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2004 12 31

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10-2003-0040489

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2003 06 21

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(72)

1109-4

607 909

(74)

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(54)

가

1

6

1

2

3 2 (PE) 가

4

5 4 .
 6 5 .
 7 6 .
 8 4 (PE) 가 .
 < >
 2 : 4 :
 6 : 8 :
 10 : 12 :
 14 : 16, 116 : EL
 18, 118 : 20, 120 :
 22, 122 : 28, 128 :
 30, 130 : 32, 132 :
 1501 150n : 170, 172 :
 162 : 180 :

가

,
 , (Cathode Ray Tube)
 (Liquid Crystal Display), (Field Emission Display),
 (Plasma Display Panel) - (Electro-Luminescence : , 'EL')
 .
 EL EL EL 가 EL
 .
 1 EL EL EL EL EL
 EL (2) (14) (4), (6), (8), EL (10), (1
 2)
 (14) (2) 가 (2) (4)
 (6) (8) , (14) (12)

(10) (8) (8) (6) (10)
(14)

2 (Active Matrix Type) EL

2 3 (DL) (SL) (DL)
(18) (22) EL (16) (GL) (DL)
(20) (DL) (28) (32)

18) EL (DL) (GCS) (GL) (1
(8) (20) (28) (DCS) (DL)
(20)

(18) (28) (GCS), (GL)
(GL)

(20) (28) (28)
(DL) PE (22) (20)
(18)가 (GL) 1 1 (DL)
(DL)

PE (22) (GL) 가 가 (DL)
(DL) (GL) PE (22) 가 (G
L) (DL)

(OLED), PE (22) (VDD) (VDD) (GND) (OLED)
(DL) (30)

(30) 3 (VDD) (OLED)
(Thin Film Transistor ; 'TFT')(T1) (GL) (DL)
1 TFT(T3) , 1 TFT(T3) (GL) 2 TFT(T4) , 1
2 TFT(T3, T4) (VDD) TFT(T1) (Current
Mirror) TFT(T2) , TFT(T1) TFT(T2)
(VDD) (Cst) , TFT P
(MOSFET, Metal-Oxide Semiconductor Field Effect Transistor)

TFT(T1) TFT(T2) (VDD)
(OLED) TFT(T2) (VDD)
, 1 TFT(T3) 2 TFT(T4) 1
TFT(T3) (DL) 2 TFT(T4)
(Cst) 1 2 TFT(T1) TFT(T2)
(GL)
가 TFT(T2) TFT(T1) TFT(T2) TFT(T2) TFT(T2) TFT(T2)
T2)

(30) (GL) (ON) 가
1 2 TFT(T3, T4)가 - 1 2 TFT(T3, T4)가 - TFT(T
(DL) 1 2 TFT(T3, T4)
1) TFT(T2) - , TFT(T1)

(VDD)
(OLED)
TFT(T3) (DL)
(VDD) (Sink) (id) TFT(T2) (32) 1
(32) TFT(T1) TFT(T2)가 TFT(T2) TFT(T3) TFT(T2)
(VDD) TFT(T1) TFT(T2)가 (id)가 (Cst) (id) (VDD)
(id)가 (32) TFT(T2) (Cst)
(GL) (OFF) 가 1 2 TFT(T3, T4)가 -
TFT(T1) 1 2 TFT(T3, T4)가 (Cst)
(OLED)
EL
TFT
PE (22) TFT (OLED) EL PE (22)
(OLED) (OLED) (OLED)
4 TFT
가

가
1
1 2 , 1 2 1
1 2
2 1 , 1 2 , 2
3

1 - - 1 2 .

1 1 2 3 .

, 2 , 1 .

N(, N 1) 1
, N+1 2
, N .

, 1 , .

1 2

1 , 1 2 .

N(, N 1) 1
1 , N+1 1
2 , N+1 2
, N .

2

1 2 , 1 2 1

1 , .

1 , .

1 2 , 1 2 1

1 2 .

1 2 , 1 2 .

