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G09G 3/30

(11)
(43)

2002 - 0096851
2002 12 31

(21) 10 - 2002 - 0008709
(22) 2002 02 19

(30) JP - P - 2001 - 00187478 2001 06 21 (JP)

(71) 가 가

가 4 6

(72) 가 1 842 - 1 - 508

가 3 12 - 9

1 - 33 - 19

가 234 - 5

가

가 3 - 8 - 1 가

가 3 - 8 - 1 가 36

(74)

• •

(54)

1

, TFT, , , ,

1 1 OLED .

2 1 OLED - .

3 1 - .

4 1 - .

5 1 , , .

6 1 .

7 1 .

8 1 .

9 2 .

10 3 .

11 4 .

12 5 .

13 6 .

14 6 .

15 7 .

16 .

17 2 .

18 2 .

<

>

2 :

3 :

5 :

6 :

7 :

10 :

20 :

21 :

22 :

가 가

, ,

16 17, 18 , 2

16 EL (Organic Electro - lumin
 escent) (204) (205)가 (205) (206),
 (207), (208) (205) (207)
 TFT (Thin - Film - Transistor; 201) TFT (203) (202)
 TFT (203) (208) TFT (203)
 EL (204)

, 1 (206) TFT (201)
 (207) TFT (203) (202)
 , TFT (203) EL (204)
 EL (204)

, / 8 - 241048

EL (Organic Electro - luminescent)
 (OLED, Organic Light Emitting Diode) 가

17 18 ,

17 2 (OLED, O
rganic Light Emitting Diode) (214) (215)가 1
7 (215) (216), (217),
(218) (215) (217) TFT(211)
(210) (210) TFT(213) (212),
(221) (212) TFT(213) ((218)
TFT(213) (221) EL (223)
, EL (223) OLED (214)
(221) EL (223) TFT (AZ; 222) E
L (AZB; 224)

, 2 18 18
(217), (AZ; 222), EL (AZB; 224), (216)
p TFT , 18 () TFT , ()가
TFT

18 (1) , (216) (AZ; 222) , EL (AZB; 2
24) TFT(211)가 , (221)가 , EL (223)가
(217)
(221)가 TFT(213) ((218)
+Vth) Vth TFT(213)
, TFT(213) 가

18 (2) , (AZ; 222) (217)
가 (221)가 , (210) 가
, TFT(213)

18 (3) , (216) , EL (AZB; 224)
TFT(211)가 가 (210) , EL (223)가
, TFT(213)
, TFT(213) 가 OLED (214)

『Digest of Technical Papers, SID98, pp.11 - 14』

, 가 가 ,

16 1 , EL (204)
, TFT(203)
TFT(203) , Vth , 가 ,

Figure 10 illustrates various semiconductor devices and their characteristics. The top row shows cross-sectional views of Si TFT, TFT, and OLED structures. Below are graphs showing current density (J) versus gate voltage (V_g) for Si TFT and TFT, and current density (J) versus drain voltage (V_d) for TFT and OLED. A table summarizes device parameters.

Device	Material	Channel Length (L , nm)	Channel Width (W , nm)	Gate Voltage (V_g , V)	Drain Voltage (V_d , V)	Current Density (J , A/cm ²)
Si TFT	Silicon	17	18	-10	10	~10 ⁻⁴
TFT	Amorphous Silicon	17	18	-10	10	~10 ⁻⁴
OLED	Organic Light-Emitting Diode	17	18	-10	10	~10 ⁻⁴

[illegible]

1

(1)

1 8 , 1

1 , 1

1 OLED(Organic Light Emitting Diode) OLED

(4) (5)가 (5) (6), (7), (10)

(7) (21) (20) (6) (10) (22) ,

(21) (7) TFT(1) (2) Si TFT (5) TFT(9)

(3) TFT(9) (3)

, OLED (4)

6 , (3)

6 T(31) , n (3) n Si TFT(32) p Si TF

(24, 23) (24) p (23)

, 6 (3) 2 4

3 (3) , Vin - , Vout , Vin Vout " A"

가 TFT(9)가 , Vrst , Vrst

가

OLED (4) , Voled - , loled 2 OLED ()

, Voled - , loled 6 7

3 (3) , Vout OLED (4) 3

, Voled (3)

OLED (4)가 , n (24) p (23) , Voled

Von , OLED (4) , loled (3) , Von

4 (3) , Vin , OLED (4) , loled ,
 . loled Vrst Von , 가 .
 (3) , Vrst Von ,

, 5

5 n (6) (10) , (n+1) (6) (10),
 (7) , 2 (2) .

