1) (B1) , 1 (B1) 2 (T2) 2 (B2) , 3 (T3) 3 (B3) . 1 (B1) ()

, 10e 11e 12e , (206) (206) (E) .

(E) 가 (E) 1 (T1) . (206)

1, 2, 3 (T1,T2,T3) (F)가

(가 가 , 가 .)

10f 11f 12f (B1) (206) 1 (T1)

1) (202) (CH)

1, 2, 3 (T1,T2,T3) (F)

(CH) 1 2 (T2) (224)

(224) (226) (9 228) (9 228) (228)가 .

(224,226) 1 (B1) (230) (232)

3 (T3) - (230)

10g 11g 12g 3

(224,226) (9 228) (200) (BC)

B) (SiN_x) (acryl) (SiO₂) (resin) (226) (234) (236) , -

3 (230) (240) , (228) (238) , (204) (242) .

10h 11h 12h 4

(234) - - (ITO) - - (IZO)

(230) (P) (246) , (226) (206)

(248) , (228) (250)

4 (246) - (230) 1 ,

(C_{ST})가 (208) (202) 2

(C_{ST}) 1 - (230) (202) 2 (246)

2

/ (

가

가 .

, 4 , 5
가 .

(57)

1. 1 1 ;

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, 2 , ;

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2.

1 ,

N), 1 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (Ti

3.

1 ,

(Ni), 2 (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (TiN),

4.

1 ,

1 100 ~1000 .

5.

1 ,

2 100 ~1000 .

6.

1 ,

1000 ~5000 .

7.

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11.

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2 1 .

12.

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13.

12 ,
N), 1 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (Ti

14.

12 ,
2 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (TaN), (TiN),
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15.

12 ,
1 100 ~1000 .

16.

12

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2

100 ~1000

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17.

12

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1000 ~5000

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18.

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23.

12

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N), 1 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (Ta_N), (Ti

24.

23

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2 (Ni), (W), (Mo), (In), (Sn), (Au), (Cr), (Ti), (Ta), (Ta_N), (Ti_N),

25.

23

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1

100 ~1000

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- 23

26.

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2

100 ~1000

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- 23

27.

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1000 ~5000

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- 23

28.

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1

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- 23

29.

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1

1

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- 12

30.

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2

(In), (Sn), (Au) (Cr), (Ti), (Ta), (TaN), (TiN), (Ni), (W),

.
- 12

31.

,

- - (ITO) - - (IZO)

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32.

