

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

(51) 。 Int. Cl.<sup>7</sup> (11) 2003-0072859  
G02F 1/1343 (43) 2003 09 19

(21) 10-2002-0012121  
(22) 2002 03 07

(71) 3 416

(72) 331 110 802

865-1 110 304

955-1 136 1806

289-12 102 504

2 220 1201

(74) :

(54)

가 , , 3  
가 2 , , 2  
1 . 1 , (pre-tilt)  
가 ,

1	1	,
2	1	,
3	1	,
4a		가 ,
4b		가 ,
5a	2	,
5b	5a Vb - Vb'	,
6a	3	,
6b	6a VIb - VIb'	,
7	4	.

,

.

(color filter)

가

,

(fringe field)

.

.

,

.



$$C_{LC}, \quad \frac{C_{LC}}{2C_{DCE}+C_{LC}} |V_p+V_{n-1}| > \frac{\varepsilon d'}{\varepsilon' d} |V_p|$$

$$C_{DCE}, \quad \text{가} \quad V_{n-1}, \quad \text{가} \quad V_p$$

$$1, \quad 1, \quad 2$$

$$(100), \quad (10, 100), \quad (10), \quad (100), \quad (10)$$

$$(10), \quad (21), \quad (21), \quad (71)$$

$$(21), \quad (71), \quad (21), \quad (76), \quad (90)$$

$$(T_1), \quad (90), \quad (T_1)$$

$$(21), \quad (71), \quad (90), \quad (21)$$

$$(71), \quad (170), \quad (76), \quad (pre-tilt), \quad (76), \quad (21)$$

$$(76)$$

$$4, \quad V_p, \quad \varepsilon', d'$$

$$V_{DCE}, \quad \varepsilon, d, \quad \varepsilon', d'$$

$$V_{DCE} > V_p \times (1 + \frac{\varepsilon d'}{\varepsilon' d})$$

$$4b$$

$$V_{DCE} = V_p \times (1 + \frac{\varepsilon d'}{\varepsilon' d})$$

$$4a$$

$$V_{DCE} < V_p \times (1 + \frac{\varepsilon d'}{\varepsilon' d})$$

$$V_{DCE} = V_p \times (1 + \frac{\varepsilon d'}{\varepsilon' d})$$

$$E_P, \quad \sigma_0, \quad E_{LC}$$

$$V_p = E_{LC} \times d = \frac{\sigma_0 A}{\varepsilon} \times d \quad (1)$$

$$V_{DCE} = V_p + E_p \times d' \quad (2)$$

$$V_{DCE} = V_p + \frac{\sigma_0 A}{\varepsilon'} d' \quad (3)$$

(1) (3)

$$\langle \text{FONTID} \rangle_{\text{JAPAN}=\text{ETC}=1} \text{SPECIAL}=1 \rangle V_{DCE} = V_p + V_p \frac{\varepsilon d'}{\varepsilon d} = V_p \times \left(1 + \frac{\varepsilon d'}{\varepsilon d}\right) \langle \text{FONTID} \rangle \quad (4)$$

가 .

1 , 가 . (turn-on)

가 .

가 .

1 2 3 가

(refresh) (on) 가 가 가 (T<sub>2</sub>)가

C<sub>LC</sub> , 2 , C<sub>DCE</sub> C<sub>LC</sub> C<sub>DCE</sub> ,

가 , V<sub>DCE</sub> > V<sub>p</sub> 가 (flood)

ting) 가 .

가 .

V<sub>n-1</sub> 가 .

$$\frac{C_{LC}}{2C_{DCE} + C_{LC}} |V_p + V_{n-1}| > \frac{\varepsilon d'}{\varepsilon d} |V_p| \quad (5)$$

2 , C<sub>gs</sub> 3 , C<sub>st</sub> , C<sub>LD</sub>

3 C<sub>st</sub> C<sub>LC</sub>

, C<sub>LD</sub> C<sub>DG</sub> .

