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1 1015-1401

(74)

:

(54)

4 , 1 4 가 ,  
, 가 ,

3

, W , ,

1(a) .

1(b) 1(a) I-I' .

2(a) 3- .

2(b) 4- .

3

4(a) 3 II-II'

4(b) 3 III-III'

5(a) 5(b)

\* \*

103,203 : 104,204 :

105,205 : 107,207 :

110,210,260 : 111,211,261 :

112,212,262 : 113,213,263 :

114,214,264 : 116,216 :

118,218 : 266 :

, R,G,B,W 4 R, G, B  
가

, (Mobile Phone), PDA, 가  
(Flat Panel Display Device) 가  
LCD(Liquid Crystal Display), PDP(Plasma Display Panel), FED(Field Emission Display), VFD(Vacuum Fluorescent Display)  
(LCD)가

가 TN 가 TN  
(refractive anisotropy) 가 가

가 (wide viewing angle characteristic)  
(In Plane Switching Mode) 가  
IPS

1 IPS 1(a) 1(b) 1(a) I-I'  
(4) (3) (4) (3)  
(n,m) (1) (1) (3)  
(4) n m (1) n x m  
(3) (4) (10)가 (10)가  
(3) 가 가 (11) (11) 가  
가 (12) (12) (4)  
가 가 (13) (14)

가 .

(4) (5) (16) (5) (7) (16) (16)  
 (7) (18) (18) (16) (storage capacitance) (16) (16)  
 , IPS (10)가 가 (7) 가 가 (5) (7) (5) (7)  
 (1) ,  
 IPS 1(b)  
 1(b) (22) , 1 (20) (11) , 1 (20)  
 (13) (14) , (22) 1 (20) (12) (passivation layer;24)  
 , 1 (20) (5) (5) (7) (E)가 (22) (7)  
 (4) , (5)  
 2 (30) (32) (34) (32) 가  
 ( , ) , (34) R(Red), B(Blue), G(Gree  
 n)  
 1 (20) 2 (30) (40) (1)  
 , IPS (20) (22) (5)  
 (7) (40) 가 (40)  
 TV , TV 가 가  
 IPS 가

R, G, B, W 4

R, G, B

W

, 1 4 가

1 4 R(Red) , G(Green) , B(Blue) , W(White)  
 , 1 1 , 1 가

, R, G, B  
, R, G, B  
W  
R, G, B  
가  
1 4  
가  
가  
, 2 3 2 3  
1 4 1 2 3 2 3  
가 1 2 4 3 2  
, 2 3 2 3  
가 1 4 1 4 2 1 3 2  
3 1 4 1 4 2 1 2  
가  
가 IPS  
IPS  
가  
가  
가  
B . R, G, B . R, G, B  
가  
IPS  
3가  
가 IPS  
) 4 ( 4 ) IPS W(White  
4 ( 4 ) IPS  
IPS  
2(a) 2(b) 2(a) IPS 2(a)  
IPS R, G, B 3 . R, G, B  
가 R, G, B, W  
(back light)  
W

W 55% W 가 IPS 가 40% , IPS W  
R, G, B 가 4 , 가 4  
4 4 .  
3 4 IPS R, G, B, W 4 , IPS , R, G, B 가  
R, G, B (101b) R, G, B (101a)

R, G, B (101a) W (101) (103) (104)  
(104) (101b) (101a,101b) (103) 가  
가 가 (112) , (111) , (103) 가  
(113) (114) (112) (104)  
(110)가 .

R,G,B (101a) W (101b) (104) (1  
(107) (101a,101b) (107)  
(118) (105) (116) (118) (1  
16)

(101a,101b) (105) (104) 가  
(104) (104) (104) 가  
(104) (shielding) (104) 가  
(105) (104) 가 가

4(a) 4(b) 3 II-II' III-III' 4(a)  
1 (120) (122) (104)  
(112) (122) (110) (111) 1 (120)  
(112) (113) (114)

R, G, B (105) (122) (124) (107)  
(122) (105) W (107) (122)  
(124) (124) BCB(Benzo Cyclo Butene)  
BCB (124) (104) , W (105) SiNx  
(104) (101b) (10)

5) (104) IPS , W (101b) (105) (10)