1

1

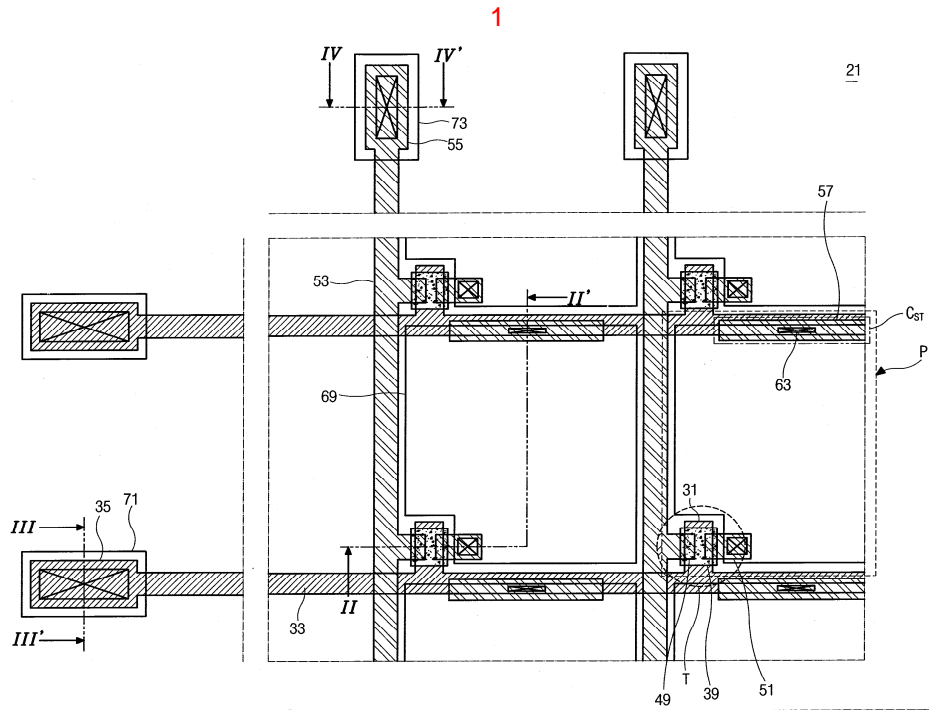
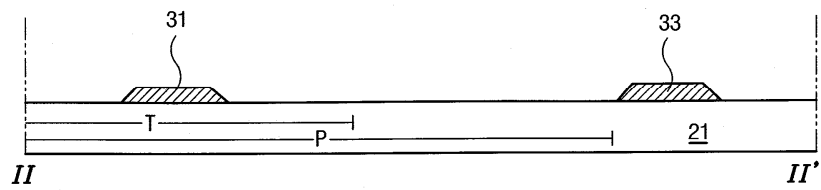
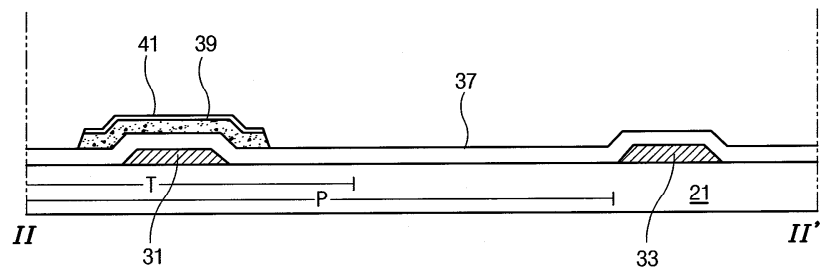
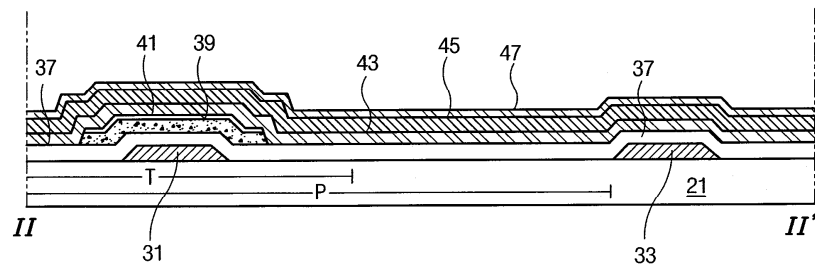
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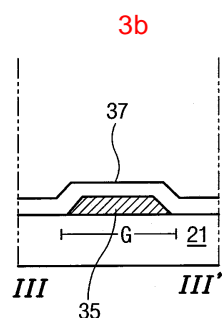
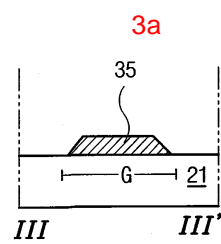
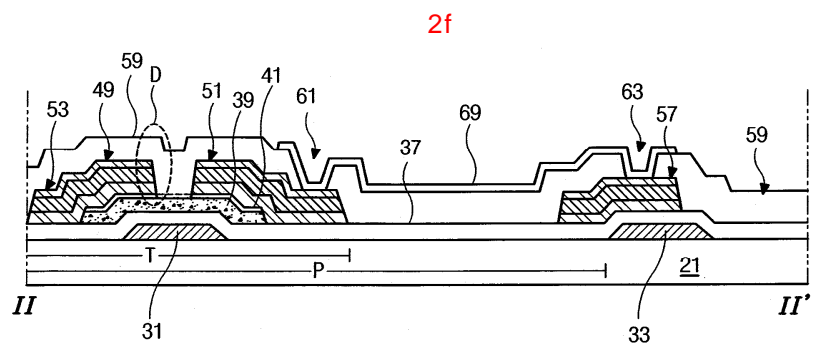
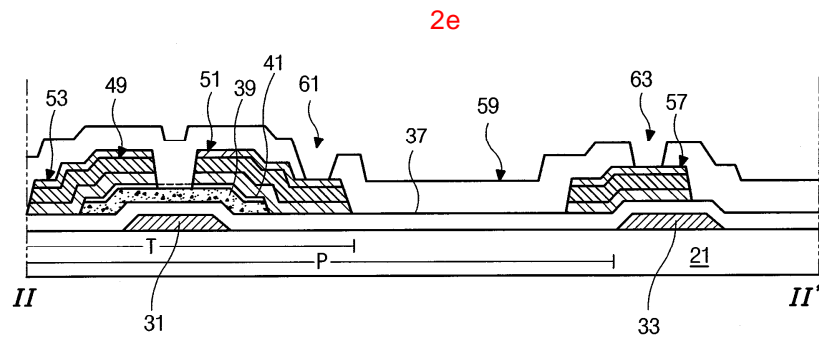
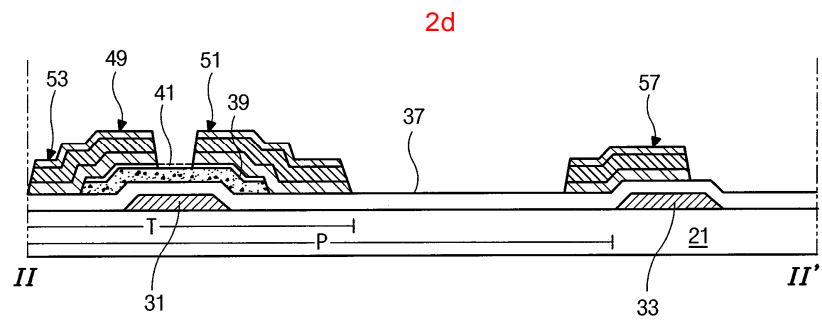
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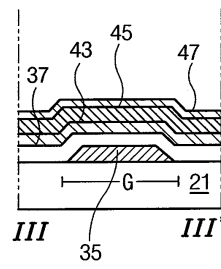
2

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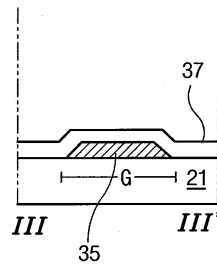
**2a****2b****2c**