가 V<sub>n-1</sub> , 가 V<sub>n</sub> ,

V<sub>on</sub> , V<sub>off</sub> ,

$$V_p = V_n - \frac{C_{gs}}{C_{LC} + C_{LD} + 2C_{gs} - \frac{(C_{LD} + C_{gs})^2}{C_{DCE} + C_{LD} + C_{gs}}} (V_{on} - V_{off}) \approx V_n \quad (6)$$

$$V_{DCE} \approx V_p + \frac{C_{LC}}{2C_{DCE} + C_{LC}} (V_p + V_{n-1}) \quad (7)$$

C<sub>DCE</sub> , C<sub>LC</sub> >> C<sub>LD</sub> , C<sub>gs</sub> 가 .

$$V_{DCE} > V_P \times \left(1 + \frac{\varepsilon d'}{\varepsilon' d}\right) \quad (7)$$

$$V_P + \frac{C_{LC}}{2C_{DCE} + C_{LC}} (V_P + V_{n-1}) > V_P + \frac{\varepsilon d'}{\varepsilon' d} V_P \quad (8)$$

(5)

(5)

(5)

 $C_{DCE}$  $d'$  $C_{LC}$  $d$  $C_{DCE}$  $C_{st}$ 

5a

2

5b

5a Vb-Vb'

(10)

(100)

(200)

(10)

(10) 가

(21)

1 2

(23a, 23b)

1 2

(23a, 23b)

(21)

(10)

(31)

(33a, 33b, 33c, 33d)

(31)

가

1 2

(33a, 33b)

(31)

3 4

(33c, 33d)

가  
, 23a, 23b)

1

(33a)

2

(33b)

(21)

(31, 33a, 33b, 33c, 33d)

Cr

Mo

1

Al

Ag

2

(21, 23a, 23b)

(31, 33a, 33b, 33c, 33d)

(40)

1

2

(23a, 23b)

(40)

1

2

(51a, 51b)

1

2

(51a, 51b)

n

n+

(63a, 65a, 63b, 65b)

(63a, 65a, 63b, 65b)

(40)

(71, 73a, 75a, 73b, 75b)

(71, 73a, 75a, 73b, 75b)

(21)

(71),

(71)

(63a, 63b)

1

2

(73a, 73b),

(71)

가

(

), 1

2

(73a, 73b)

1

2

(23a, 23b)

1

2

(73a, 73b)

(65a, 65b)

1

2

(75a, 75

b)

(21)

(71)

X

(76)

(76)

2

(75b)

(71, 73a, 75a, 73b, 75b)

(76)

Cr

Mo

1

Al

Ag

2

(76)

(33c, 33d)

(55)

(71, 73a, 75a, 73b, 75b)

(80)

(80) 1 (75a) (81) ( )가  
(40) 가 ( ) 2mm×60μm  
, 0.5mm×15μm .

(80) (81) 1 (75a) X  
(91) (92) 가 (90) (92) 3 4 , (91)  
(76) X , (33c, 33d) .  
(80) ( )  
) ( )가 (90)  
IZO(indium zinc oxide) . (90) ITO .

(90) (91, 92) 가 , 1  
(91) (76) , 2 (92) (33c, 33d) .  
(76) 1 (91)  
(76) 1 (91) (90) (76) (90) 가  
(76) (90) 가  
(31, 33a, 33b, 33c, 33d) (90)

(76) (21, 23a, 23b) . , (76)  
(80) .  
(100) .

(130) ITO IZO (100) (110) .  
(200) (90) (170) 가 가  
(10) (10) (100) (90) (130) , 가  
, 1 2 (91, 92) . , (76)

6a 3 , 6b 6a VIb-VIb'  
.

3 2 가 (10)  
(100) (200) .  
(10) .

(10) 가 (21) 1 2 (23a, 23b) . 1 2  
(23a, 23b) (21) . (31) (31)  
(33a, 33b, 33c, 33d) . (31) 가 1 2  
(33a, 33b) (31) . 3 4 (33c, 33d)  
d) 1 (33a) 2 (33b) 가 ,  
21, 23a, 23b) (31, 33a, 33b, 33c, 33d) ,  
1 , Al Ag 2 Cr Mo .  
(21, 23a, 23b) (31, 33a, 33b, 33c, 33d) (40)  
.