R, G, B (104) (124)  
R, G, B (104) (105) (124)  
(105) (107) (122)  
, R, G, B (124) 가 , R, G, B  
(124) 가 R, G, B IPS  
R, G, B (124) (124) (trap)  
(105) (107) (124)

, R, G, B (101a) (118) (124) 4(b)  
(118) (124) (105) (116)

(118)

R, G, B (124) (105) (124) (122)

(104) (104) (105) (shielding)

(130) (non-display region)

(132)가 R, G, B (101a) R, G, B (134)

(101b) W (101b)

가 (134) (134) (134) W

2 (130) R, G, B (134) 2 (130) W

(134) (overcoat layer;136) (134) W

2 (130)

1 (120) 2 (130) (140) (101)

3가 IPS

가 (104)

(105)

(124) (124) R, G, B (101a)

IPS

R, G, B W ( R, G, B, W ) W W 가 W 가 ,가

(101b) (134) (134) (134)

R, G, B (101a) (134) W (101b) (134)

(134) R, G, B (101a) (cell gap;d1) W (101b) (101b)

( , d1 d2). ( , d1=d2) IPS

IPS

3 ( , 2(b) 4 ) IPS R, G, B, W 가 가

IPS

5(a) 4 IPS

(201a,201b,201c,201d)가 2

5(b) 5(a) 4 IPS (201a,201b,201c,201d)

(210,260) (205) (207)

(216) (218a,218b)

3 IPS 가 3

3 IPS 가

5(b) 201c) W (201d) IPS , G R (201b) B (201a), G (201c) (201b), B (

(210)가 , R (201a) W (201d) (160)가  
 ,  
 4  
 4 ) , 3  
 S 가 . , , 3  
 , 가 가 가  
 . R (201a) W G (201b) B (201c) 2 (210)  
 (204) 2 (204) 가 . , R,G (201a,201b), B,W (260) (210)  
 (204) 가 (201c,201d)가  
 G (201b) B (201c) 2 (210) 2 가  
 (204) ) 가 ( , G B  
 ) (204) . G B ( , R W  
 (210)가 , 2  
 , 1 (213a) 1 (214a) , (203) (211)  
 가 . , 2 (213b) 2 1 (214a) , (212) 1 (channel)  
 b) , 2 (212) 2 (214b) , , 2 (213b) 2 (214  
 , 2 (214a) 1 . 1 2 (213a) 1  
 2 (214b) 2 2 (213b)  
 1 (205) , 1 (214a) ( , G B )  
 W (201d) ) 2 3 (214b) 2 (214b) , G (266) B )  
 7) . (260) (263) . , R (201a)  
 (201d) 3 (260) (264) (201a)  
 3 IPS 가 IPS R, G, B (201  
 a,201b,201c) ( ) (205) (207) (201a,201b,201c)  
 , W (201d) , R, G, B  
 (204) (205) 가 . ,  
 , W (201d)  
 , 2 (213b) 2 (114b) 1 (210)  
 (213a) 1 (214a) 2 가 . , 3 (260) (263) 1  
 264) 1 1 (213a) 1 (214a) 2 가 , ( )  
 .  
 가 ( 가 )  
 1 .

1

$$I_{on} = \frac{W}{L} \mu C_i V_{sd} (V_g - V_{th} - \frac{V_{sd}}{2})$$

$V_g$ ,  $W$ ,  $V_{sd}$ ,  $L$ ,  $C_i$ ,  $V_{th}$ ,  $\mu$  (L)  
 (W) ) 가 1 3

1d) 1 3 2 (L) R (201a) W (20  
 3 (260) ( )가 가  
 2L (201b) B (201c) 가  
 가 2 3 (260) 1 2  
 1 (213a) (214a) 2 (213b,263) (214b,264)

2 가  
 (110) , G (201b) B (201c) 2  
 R (201a) W (201d) (163)

3가 IPS  
 IPS 가 가 가  
 , W 가 가 가

- (57)
1. , 1 4 ;  
 ;  
 가 ;
  2. 1 , 1 4 R(Red) , G(Green) , B(Blue) , W(White)
  3. 1 , .
  4. 1 , ,  
 1 ;  
 1 ;

;

1

5.

4 ,

6.

4 , R, G, B

7.

6 , R, G, B

W

8.

4 ,

9.

1 ,

;

가

10.

