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(12)

(KR)  
(A)

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(11)  
(43)

2002 - 0017530  
2002 03 07

(21) 10 - 2000 - 0050907  
(22) 2000 08 30

(71) .  
,  
20

(72) 101 607  
1344 - 174  
203 - 1005

(74)  
:

(54)

(Pixel Row)

가 ,

, ,

1 가 1

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가 . ,

가 .

5

1

2 1

3 2 /

4 1

5 4

6 4 /

7 2

8a 8b 2 (Simulation)

< >

2<sub>1</sub> 2<sub>n</sub>, 12<sub>1</sub> 12<sub>n</sub>: T1 T12 : NMOS

4<sub>1</sub> 4<sub>n</sub>, 14<sub>1</sub> 14<sub>n</sub>: 13<sub>1</sub> 13<sub>n</sub> :

(Active Matrix Display Device)

(Pixel Row)

(Television)

(Computer)

( )

1 가 (ROW<sub>1</sub> ROW<sub>n</sub>) n (2<sub>1</sub> 2<sub>n</sub>) ( )  
 4<sub>1</sub> 4<sub>n</sub>) n (SP)가 2 n (2<sub>2</sub> 2<sub>n</sub>)  
 (g<sub>1</sub> g<sub>n-1</sub>) 4 (C1 C4) (ROW<sub>i</sub>)

NMOS (2<sub>1</sub> 2<sub>n</sub>) (T5) , 2 (4i) , (4i) 6 NMOS (T6) 5

1 NMOS (T1) 3 (C3) (gi-1)가 (P2) (VP2)  
 (VSS) 4 NMOS (T4) - (Turn-on) 2 (P2) (VP1)  
 (T5) - 1 (P1) (VP1) 5 NMOS (4i)  
 5 NMOS (T5) 1 (P1) (VP1) , 1 (C1) (floating)  
 1 (C1) 1 (P1) 5 NMOS (T5) (4i)  
 1 (C1) (Coupling)

1 (C1)가 (Vout) 5 NMOS (T5)가 - (4i)

(T1) (gi-1)가 (turn-off) , 3 1 NMOS (T1) 1 NMOS (T3)  
 가 3 NMOS (T3) - (C3)가 (P2) 3 NMOS (VCC) 가  
 2 (P2) (VP2) 6 NMOS (T6) 2 NMOS (T2)  
 - (4i) 1 (P1) (VSS)

20V~25V가 (Clock pulse) 20V

가 가 PMOS NMOS 20V~25V  
 가 PMOS 0V~20V가 20V  
 -8V~12V 가

가 IC , IC PMOS NMOS  
 가 , IC 0V~10V  
 가 , 가 -8V~12V  
 가 -8V~12V

가

가

1 가 1

4 10

4 가

4  $m \times n$  (Pixel Array)  
 $n$   $(12_1 \dots 12_n)$   $n$   $(12_1 \dots 12_n)$   $n$   
 $(131 \dots 13n)$   $(131 \dots 13n)$   $(14_1 \dots 14_n)$   
 $(SP)$  4  $(C1 \dots C4)$  2  $(ROW1 \dots ROWn)$  1  $(12_1)$   
 $(131)$  1  $(12_1)$  4  $(122)$   
 $(C1 \dots C4)$  1  $(12_1)$  가 1  $(131)$   
 $(ROWi)$

5 가

NMOS PMOS  
 가 NMOS

5  $(12_1 \dots 12_n)$   $(12i - 1)$  4  $(P4i)$   $(12i)$  1  
 $(P1)$  1 NMOS  $(T1)$  ; 1  $(P1)$ , 2  $(P2)$   $(10)$   
 2 NMOS  $(T2)$  ; 3  $(8)$ , 3  $(6c)$  2  $(P2)$   
 3 NMOS  $(T3)$  ; 2  $(P2)$   $(10)$  4 NMOS  
 $(T4)$  ; 3  $(P3)$   $(10)$  1  $(Cgd)$  ; 1  $(P1)$ , 1  
 $(6a)$  3  $(P3)$  5 NMOS  $(T5)$  ; 2  $(P2)$ , 3  $(P3)$   
 $(10)$  6 NMOS  $(T6)$   $(131 \dots 13n)$   
 2  $(6b)$ , 5  $(P5)$  6  $(P6)$  7 NMOS  $(T7)$  ; 5  
 $(P5)$ ,  $(11)$  6  $(P6)$  8 NMOS  $(T8)$  ; 6  $(P6)$   
 $(14i)$  2  $(CLS)$  ;  $(14i)$ ,  $(11)$  8 NMOS (  
 $T8)$  9 NMOS  $(T9)$  ;  $(14i)$ ,  $(10)$  7 NMOS  
 $(T7)$  10 NMOS  $(T10)$