1 2 (23a, 23b) (40) 1  
2 (51a, 51b) , 1 2 (51a, 51b) n

$n+$  (63a, 65a, 63b, 65b)

(63a, 65a, 63b, 65b) (40) (71, 73a, 75a, 73b, 75b) (21)

(71), (71) (63a, 63b) 1 2 (가) (23a, 23b) 1

(73a, 73b), 1 2 (73a, 73b) 1 2 (75a, 75b) 2 (73a, 73b) (21) (71) (65a, 65b) 1 2 (76) 2 (+) (75b)

(71, 73a, 75a, 73b, 75b) (76) (76) 2 (76) 2 Cr Mo

1 , Al Ag 2

(76) (31) (55)

(71, 73a, 75a, 73b, 75b) (80)

(80) 1 (75a) (81) (가) (가) 2mm×60μm (82)

, 0.5mm×15μm (82) (80) (82) (76) (가) (82)

(80) (81) 1 (75a) (+) (91) (92) 가 (90) (91) (92) 3 4 (33c, 33d) (80)

(76) (31) (91) (80) 가 (82) (가) IZO(indium zinc oxide) (90) ITO (90)

(91) (90) (76) , 2 (92) (91, 92) 가 , 1 (33c, 33d) (31)

(90) (76) 1 (91) (76) 1 (91) (76) (90) (76) 가

(82) (82) (90) (76) 가

(31, 33a, 33b, 33c, 33d) (90) (21, 23a, 23b)

(100) 2 가

(200) (10, 100) , 가

(10) (100) 가 가 (10, 100) 가

(90) (131) 가 가 (10, 100) 가

1 3 가 (10, 100)



가 1 3 2 1  
, 가 (turn-on)  
가 4 1 2  
7 4  
4  
(T<sub>1</sub>) (76) 2 (90) (T<sub>2</sub>) 1 1  
(71)

$$V_{DCE} > V_p \times (1 + \frac{\varepsilon d'}{\varepsilon' d})$$
  
(turn-on)

가  
$$\frac{C_{LC}}{2C_{DCE} + C_{LC}} |V_p + V_{n-1}| > \frac{\varepsilon d'}{\varepsilon' d} |V_p|$$

(57)

1.

1 1 2  
1 2 가  
1 2 1  
가 2

2.

1 2 1 가 1 가

3.

1 2 ,

1 2 3 , 2 3  
 1 1 , 2 가 1 , 2 가 .

4.

3 ,

1 2 2

5.

3 ,

1 2

2

6.

1 ,

1

7.

1 ,

2

8.

1 ,

가

9.

1 ,

1 1 ,

1 1 2 ,

1 2 가 ,

1 , 2 1 ,

,

,

1 2 ,

2 ,

1 2

$$V_{DCE} \geq V_p \times (1 + \frac{\epsilon d'}{\epsilon' d})$$

$$V_p, \epsilon, d, \epsilon', d'$$

10.

9

가 1 2

11.

9

가 1 2

12.

9

2

13.

12

2 1 가 1 가

14.

12 13

1 1 1, 2 가 1, 2 가 3

15.

14

$$C_{DCE} \geq \frac{C_{LC}}{2C_{DCE} + C_{LC}} |V_p + V_{n-1}| > \frac{\epsilon d'}{\epsilon' d} |V_p|$$

$$C_{LC}, V_{n-1}$$

16.

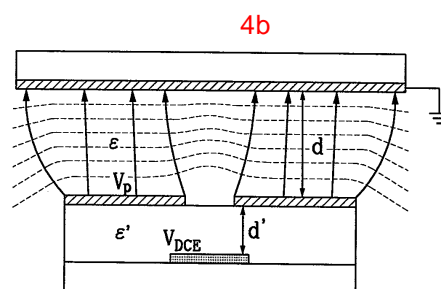
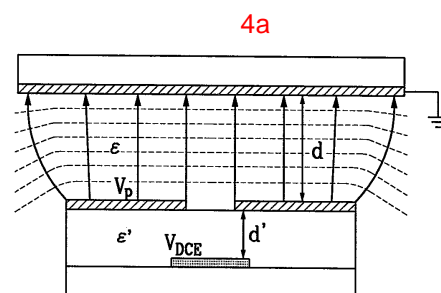
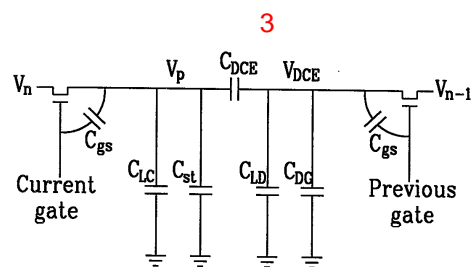
14