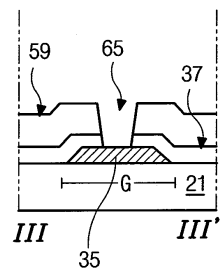
3c



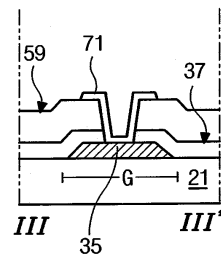
3d



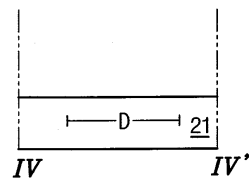
3e

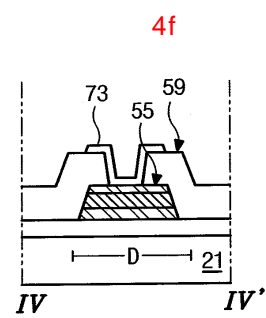
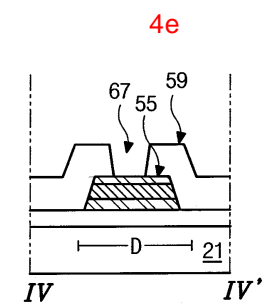
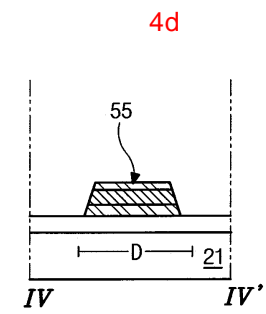
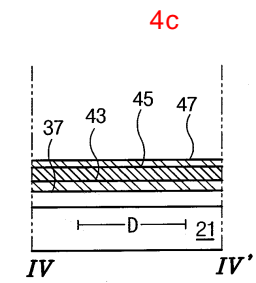
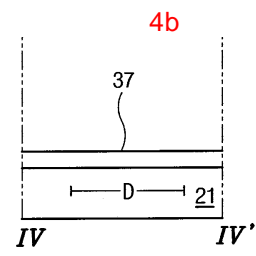