1 ,

2 ;

R, G, B, W

R, G, B, W ;

;

1 2

가

11.

1 ,

2 ;

R, G, B

R, G, B ;

;

1 2

가

12.

1 4

가

;

가

;

;

12 13. , 1 4 R(Red), G(Green), B(Blue), W(White)

12 14. ,

14 15. , ,  
1 ;  
1 ;  
1 ;  
1

14 16. , ,  
2 3 2 3 가 1  
; ;  
2 4 3 가 2 1 ; 4 1  
2 3 2 3

14 17. , ,  
2 3 2 3 가 1  
4 1 ; ;  
2 3 1 4 1 4 가 2 1

15 18. ,

15 19. , R, G, B

19 20. , R, G, B W

15 21. ,

22.  
12 ,

;

가

23.  
12 ,

2 ;

R, G, B, W R, G, B, W ;

;

1 2 가

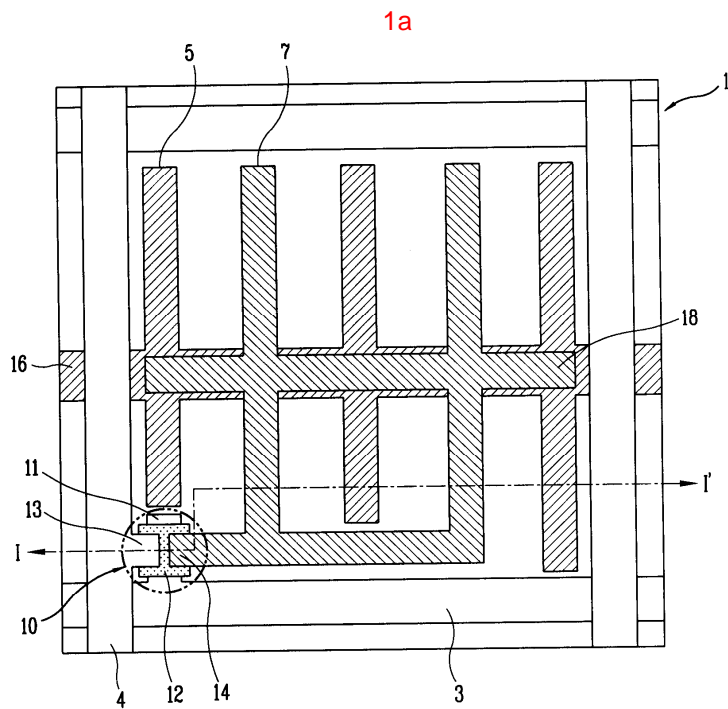
24.  
12 ,

2 ;

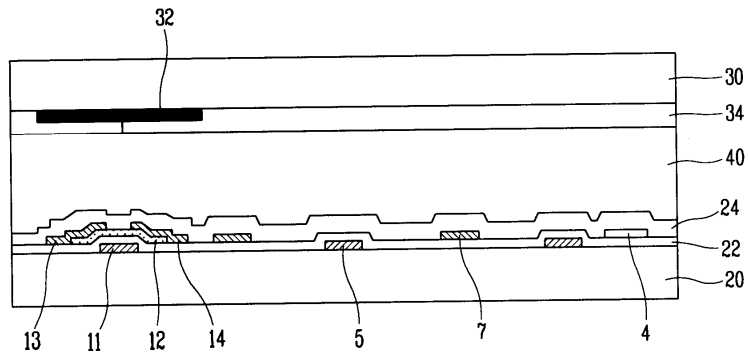
R, G, B R, G, B ;

;