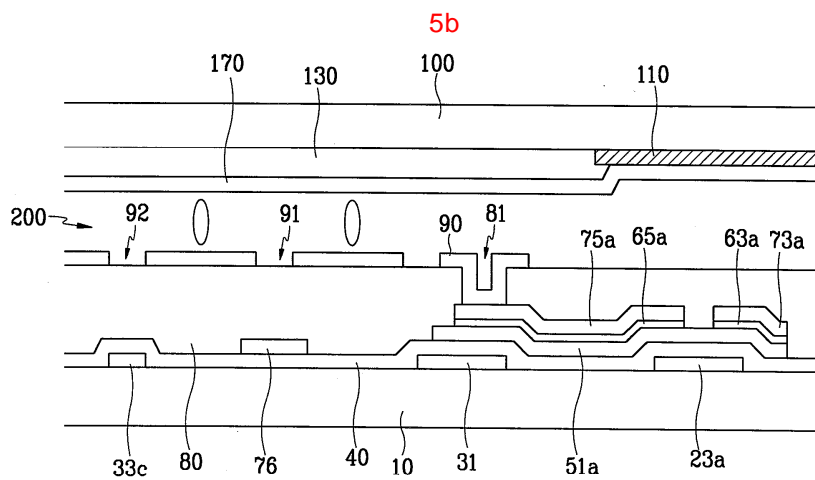
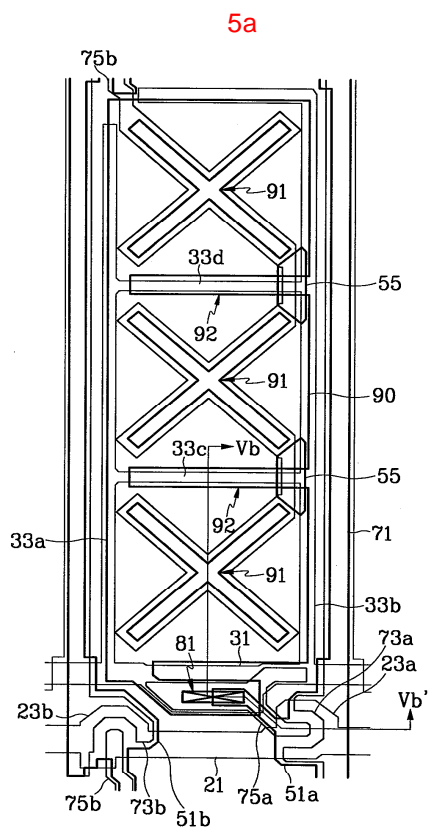
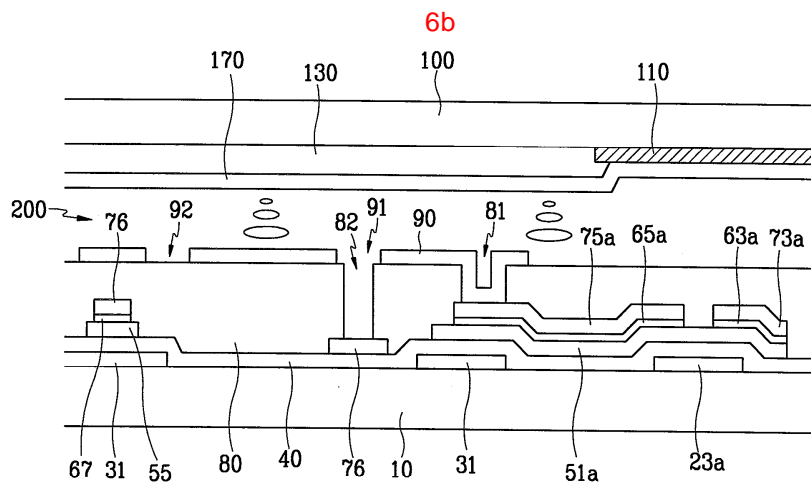
1 2 2