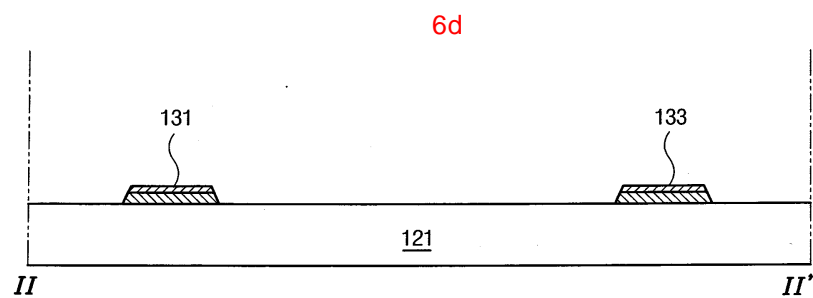
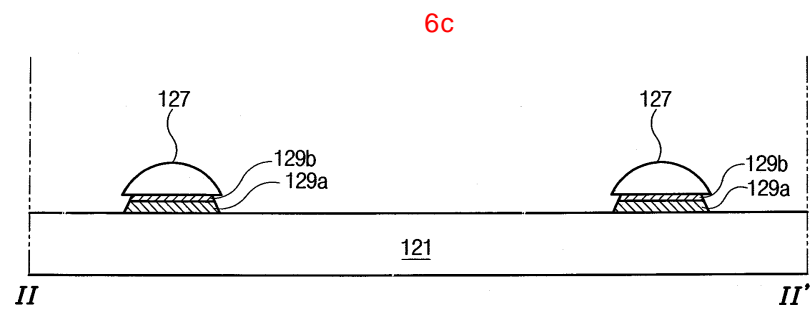
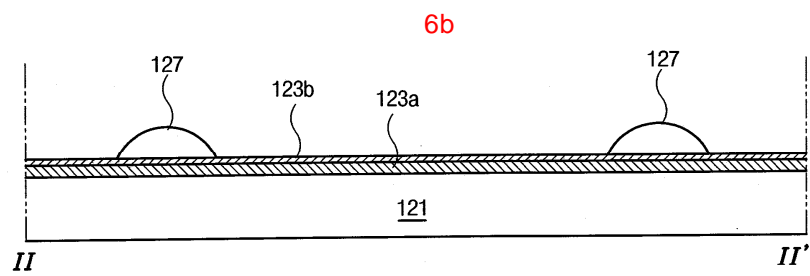
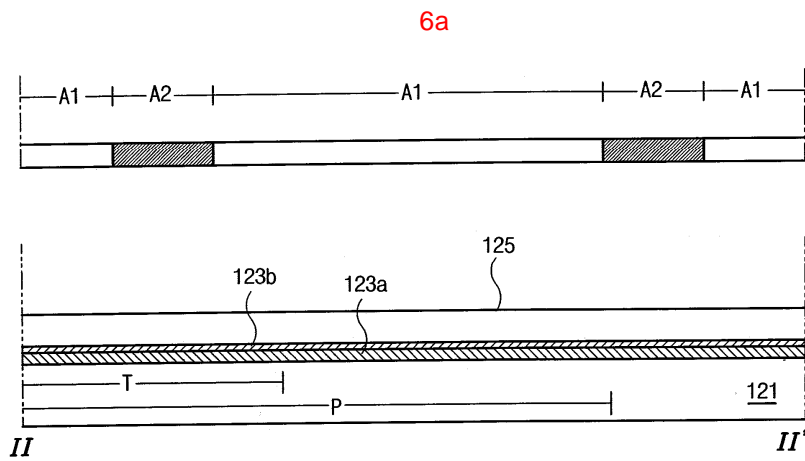
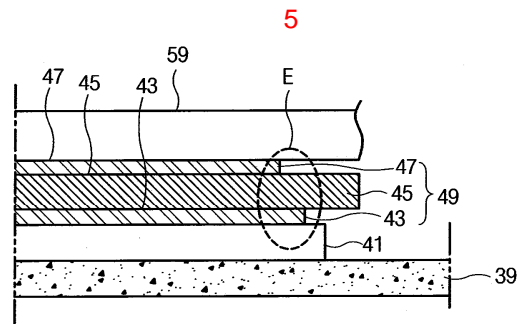
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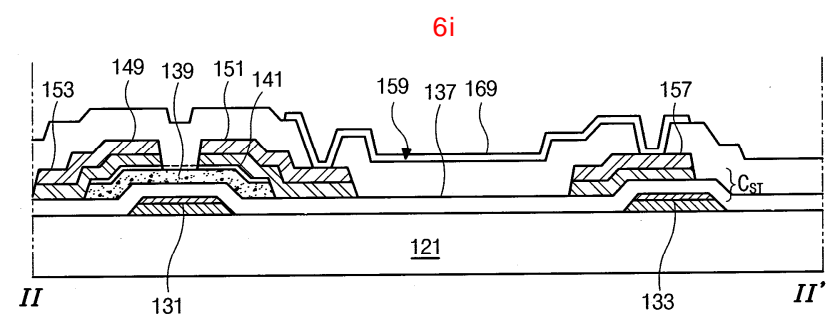
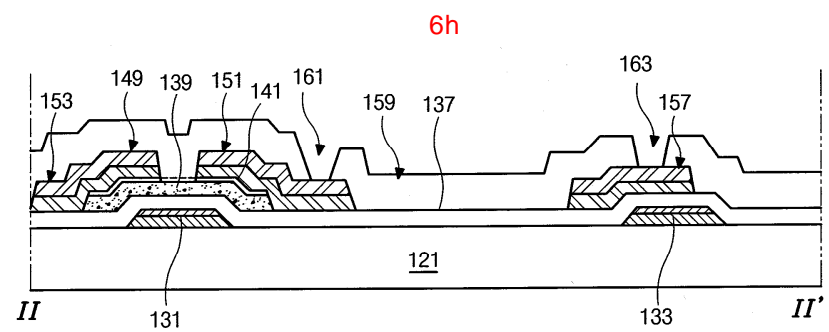
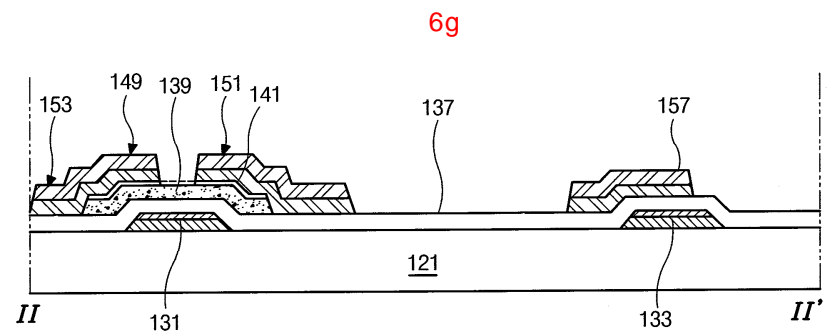
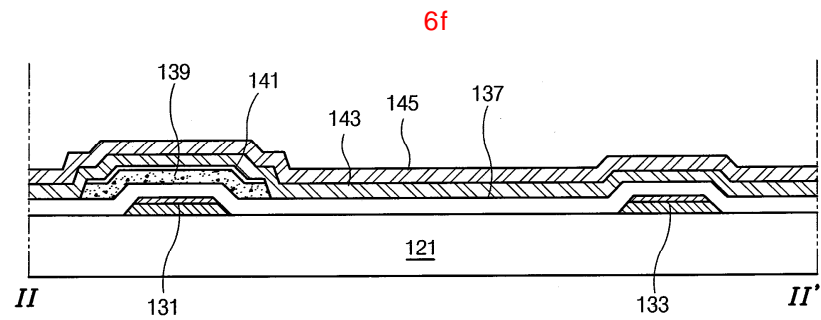
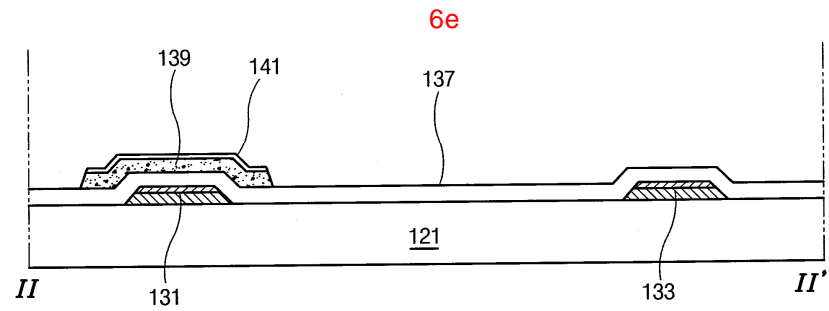