2 , 1 2 1 , 2

3

, 4 8

4 , (Electro-Luminescence : , 'EL') (Thi

n Film Transistor ; , 'TFT') 가 (, 'PE') (122) EL (116) ,

(idata) (GL) (120) (132) , 2 (DL)

(132) (idata) (Vd) (120)

(Data) (120) (118) (128)

(128) (GCS) (GL) (DL

118) (DCS) (SCS) (128)

) (Data) (120) (132) ,

(118) (128) (GCS), (GL)

(GL)

(132) (128) (Data) (idata)

(162) (120) (Data) (idata) (132)

(Sink) (128) (Data) (idata) (120)

(120) (128) (idata) (Vd) (162)

(DL) PE (22) 1 , (120) (118)가 (DL)

(GL) 1 1

(162) (120) 5 (162) (idata) (1501 150n)

(Vd) 1 2 (1H) (170, 172)

(1501 150n) 6 (128)

(SCS) (1501 150n) 1 2 (170, 172) , (132) 1 2 (idata)

) (DL) (170, 172)

2) (180)

1 (170) (162) (VDD) 1 TFT(SW1) 1 TFT(SW2) , 2 TFT(SW1)

2) 1 TFT(STFT1) , 1 TFT(SW1) 2 TFT(SW2)

SW2) 1 (N1) (VDD) 1 (Cst1) , 1 (N1)

(180) 1 (Cst1) (180)

3 TFT(SW3) , TFT P (M

OSFET, Metal-Oxide Semiconductor Field Effect Transistor)

1 TFT(SW1) (162) 1 (N1)
 2 TFT(SW2) 2 TFT(SW2) 1 TFT
 (STFT1) (Cst1) 1 (N1)
 3 TFT(SW3) 1 (N1) (162)
 , 1 3 TFT(SW1, SW2, SW3) (128) (SCS),
 7 A1, A2, A3, B1, B2, B3

2 (172) 1 (170) 가 2
 (172) (162) (VDD) 4 TFT(SW4) 4
 TFT(SW4) (VDD) 5 TFT(SW5) 5 TFT(SW5)
 (VDD) 2 TFT(STFT2) 4 TFT(SW4) 5 TFT(SW5)
 2 (N2) (VDD) 2 (Cst2) 2 (N2)
 (180) 2 (Cst2) (180) 6
 TFT(SW6) , TFT P (MOSFET)

4 TFT(SW4) (162) 2 (N2)
 5 TFT(SW5) 5 TFT(SW5) 2 TFT
 (STFT2) (Cst2) 2 (N2)
 6 TFT(SW6) 2 (N2) (162)
 , 4 6 TFT(SW4, SW5, SW6) (128) (SCS),
 7 A1, A2, A3, B1, B2, B3

(180) 1 2 (170, 172) 1:1
 (DL)

7 6 (1501 150n)
 , 2 (172) 2 (Cst2) 가
 , N (1501 150n) 1 (170) (18
 128) (SCS) 1 (Cst1)
 N 2 (172) 2 (Cst2) (18
 0) (180) 2 (172) 2 (Cst2)
 (DL)

, N+1 (1501 150n) 2 (172)
 (128) (SCS) 2 (Cst2)
 N+1 1 (170) 1 (Cst1)
 (180) , (180) 1 (170) 1
 (Cst1) (DL)

, N 1 (170) 3 TFT(SW3) -
 1 2 TFT(SW1, SW2) 가 (ON)가 2 (172)
 6 TFT(SW6) - 4 5 TFT(SW4, SW5) -
 , 2 (172) 2 (Cst2) (Vd) 가

, N 1 2 TFT(SW1, SW2) (ON)가
 1 2 TFT(SW1, SW2)가 - 1 2 TFT(SW1, SW2)가 - 1
 TFT(STFT1) 1 (N1) -
 , 1 TFT(STFT1) 2 1 TFT(SW2, SW1) (162)
 , TFT(SW1) (VDD) 1 TFT(STFT1), 2 TFT(SW2),
 1 (162) (132) (Sink)
 , 1 (Cst1) 1 TFT(STFT1) (132)
 , 1 (Cst1) (132) (Cst1)
 , 1 TFT(STFT1) 1 (Cst1)
 1 2 TFT(SW1, SW2) (t1) -

, N 2 (172) 6 TFT(SW6) 2 (Cst2)

2 (Vd) (180) , N (180)
 (172) 2 (Cst2) (Vd)
 (DL)

, N+1 2 (172) 6 TFT(SW6) -
 4 5 TFT(SW4, SW5) 가 (ON)가 1 (170)
 3 TFT(SW3) - 1 2 TFT(SW1, SW2) -

, N+1 4 5 TFT(SW4, SW5) (ON)가
 4 5 TFT(SW4, SW5)가 - 4 5 TFT(SW4, SW5)가 - 2
 TFT(STFT2) 2 (N2) -
 , 2 TFT(STFT2) 5 4 TFT(SW5, SW4) (162)
 (VDD) 2 TFT(STFT2), 5 TFT(SW
 5), 4 TFT(SW4) (162) (132) (Sink)
 , 2 (Cst2) 2 TFT(STFT2)
 , 2 TFT(STFT2) (132) (Cst2)
 4 5 TFT(SW4, SW5) (t1) -