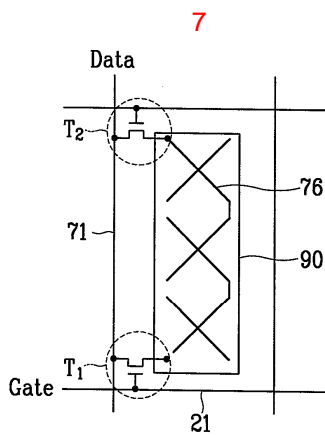
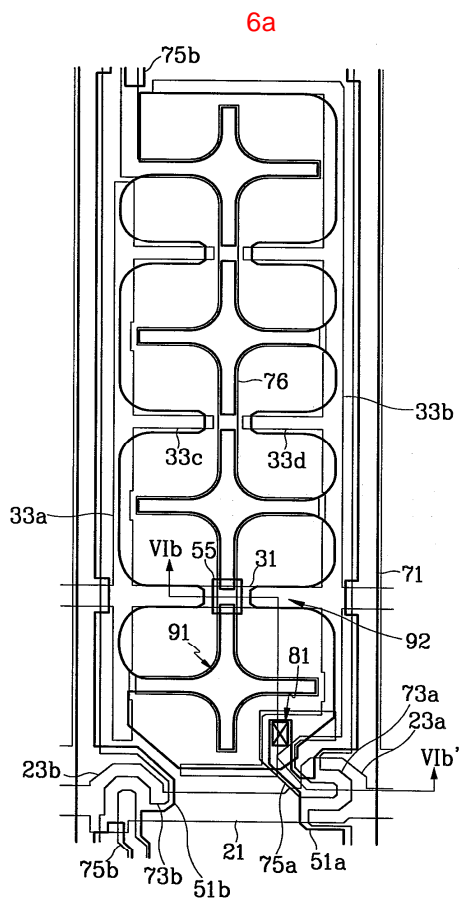
17.

14

2 1 2







专利名称(译)	多畴液晶显示器件及其薄膜晶体管基板		
公开(公告)号	<a href="#">KR1020030072859A</a>	公开(公告)日	2003-09-19
申请号	KR1020020012121	申请日	2002-03-07
[标]申请(专利权)人(译)	三星电子株式会社		
申请(专利权)人(译)	三星电子有限公司		
当前申请(专利权)人(译)	三星电子有限公司		
[标]发明人	LEE BAEKWON 이백운 KIM HEESEOB 김희섭 HONG SUNGKYU 홍성규 SHIN KYONGJU 신경주 YANG YOUNGCHOL 양영철		
发明人	이백운 김희섭 홍성규 신경주 양영철		
IPC分类号	G02F1/133 G02F1/1343 G02F1/1362 G02F1/1333 G02F1/1368		
CPC分类号	G02F1/133707 G02F1/134336 G02F1/13624 G02F1/1343		
其他公开文献	KR100870005B1		
外部链接	<a href="#">Espacenet</a>		

# 摘要(译)

在绝缘基板上形成栅极线，并形成数据线以与栅极线交叉。栅极线和数据线彼此绝缘，并且具有栅电极，源电极和漏电极的三个端子的两个薄膜晶体管形成在通过栅极线和数据线交叉形成的像素区域中。并且分别形成方向控制电极和像素电极。此时，两个薄膜晶体管中的第一薄膜晶体管用于切换像素电极，第二薄膜晶体管用于切换方向控制电极。第一薄膜晶体管的栅电极，源电极和漏极每个电极连接到相应像素级的栅极线，数据线和像素电极，并且第二薄膜晶体管的栅电极，源电极和漏电极分别连接到前一级的栅极线和数据线。方向控制电极是用于控制液晶分子的预倾斜的方向控制电压并与对电极形成方向控制电场。1 指数方面 液晶显示器，域，开口，方向控制电极，薄膜晶体管