5 6 1  
 $(gi - 1)$ 가 1 NMOS  $(T1)$  4 NMOS (T  
 $(Turn - on)$  2  $(P2)$   $(VP2)$   $(VSS)$  , 1  
 $(P1)$   $(VP1)$  1  $(Cgd)$  5 NMOS  $(T5)$  - ,  
 1  $(6a)$  8 NMOS  $(T8)$   $(12i+1)$

5 NMOS (T5) (P1) (VP1) (6a) (floating)  
 1 (6a) 1 (P1) 5 NMOS (T5) (8 NMOS (T8)  
 (T8) (12i+1) 8 NMOS (T8) - (Turn - on) 8 NMOS (T8)  
 가 (VHIGH) 8 NMOS 6 (P6) 6 (P6) (VHIGH) 9 NMOS (T9) 6  
 ( ) 2 (CLS) (VHIGH) 9 NMOS (T9) 가 9 N  
 MOS (T9) - 9 NMOS (T9) 가  
 (VHIGH) (14i) (VHIGH) 가  
 , 2 (6b)가 7 NMOS (T7) 10 NMOS (T10) (VSS)  
 0) 가 , 7 NMOS (T7) 10 NMOS (T10) - , 9 NMOS (T9)가  
 6 (P6) 가 6 (P6) - (Turn - off) , 9 NMOS (T9)가  
 - , 10 NMOS (T10) (VSS) (14i)  
 , (VSS) 가

7 2 가  
 7 (P1) (12<sub>1</sub> 12<sub>n</sub>) (12i - 1) 4 (P4i) (12i) 1  
 1 NMOS (T1) ; 1 (P1), 2 (P2) (10)  
 2 NMOS (T2) ; (8), 3 (6c) 2 (P2)  
 3 NMOS (T3) ; 2 (P2) (10) 4 NMOS  
 (T4) ; 3 (P3) (10) 1 (Cgd) ; 1 (P1), 1  
 (6a) 3 (P3) 5 NMOS (T5) ; 2 (P2), 3 (P3)  
 (10) 6 NMOS (T6) (131 13n)  
 2 (6b), 5 (P5) 6 (P6) 7 NMOS (T7) ; 5  
 (P5), (11) 6 (P6) 8 NMOS (T8) ; 6 (P6)  
 (14i) 2 (CLS) ; (14i), (11) 8 NMOS (T8)  
 T8) 9 NMOS (T9) ; (14i), (10) 7 NMOS  
 (T7) 10 NMOS (T10) , 6 (P6), (14i) 2  
 (P2) 11 NMOS (T11) , (14i), (10) 11 NMOS  
 (T11) 12 NMOS (T12)

7 1 , ,  
 (gi - 1)가 , 1 NMOS (T1) 4 NMOS (T4) -  
 (Turn - on) 2 (P2) (VP2) (VSS) , 1 (P1)  
 (VP1) 1 (Cgd) 5 NMOS (T5) - , 1  
 (6a) 8 NMOS (T8) (12i+1)  
 S 1 (P1) (VP1) , 1 (6a) 5 NMO  
 (T5) , 1 (P1) (VP1) 1 (6a)  
 1 (P1) 5 NMOS (T5) 1 (Cgd) (C  
 oupling) , 8 NMOS (T8) (12i+1)  
 - (Turn - on) , 8 NMOS (T8) 가 (VHIGH)  
 8 NMOS 6 (P6) 6 (P6) - 6 (P6) -  
 (VHIGH) 2 (CLS) , 9 NMOS (T9) 가  
 OS (T9) - , - 9 NMOS (T9) 가

(VHIGH) (14i) (VHIGH) 가  
 , 2 (6b)가 , 7 NMOS (T7) 10 NMOS (T10) 가  
 가 , 7 NMOS (T7) 10 NMOS (T10) , 6 (P6) -  
 (Turn-off)가 , 9 NMOS (T9)가 , 10 NMOS (T10)  
 (VSS) (14i) (VSS) 가  
 , 1 (6a) 2 (6b) 가 7 NMOS (T7) 8 N  
 MOS (T8) 가 6 (P6)가 (Floating) 가 (14i) 가  
 11 NMOS (T11) (14i), (VSS) 11 NMOS (T11)  
 rn-off) 12 NMOS (T12) , 6 (P6)가 - (Tu  
 6 (P6) (14i) (Vss)

8a 8b 2 (Simulation)

8a , 가 NMOS , (VHIGH) 10V가  
 , (Vss) -8V가 , 0V~10V 가 ,  
 10V~-8V가 , 가 , 가 PMOS , (VHIGH  
 H) -8V가 , (Vss) 10V가 , 0V~10V  
 가 , -8V~10V가 , 8a 8b , (OUT1)  
 , 6 (P6) , 9 NMOS (T9)  
 10 NMOS (P10) 2 (CLS) (bootstrap)

가 가 가

(57)

1.