, N+1 1 (170) 3 TFT(SW3) N 1
 (Cst1) (Vd) (180) (Cst1) , N+1 (Vd)
 (180) 1 (170) 1
) (DL)

PE (122) (GL) 가 가 (DL)
) PE (122) 가
 (DL) (GL) PE (122)
 (GL) (DL)

, PE (122) 8 (VDD) , (VDD)
 (GND) (OLED) , (DL) (GL)
 (OLED) (130)

(130) (VDD) (OLED) TFT(T1) , (G
 L) (DL) (120) (180) TFT(T2) , (DL)
 T2) TFT(T1) (Vd) TFT(T1) (VDD) TFT(T2) (Cst)
 , TFT P (MOSFET)

TFT(T1) TFT(T2) (VDD)
 (OLED) TFT(T2) (DL)
 , TFT(T1) (Cst)

, (130) (GL) (ON) 가
) TFT(T2)가 (DL) TFT(T2)가 (Vd) TFT(T2) (120) TFT(T1) (180)
 (VDD) , TFT(T1) (OLED)
 (OLED) (Cst)

TFT(T1)

, (GL) (ON) 가 TFT(T2)가 - TFT
 (T2)가 - (Cst) TFT(T1) (OLE
 D)

PE (122) 2 TFT 2 TFT

EL EL

1 2

T TFT PE TF

2 TFT

가

가

(57)

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$N(\quad , N - 1$
 $\quad , N + 1$

)

1

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$N + 1$

2

, N

10.

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11.

10

1 2

1

1 2

12.

11

$N(\begin{smallmatrix} 1 \\ 1 \end{smallmatrix} , N \begin{smallmatrix} 1 \\ 1 \end{smallmatrix})$, $N+1 \begin{smallmatrix} 1 \\ 1 \end{smallmatrix}$

$N+1 \begin{smallmatrix} 2 \\ 2 \end{smallmatrix}$, $N \begin{smallmatrix} 2 \\ 2 \end{smallmatrix}$ 2

13.

12

1 2

1 2

1

14.

1

15.

14

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2

1

2

1

16.

15

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2

17.