1 「 」 , (1) , (n)
 (6) (10) . TFT(1), TFT(9) n
 , (6) (10) () , ()가 , TFT
 (1) TFT(9)가 . TFT(9)가 , (3) TFT
 , (3) Vrst , (2) 가 . TFT(1)
 (7) ,
 (2) 가 . (10) TFT(9)
 , (2) (7)
 (3) Vrst , 가
 (3) , Vrst Von ,
 (3) (7) , (3)
 Velon , OLED (4)가 . 5 , Vrst Von

1 「 」 . 5 (2)
 (6) , TFT(1)가 . , ()
 7) TFT(1)가 , 가,
 (2) , (3)
 ,
 Vrst(=Von) , OLED(4)가 () .
 , 가 가
 OLED(4)가 , 가
 , 가

, OLED(4) (3) n Si TFT(32) p
 Si TFT(31) ,
 TFT(9)가 (3) , Vrst TFT
 Von , (3)
 n Si TFT(32) p Si TFT(31)
 TFT OLED(4) ,

, 7, 8

7 (5) (7), n (24), p (23)
 Al (7) (6) Si TFT (6) (10) TFT(1)가
 TFT(1) 가 (2) (2)
 , n Si TFT(32) p Si TFT(31)
 , n Si TFT(32) p Si TFT(31)
 n (24) p (23) Si TFT(32) p Si
 TFT(31) (4) TFT(9) (10) Si
 가 TFT(9) (2)
 OLED (4)
 OLED (4)
 7

8 7 " L - M - N" TFT(1)
 Si 가 , n Si TFT(32) p Si TFT(31)
 (2) (2) TFT
 , (2) Vth 가
 , n
 Si TFT(32) p Si TFT(31)
 8 (33) , OLED (4)

(21), (22), 6 DA
 (20) , 8
 가 Si TFT

TFT (33) , 가
 가 OLED (4)

TFT TFT(1) TFT n
 , p CMOS 가 (3)
 CMOS , n TFT 가

(2) TFT
 (2) 가

64 (6)

OLED (4)

가

(22), (21), (20)

Si TFT Scale Integrated circuit)

가 LSI (Large

OLED (4) (無機)

가

3

n (24) p (23)

3

OLED (4)

가

가

가

(2)

9 2

1 5 (7)

1 (7)

9 2 (7)

3 , 3 1 2

가 (20)

가

3 n m

() 가

가

가

(PDP, Plasma Display Panel)

가 , 가 2 가 .

(3)

10 , 3 .

1 , 1 5 (7) ,

(7) .

10 3 (7) 1 4 (2)

3 , 4 , 4 .

가 OLED (4)

가 , S/N . 4

4 (2) ,

64 (6) ,

S/N 가

가 S

/N , y , 가

(4)

11 , 4 .

1 6 가 , 1

11 4 .

OLED (44) (45) , (46), (47), (50), p (5

4) (42) , (42) (47) (46) TFT(41)

Si TFT(51) TFT(49) p

, OLED (44) . p Si TFT(51)

(40) p Si TFT(51) , p Si TFT(51) p

(54) , 가

(47) p (54) 가 OLED (44) p Si

4 , 1 (3)

TFT(51) . (40) , OLED (44) 가 p Si TFT(51) , (40) .

4 TFT(49) n , p 1 Si TFT 가 TFT(41) (50) 1 (46)

가 , (45) TFT 가 , 가 LSI , Si TFT , 가

가 n Si TFT p , n Si TFT , 가

(5)

12 , 5 .

1 6 가 , 1

12 5 .