가 ,

1

가 1

2.

1 ,

1

1

2

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2

1

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2

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3.

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1 2

가

4.

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5.

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1

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2

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6.

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1

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2

가

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2

가

2

7.

2 ,  
1 가 1 1 ,  
가 2 2 가

8.

7 ,  
1 가 1 가 2 , 1  
2 가 가 2 .

9.

7 ,  
2 가 2 가 1 , 가 2  
가 가 1 .

10.

1 ,  
1 , 1  
1 1 .

11.

10 ,  
1 1 가 .

12.

10 ,  
가 - 가 , 1 가  
가 - 가 ,  
가 - 가 , 1 가  
가 - 가 .

13.



10 ,

1 가 , 가  
가 1 ,

1 가 , 1 가  
가 2 .

14.

2 10 ,

1 1 가 가  
가 .

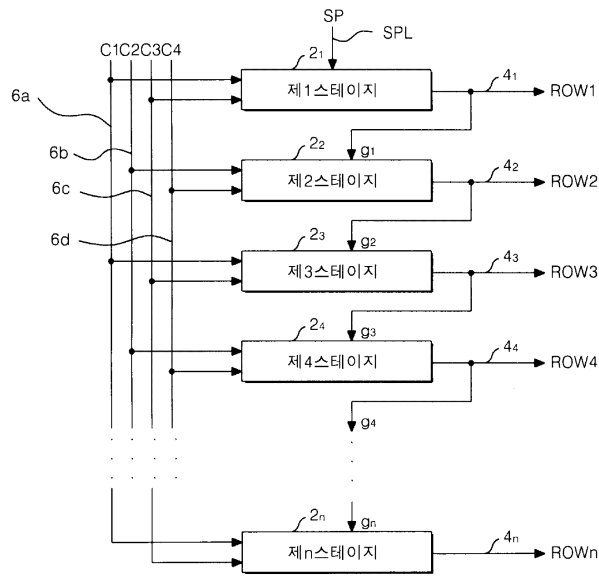
15.

13 ,

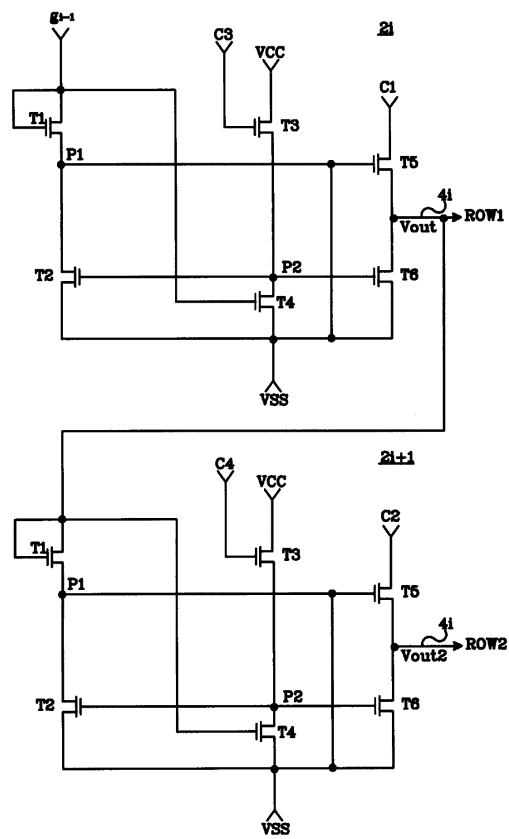
가 2 가 , 가  
가 1 ,

가 2 가 , 가  
가 2 .