4a

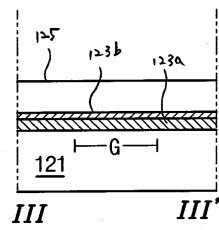
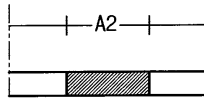




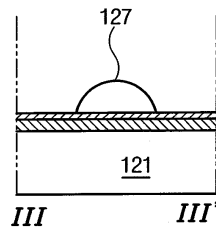




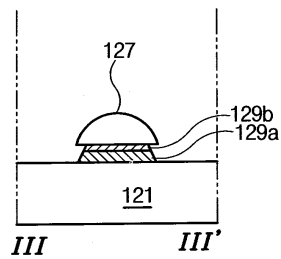
7a



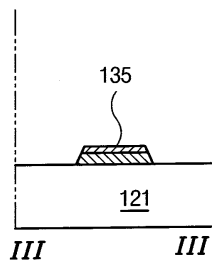
7b



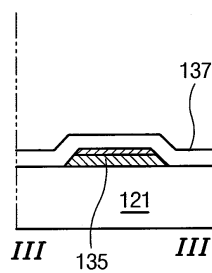
7c



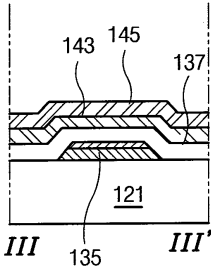
7d



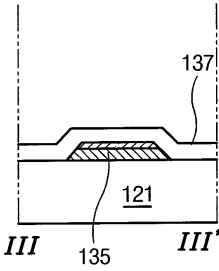
7e



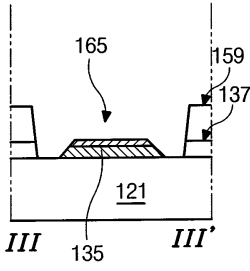
7f



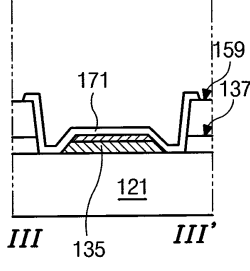
7g



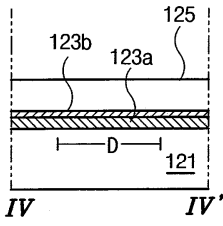
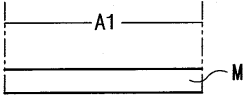
7h

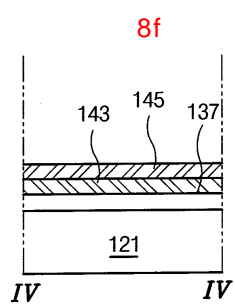
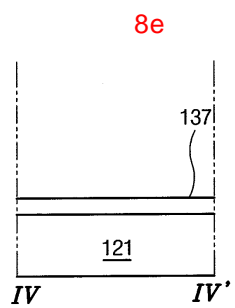
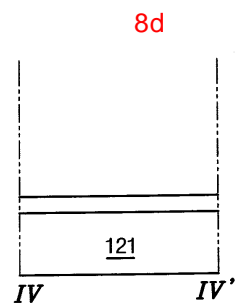
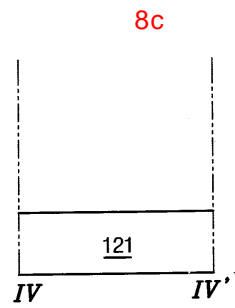
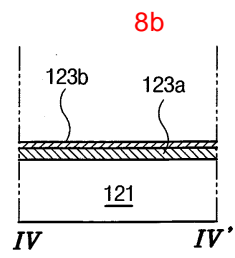