3) p OLED (64) (65) , (66), (67), (70), n (7 (74) (67) (66) (62) (70) TFT(61) (62) , Si TFT(71) n Si TFT(72) TFT(69) p Si TFT(71) n Si TFT(72) OLED TFT (70) p , OLED TFT(70) OLED (64) (74) , n Si TFT(71) n (73) (67) n (73) p (74) , 가 (3) 가 OLED TFT(70) . 5 , 1

5 1 가 ,

4) , OLED , p Si TFT(71) n Si TFT(72) OLED OLED (6 (70) , 가

(6)

13, 14 , 6 .

, 1 6 가 , 1

13 6 .

OLED (84) (85) (86), (87), (90), p (9
4), (96), (97) (21)(
) (87) (86) TFT(81) (82)
, (20)() (96) (97)
TFT(98) 가 (82) (82)
(90) TFT(89) p Si TFT(91) T
FT(89) p Si TFT(91) OLED (84)
. p Si TFT(91) p (94)
, 가 , (87), (96), p
(94) 6 , 1
(3)가 가 OLED (84) p Si TFT(91) 4
가 .

6 , 1 가 .
(82) , (87) (96) 2가 가 .
14 .

14 (87) (96) 「 」
(86) , (87) TFT(81)
(97) , (96) TFT(98)
OLED (84)가

, 가 , (87) (9
6) . 가 , 가
. 「 」 1 가 .
, 가 .

(7)

15 , 7 .

15 7 (PDA: Personal Digital Assistants; 100) .

(I/F) (101) (bluetooth)
, I/F (101) I/O(Input/Output) (102) (103)

(103) (104), (105), (106)
 (105) OLED (110) , OLED
 (110) (111), (22), (21)
 (100) (112), (107) (112) OLED
 (110) OLED (110) (20)가
 , 1 ,
 7 , I/F (101) (104) (106)
 (104) I/O (102) (104) (100) (106)
 , , (106)
 (104)가 , (106)
 (105) OLED (110) 가 , (111)
 (105) (112) OLED
 (110) (111) 6
 , 1 (107) 2 가 ,
 (100) ,
 , 가 가 , (100)
 , 1 OLED ,
 가 가 ,
 (57)
 1.
 ,
 ,
 1 1 , 1 ,
 , 2 (sweep)

1

2.

1 ,

3.

2 ,

(OLED, Organic Light Emitting Diode)

4.

1 ,

, Si - TFT (Thin - Film - Transistor)

5.

1 ,

, CMOS (Complementary Metal Oxide Semiconductor)

6.

2 ,

, Si - TFT (Thin - Film - Transistor) ,

7.

6 ,

Si - TFT

2

8.

1 ,

(sweep)

9.

1 ,

10.

9 ,

2

11.

1 ,

1 ,

12.

1 ,

1 , 3

13.

4 ,

Si - TFT (Thin - Film - Transistor) D - A

14.

4 ,

Si - LSI (Large Scale Integrated circuit)

15.

4 ,

1 Si - TFT

16.

1 ,

17.

1 ,

18.

1 ,

19.

1 ,

가

20.

1,

가 ,

21.