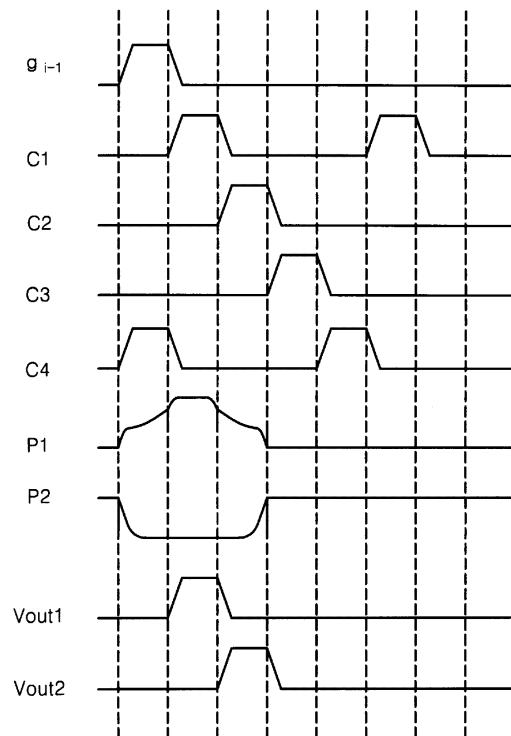
1



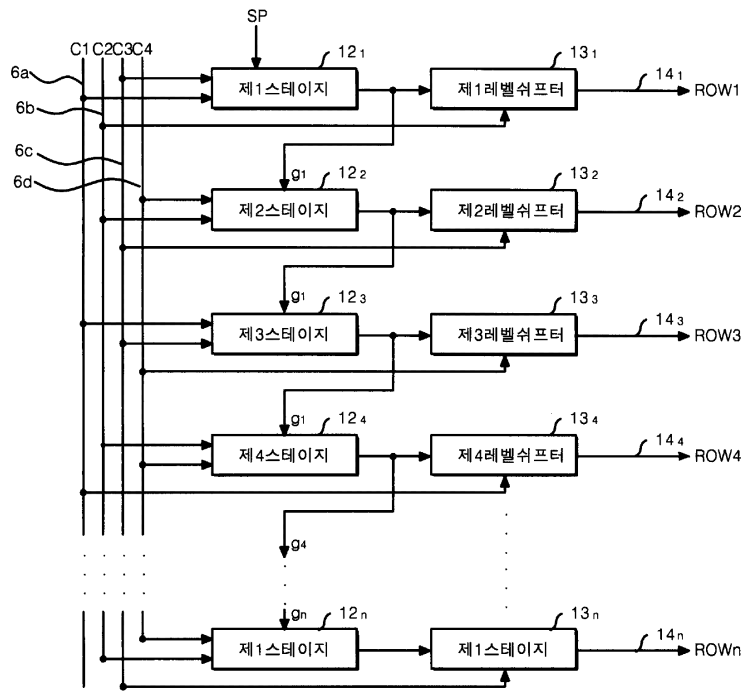
2



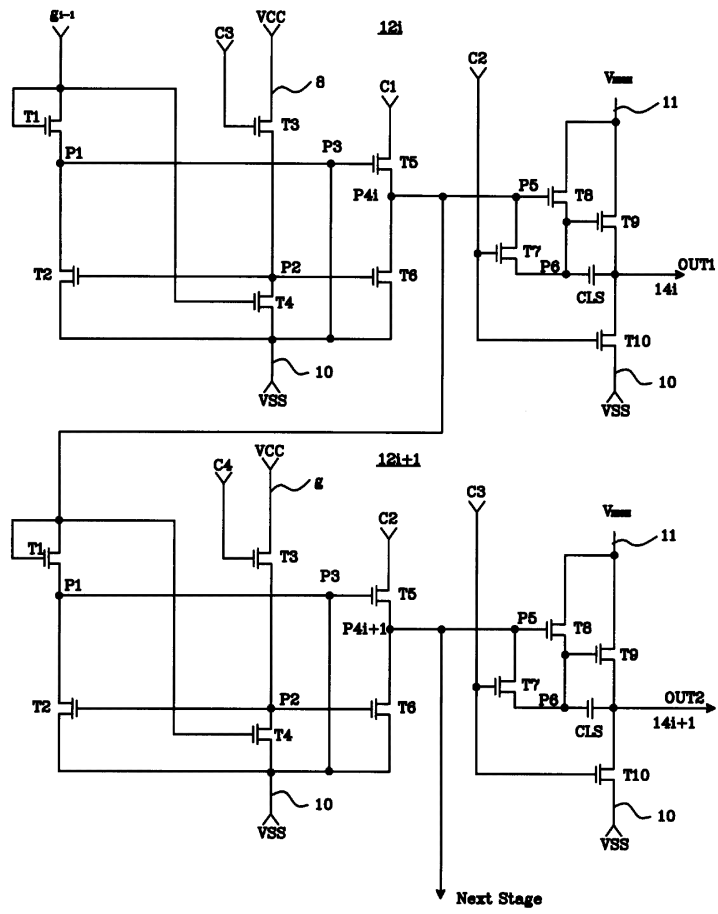
3