7i

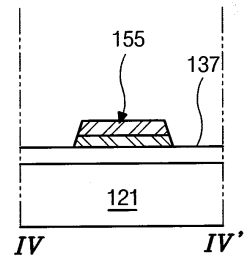


8a

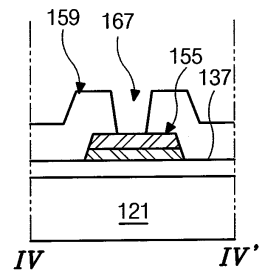




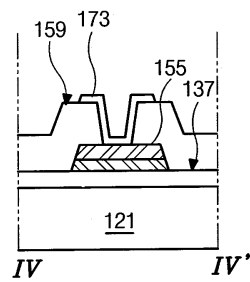
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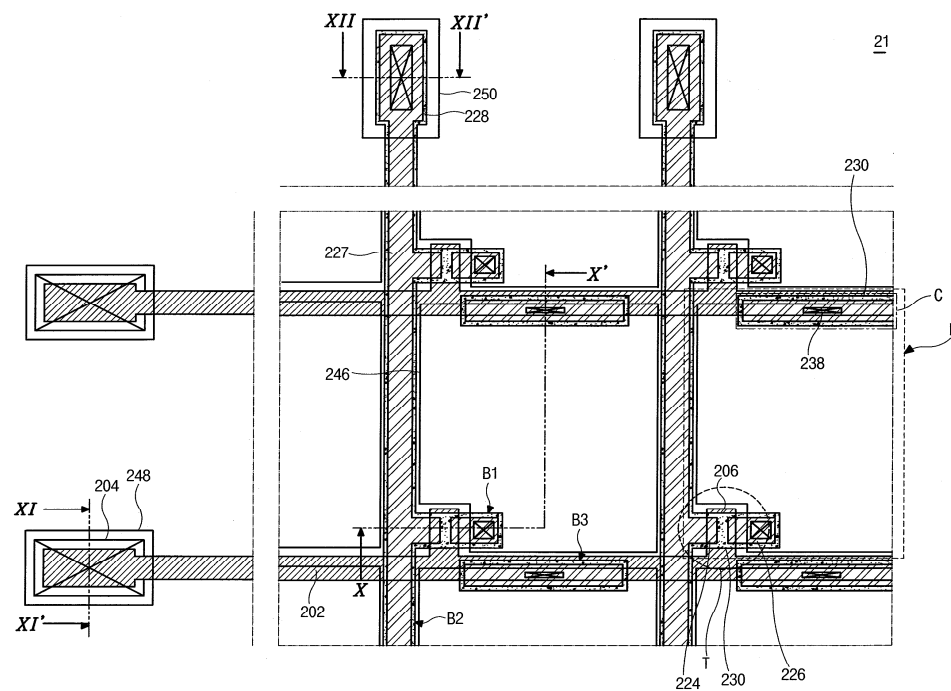
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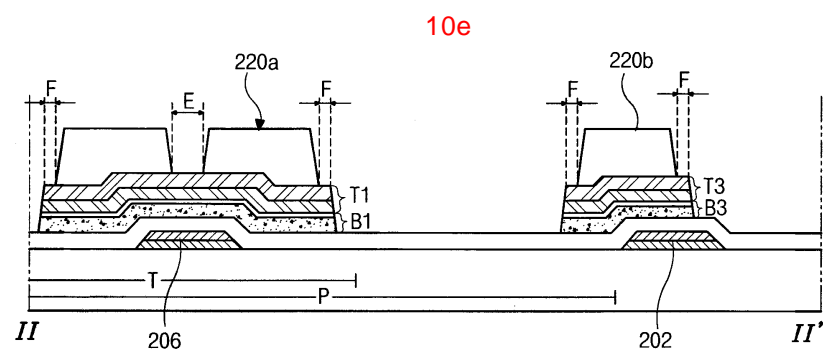
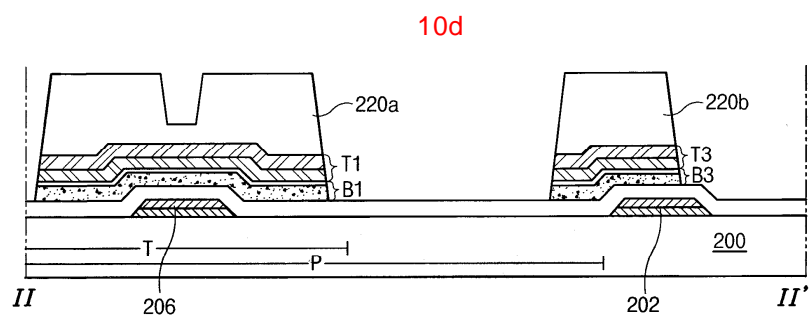
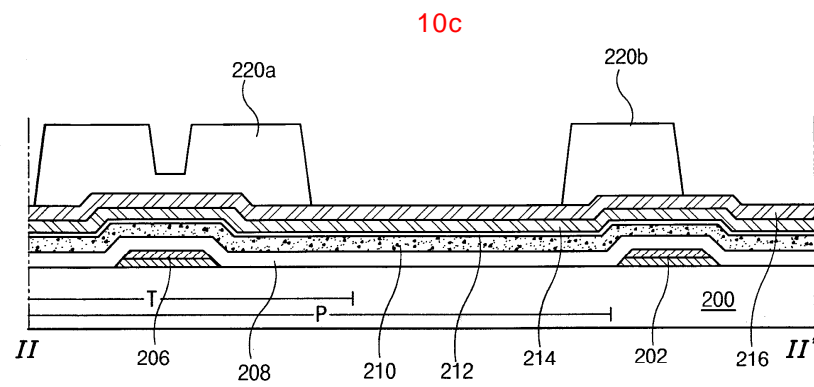
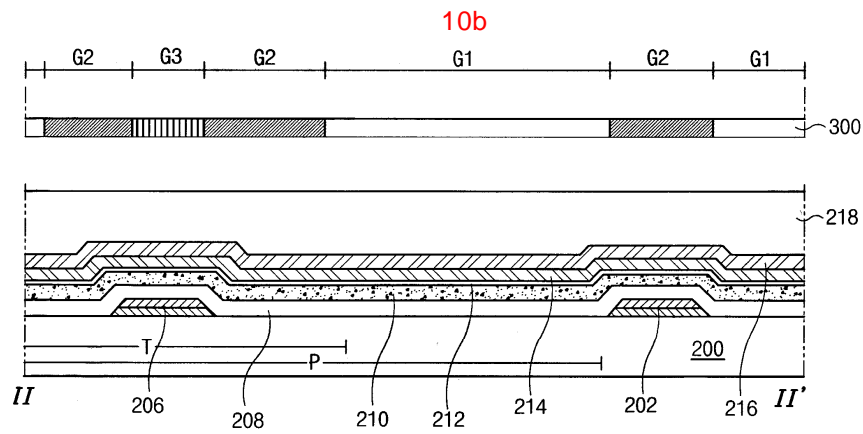
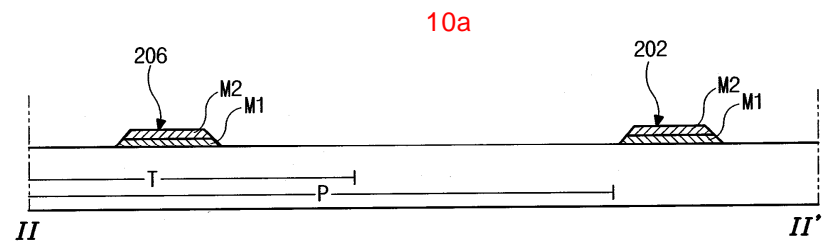