1

1

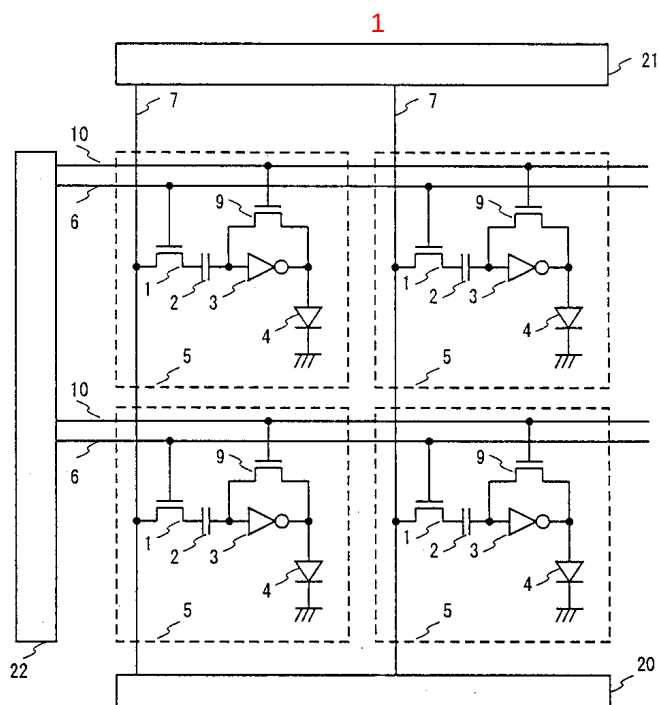
1

2

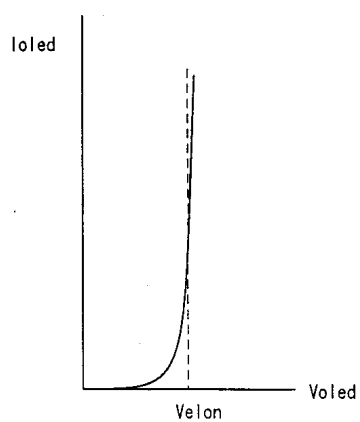
1

22.

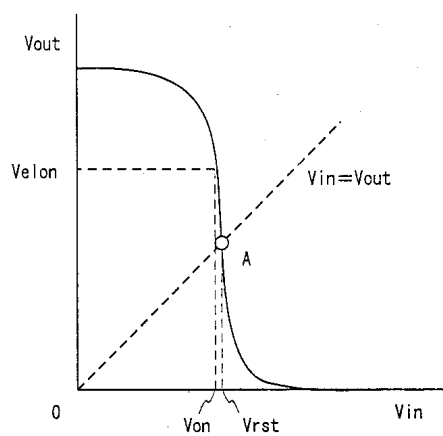
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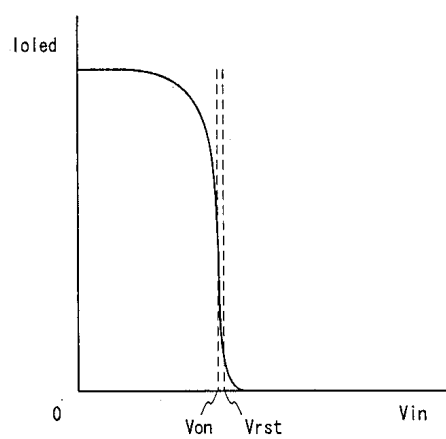
2