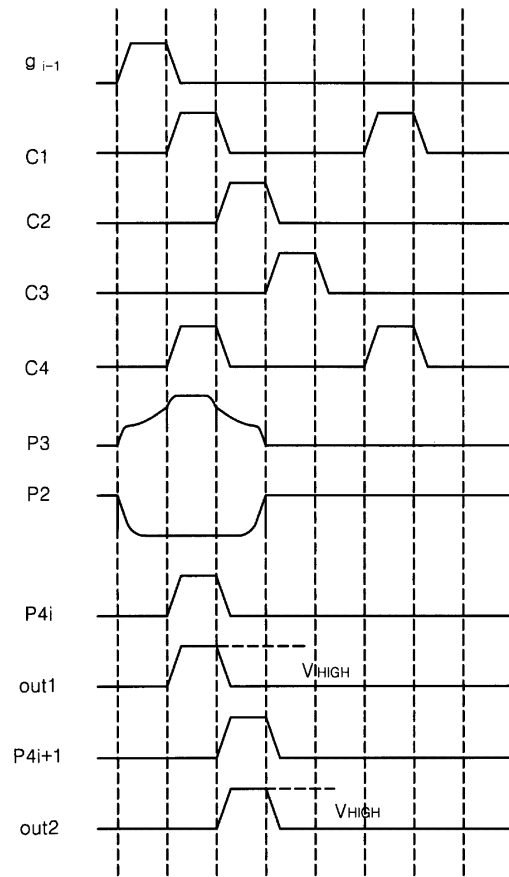
4



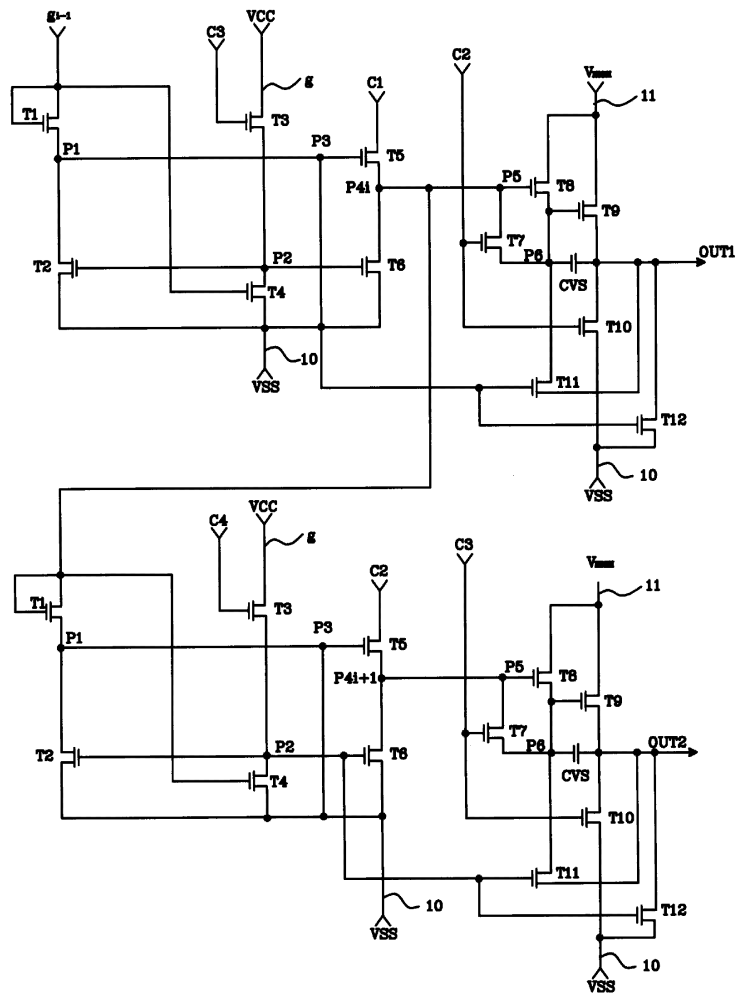
5



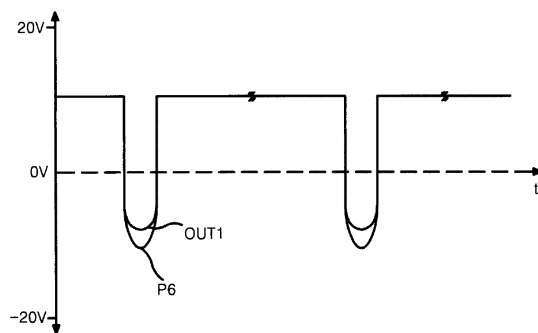
6



7



8a





8b