16

1

2

2

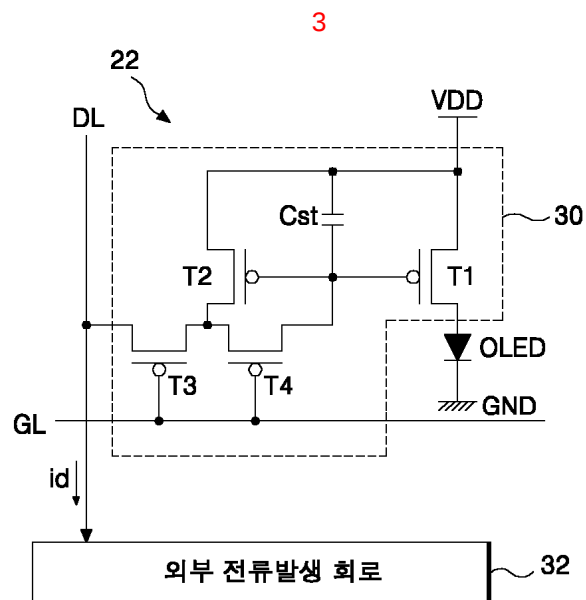
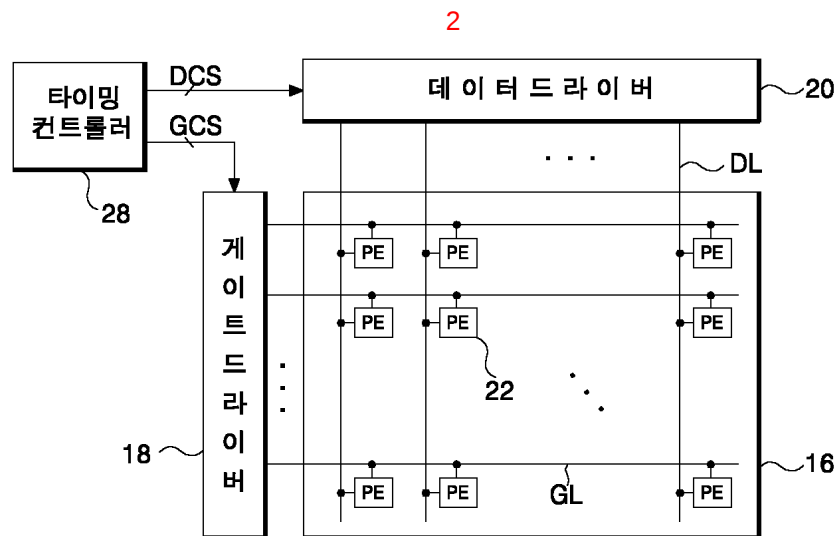
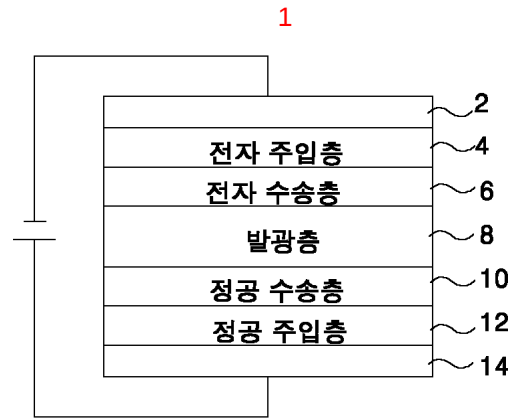
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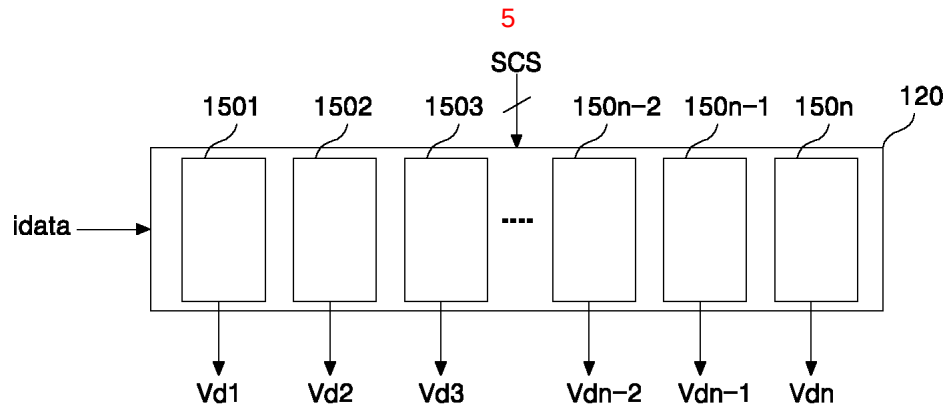
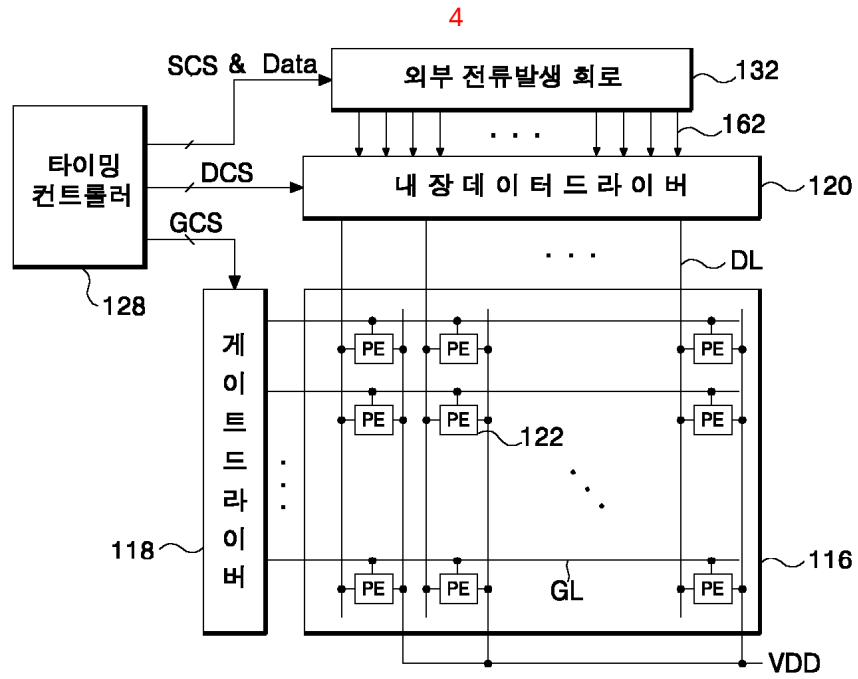
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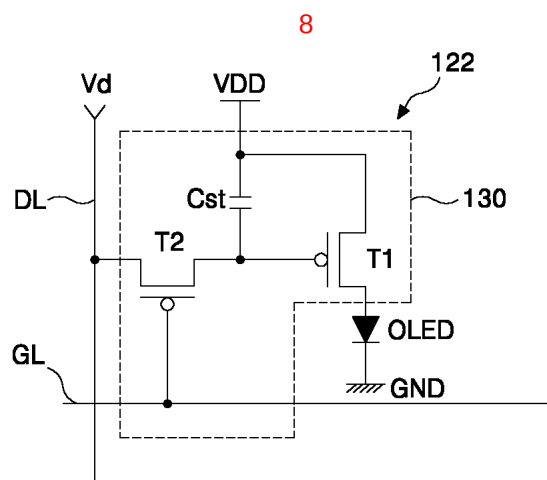
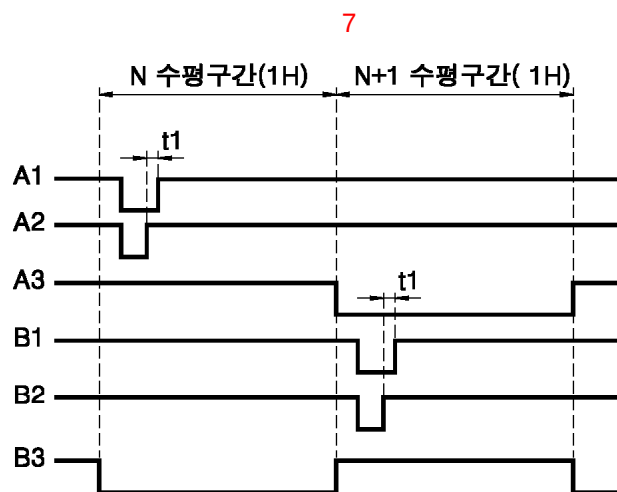