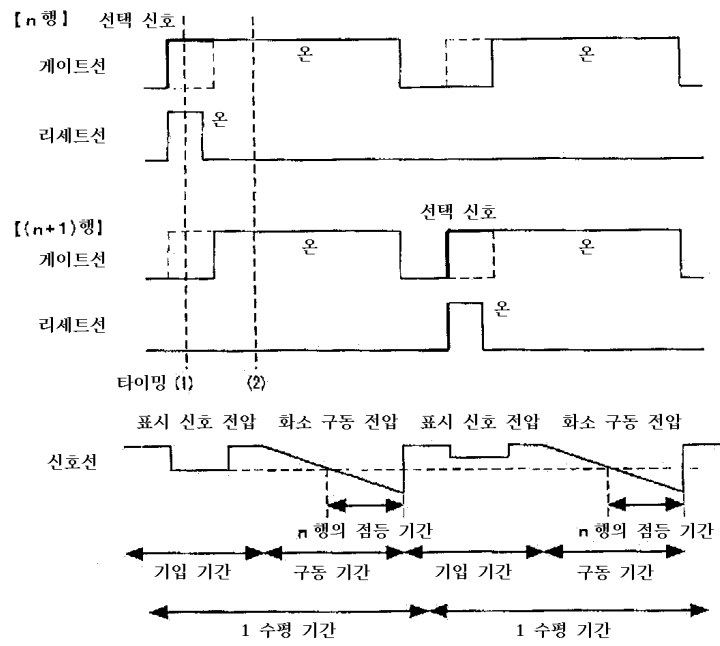
3



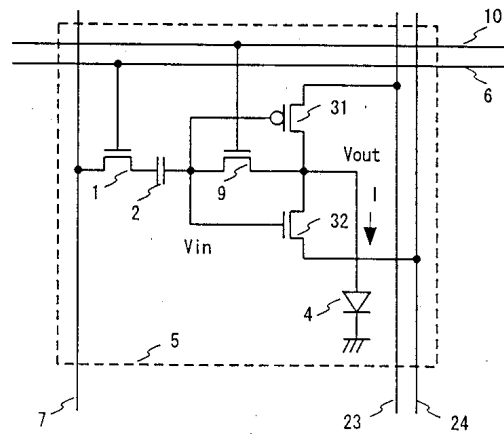
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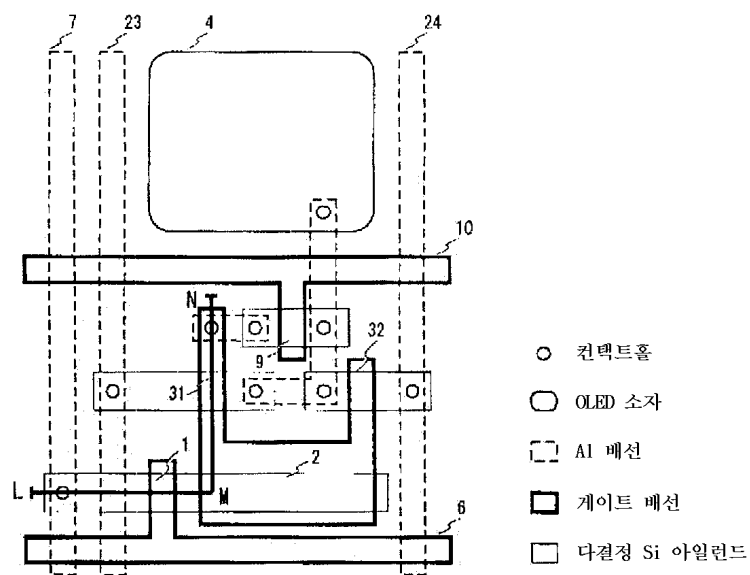
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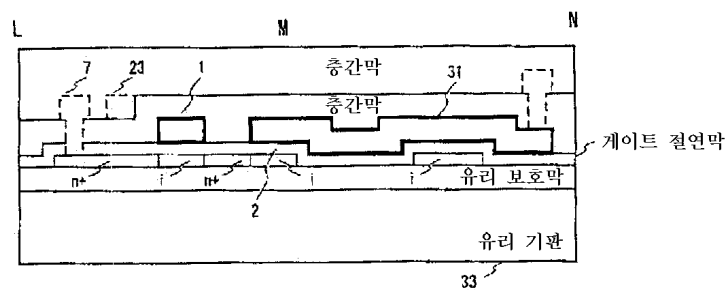
6