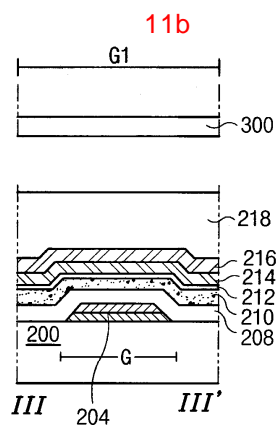
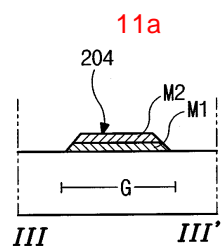
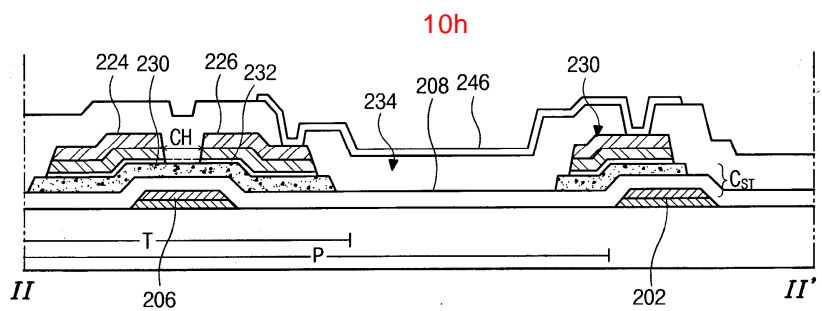
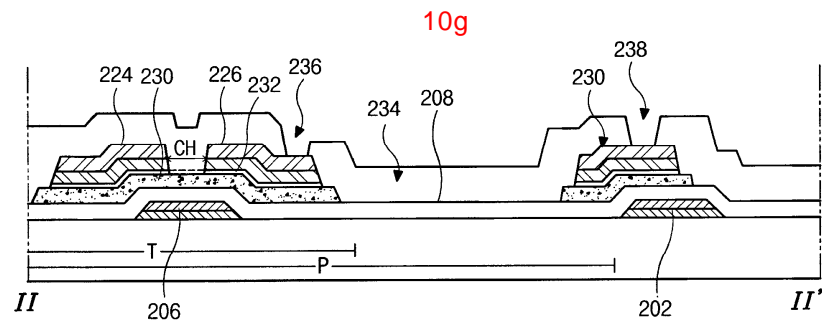
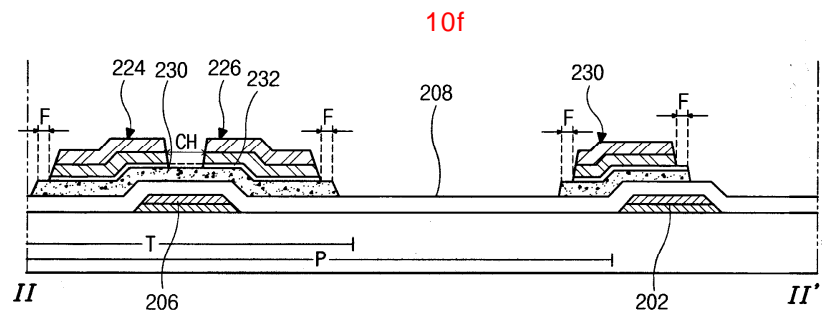
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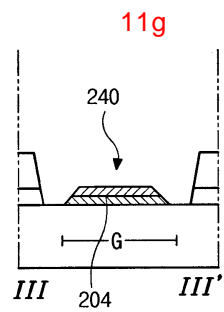
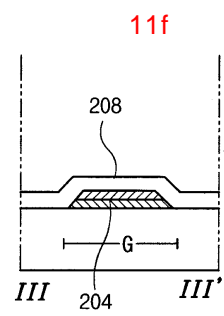
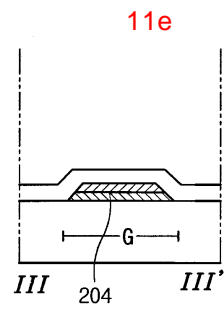
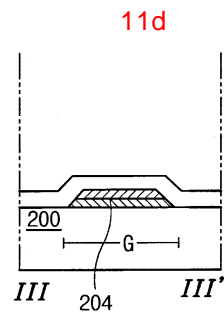
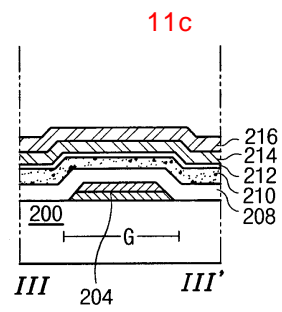