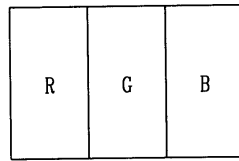
1 2 가



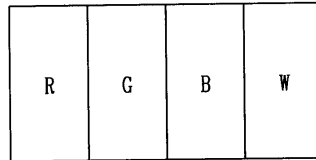
1b

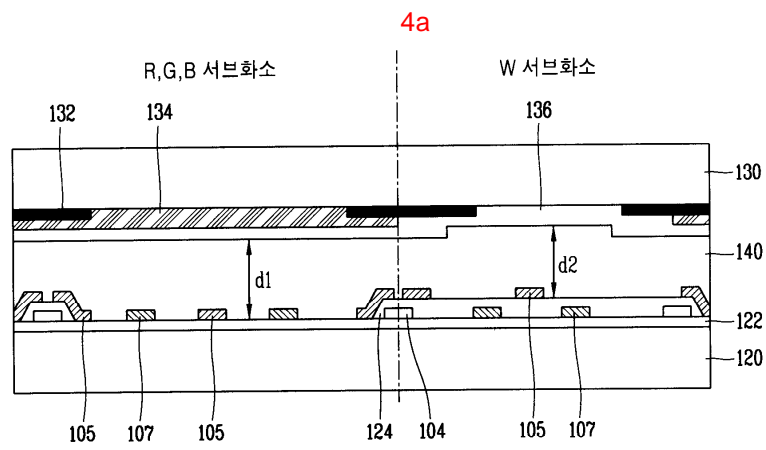
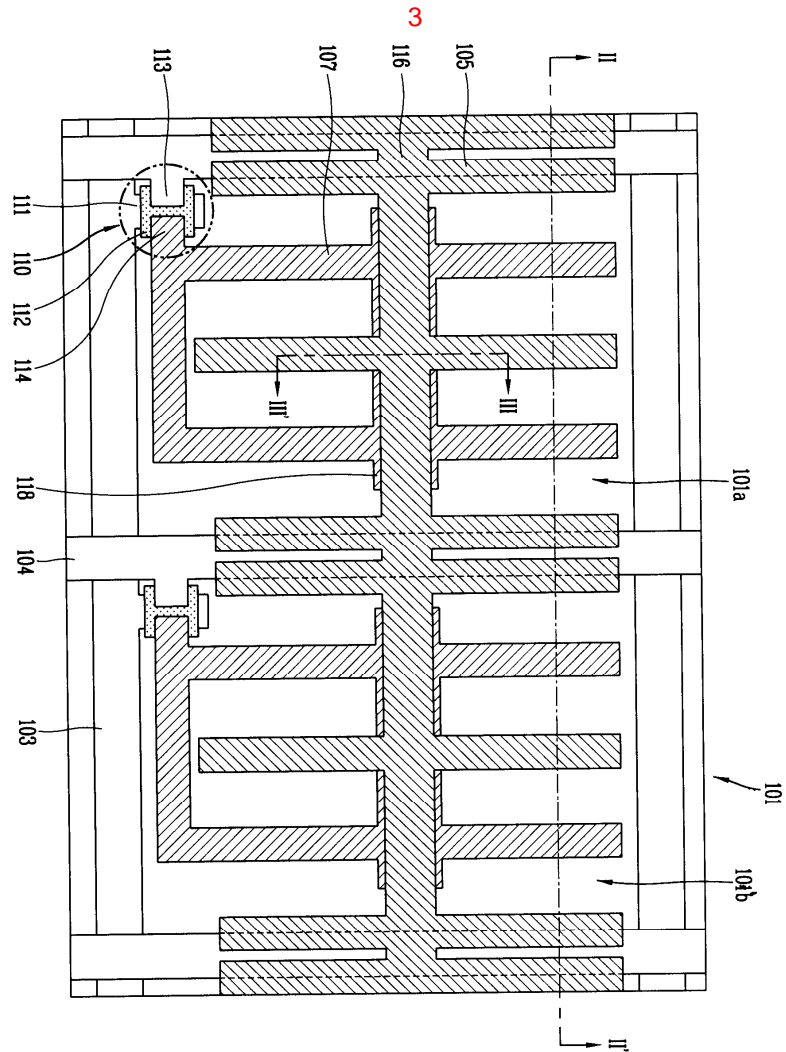