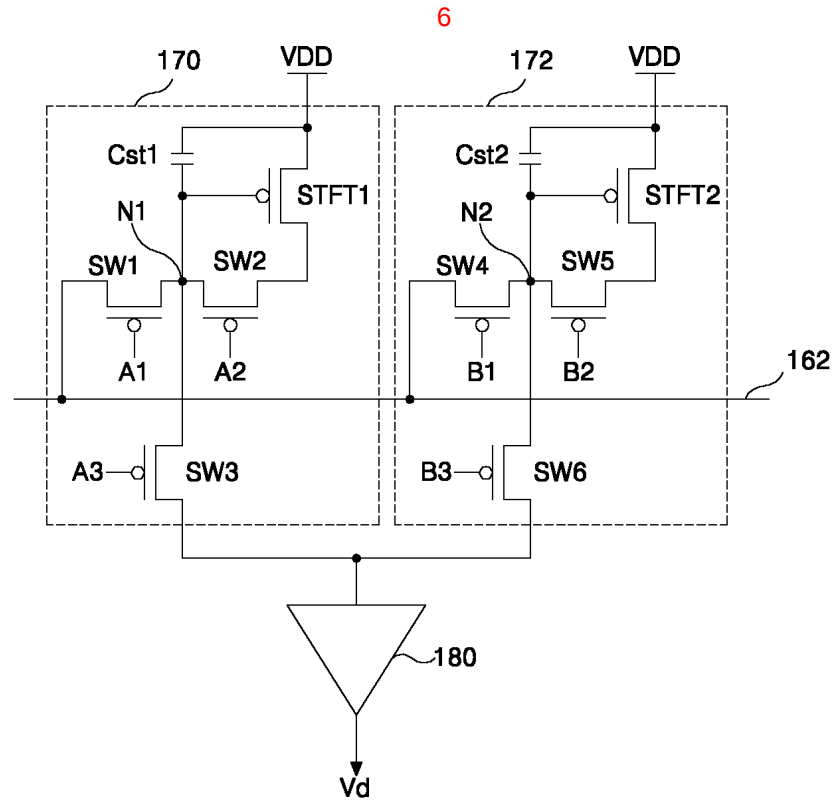
18.

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本发明涉及一种电致发光显示面板的驱动装置，其通过增加电致发光面板的开口率将外部供应的电流转换为电压并驱动电致发光面板及驱动方法和电致发光显示装置的制造方法。根据本发明实施例的电致发光显示面板的驱动装置包括电致发光显示面板，其中形成安装在数据线和栅极线交叉处的电致发光发光单元，产生电流的电流产生电路对应于从外部提供的数字数据，以及定时控制器，其以1水平为单位对从电流生成电路提供的电流进行采样并产生对应于电流的数据电压并产生数据驱动器，提供数据线和采样控制信号为电流生成电路提供数字数据，控制数据驱动器，控制数据驱动器和提供的数据驱动器。