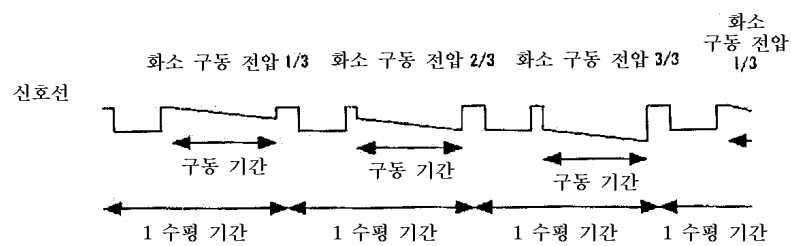
7



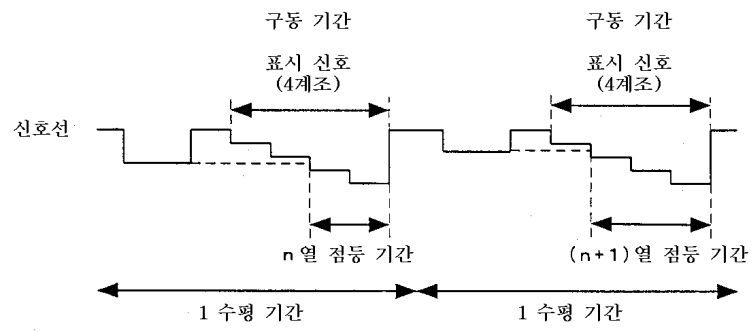
8



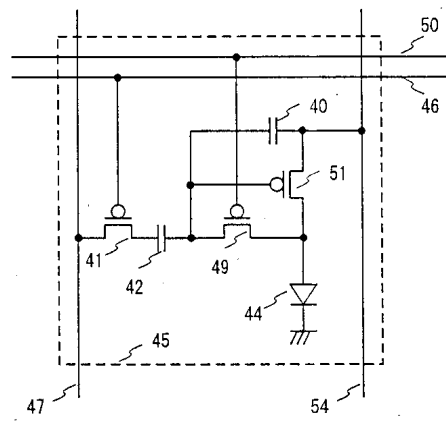
9



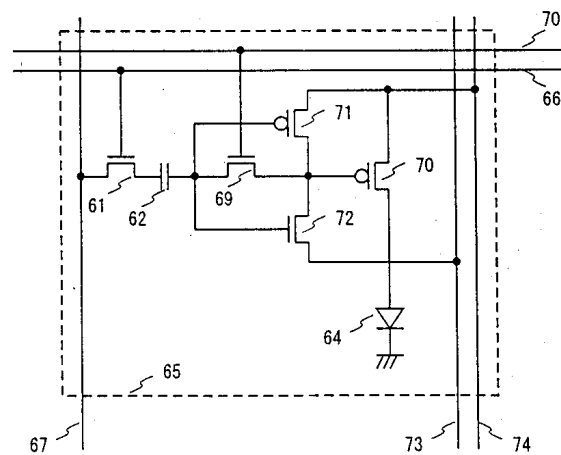
10



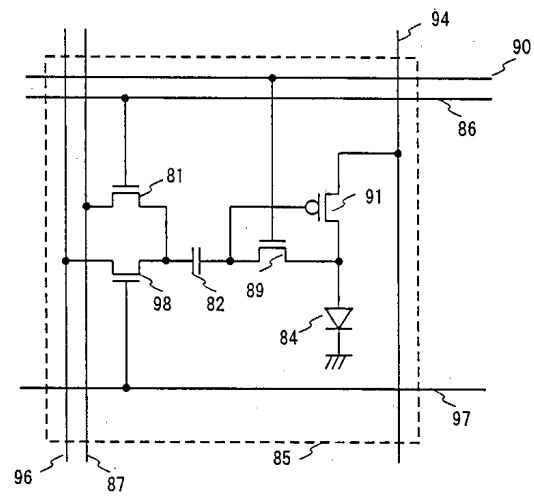
11



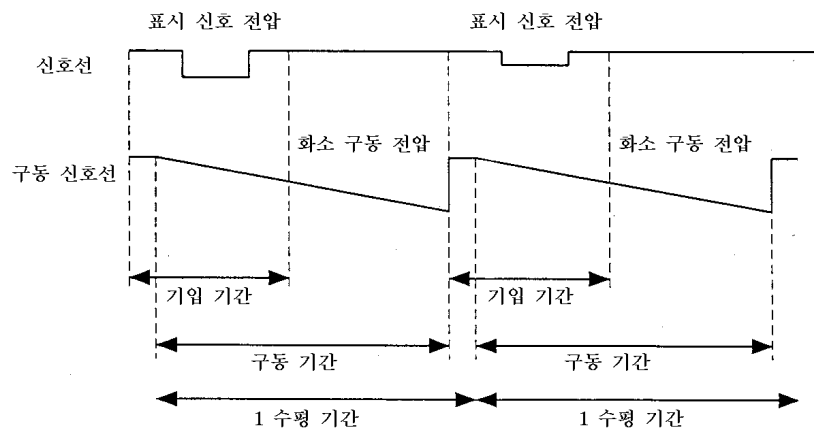
12



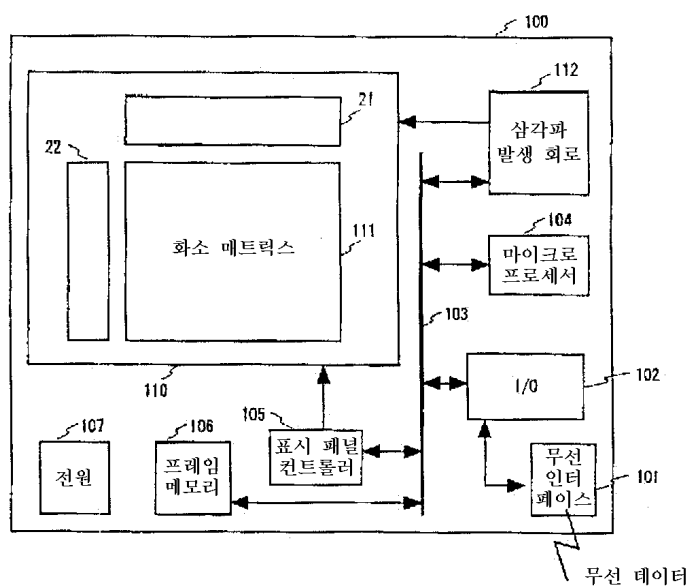
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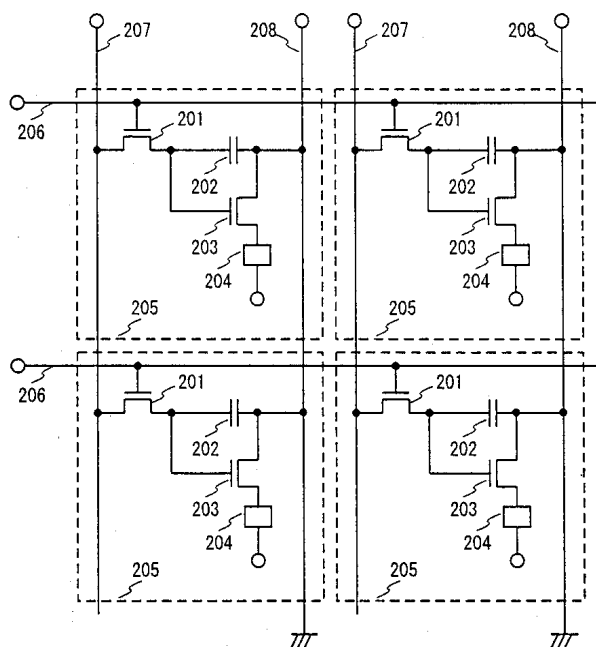
14



15



16



专利名称(译)	图像显示装置		
公开(公告)号	KR1020020096851A	公开(公告)日	2002-12-31
申请号	KR1020020008709	申请日	2002-02-19
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA		
申请(专利权)人(译)	株式会社日立制作所		
当前申请(专利权)人(译)	株式会社日立制作所		
[标]发明人	AKIMOTO HAJIME 아끼모또하지메 NISHITANI SHIGEYUKI 니시따니시게유키 KOMURA SHINICHI 고무라신이찌 SATO TOSHIHIRO 사또도시히로 KAGEYAMA HIROSHI 가게야마히로시 SHIMIZU YOSHITERU 시미즈요시테루		