2a

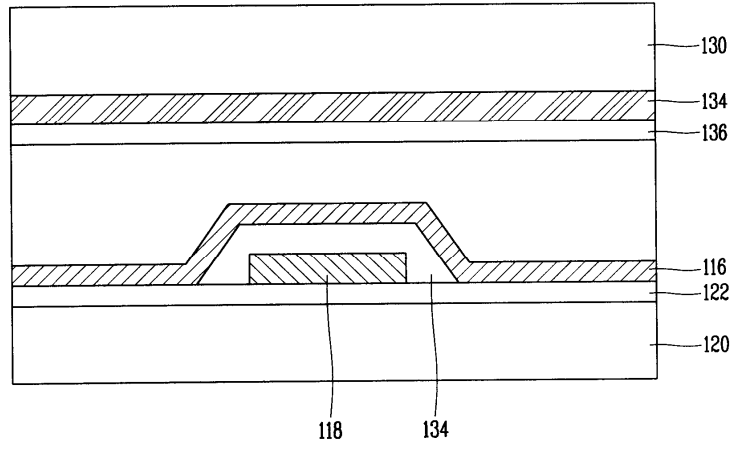


2b

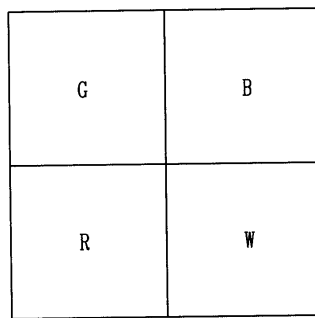




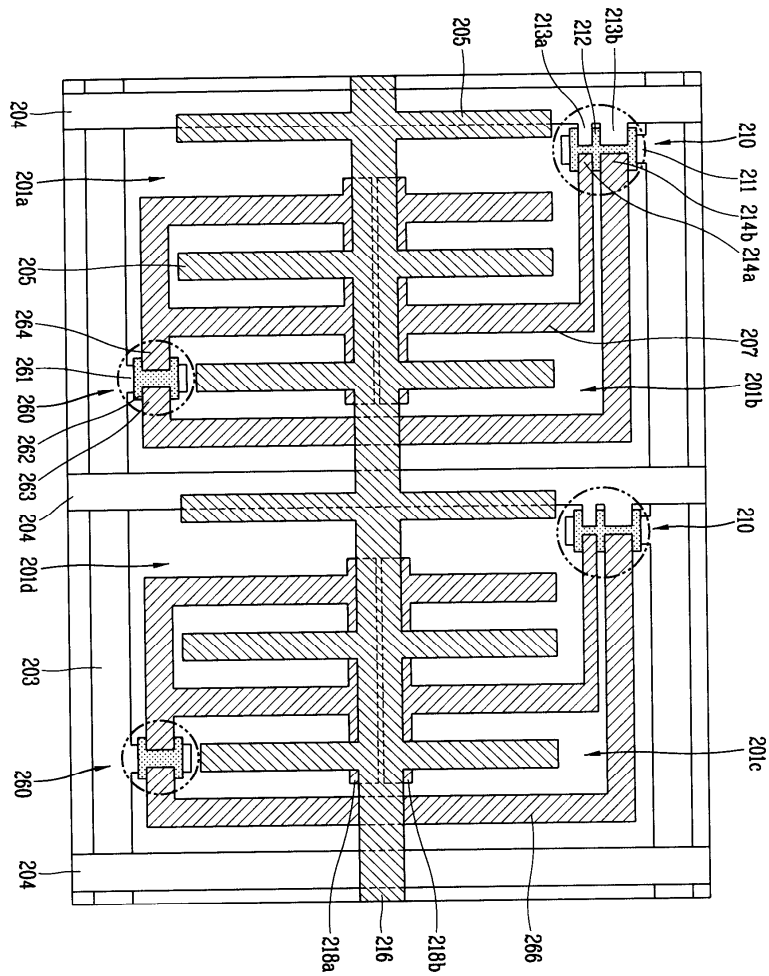
4b



5a



5b



专利名称(译)	横向电场模式液晶显示元件		
公开(公告)号	<a href="#">KR1020040110288A</a>	公开(公告)日	2004-12-31
申请号	KR1020030039515	申请日	2003-06-18
[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	LEE DONGHOON 이동훈 KANG WONSEOK 강원석		
发明人	이동훈 강원석		
IPC分类号	G02F1/1335		
代理人(译)	PARK , JANG WON		
外部链接	<a href="#">Espacenet</a>		

摘要(译)

本发明涉及一种横向电场模式的液晶显示装置，其具有四子像素结构并具有改善的孔径比和改善的亮度，其由多条栅极线和数据线限定，并且包括多个像素，包括第一至第四子像素。一种驱动元件，设置在子像素中;公共电极，设置在子像素中并与数据线部分重叠;以及像素电极，设置在子像素中，并与公共电极产生横向电场。3 指数方面 横向电场模式，子像素，W滤色器，高孔径比，单元间隙，