9

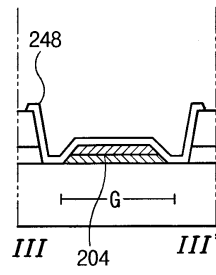




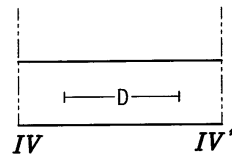




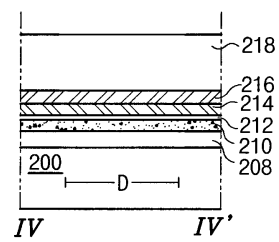
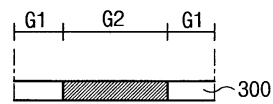
11h



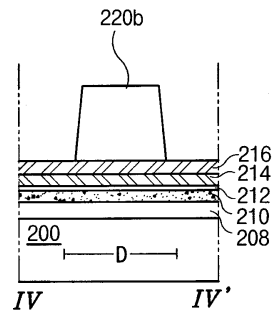
12a



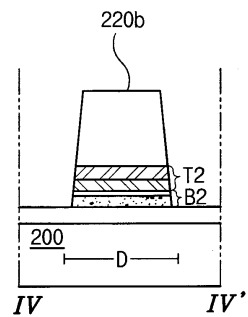
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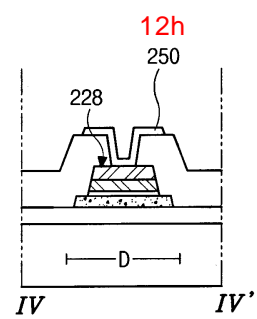
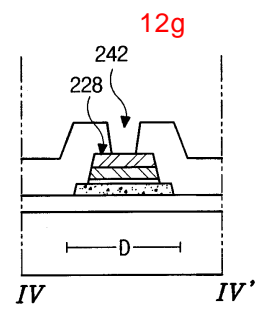
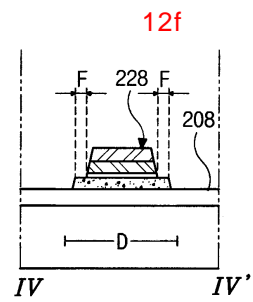
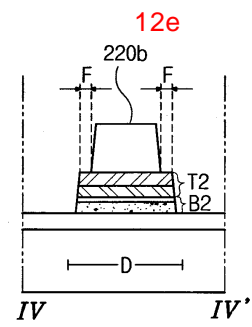


12c



12d





专利名称(译)	用于液晶显示装置的阵列基板和制造方法		
公开(公告)号	KR1020050002563A	公开(公告)日	2005-01-07
申请号	KR1020030043946	申请日	2003-06-30
[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	CHO WONHO 조원호 JO GYOOCHUL 조규철 LEE GUETAI 이규태 KANG JINGYU 강진규 JEONG BEUNGHWA 정병화 KIM JINYOUNG 김진영		
发明人	조원호 조규철 이규태 강진규 정병화 김진영		
IPC分类号	G02F1/1362 G02F1/136		
CPC分类号	G02F1/136286 G02F2001/13629 G02F2001/136295		
其他公开文献	KR100971950B1		
外部链接	Espacenet		

摘要(译)

液晶显示器的阵列基板及其制造方法技术领域本发明涉及液晶显示器，更具体地，涉及用于液晶显示器的阵列基板及其制造方法。本发明涉及用于通过5掩模工艺和第四掩模工艺制造的液晶显示装置的阵列基板的，配置和制造方法。在本发明的特征部分，为液晶显示器（栅极配线，数据配线）和薄膜晶体管（栅电极，有源层，源电极，漏电极），栅极布线和栅极的阵列基板上的配线构造的结构电极是阻挡金属构成的层/铝双，和数据线和第（铝合金）的源电极和漏电极是由铜/势垒层的双金属层的。在上述结构中，铝铂作为在（铝合金层）的上部或下部的阻挡层（MO），铝合金层，铬（Cr），钛（Ti），钽（Ta），氮化钽（Ta₂N₃），氮化钛（TiN），镍（Ni），钨（W），铟（In），锡（Sn），金，和导电金属基团，包括（AU）中，在铜层的下部配置的屏障中选定的一个的形成该层由选定的一种金属基团形成。图6I