发明人	아끼모또하지메 니시따니시게유키 고무라신이찌 사또도시히로 가게야마히로시 시미즈요시테루		
IPC分类号	G09G3/30 H01L51/50 H05B33/08 G09G3/00 G09F9/30 G09G3/20 G02F1/136 G09F9/33 G09G3/36 H01L33/26 H05B33/12 G09G3/32 H01L27/32 H01L33/44		
CPC分类号	G09G3/3258 G09G2300/0852 G09G2300/0842 G09G2310/0259 G09G2300/0861 G09G3/2014 G09G2320/0233 G09G2310/066 G09G2300/0417		
代理人(译)	CHANG, SOO KIL		
优先权	2001187478 2001-06-21 JP		
其他公开文献	KR100842511B1		
外部链接	Espacenet		

摘要(译)

对于具有有所包括的显示单元的图像显示装置，以及用于通过多个像素将符号信号电压输入到目标像素区域的信号线，存储装置存储从信号线输入到像素区域的符号信号电压，周期的决定意味着，对于至少一个像素区域，在多个像素区域中包括多次重复对1帧输出的图像的操作的像素操作装置。以这种方式，多级化表达是可能的。而且，像素肝脏处的显示特性变化足以提供小图像显示装置。周期的决定意味着像素确定在像素区域处输出的图像的时间，并且基于符号信号电压的关闭周期降低。有机发光二极管，TFT，像素驱动电压，像素，反相电路，指示信号。

