

(19)
(12)

(KR)
(A)

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(43)

2002 - 0074303
2002 09 30

(21) 10 - 2001 - 0014221
(22) 2001 03 20

(71) 20

$$(72) \quad \begin{array}{r} 104 \quad 508 \\ 111 \quad 205 \end{array}$$

(74)

⋮

(54)

4

1

2 1 (A) 가 .

3

4 1 .

5 4 (B) .

6

7 .

8 2 .

9

10 2 -

11a 11b 2 -

1, 21 : 2R,2G,2B,22R,22G,22B :

3, 23 : 4, 24 :

5, 25 : 6, 26 :

8, 28 : 10, 30 :

12, 32 : 14, 34 :

(Liquid Crystal Display : " LCD")

1

1
22G, 22B) 60Hz (V) (12) ; (22R,
(5) (21) ; (12) (DL) (H)
(8) ; (1) (8) (1)
(2R, 2G, 2B) (8) (4) ; (12)
(GL) (10) ; (1) (10)
(1) (V, H) (8) (10)
(6)

(1) () (2R, 2G, 2B) (6)
(1) (3) 60Hz (V)
(5) (H) (4)
(4) (1) (2R, 2G, 2B) (2
R', 2G', 2B') (8)
(6) (1) (V) (H) (V)
(10) (H) (8)
(V) 60Hz (1) (3)
(H) 1 (5)

1
= * (Refresh Rate) * 1.05

(8) (6) (H) (4)
(2R', 2G', 2B') (12) (DL) 1
(8) (6) (H) R, G,
(Dot at a Time Scanning) (Line at a Time
(Transfer Enable) (H) 1 ()
A/D () 2 () 2
(DL) 가 . ()
(10) (6) (V) (DL)

$(2R', 2G', 2B')$ (12)
 (GL) (V) (Hi)
 gh) (Start Pulse) 1 (10) (V)
 (GL) (GL) / () ,
 () /
 (GL)
 (2) (14) , (GL) (DL)
 (Thin Film Transistor; "TFT")
 (14) / () 가
 TFT (14) (GL) ,
 (DL) (14)
 TFT (14) , 가
 (Gray Scale)
 (Storage Capacitor; Cst) (Cst) 2
 2 (GL) (DL) TFT(T1) ,
 (G#n - 1) (Cst) , TFT(T1) (Cst) ()
 (Vcom) (Clc)
 (DL) (8) () 가
 (GL) (GL) (10) (GL)
 (GL) TFT(T1)가 - (8)
 가 TFT(T1) 가 가 (12)
 가 (10)
 , (Cst) (G#n) (G#n - 1)
 3
 3
 3 , 가 (ON) 1H (Cst)
 (Cst) 가 (OFF) 1
 , (Cst) (G#n)
 (G#n - 1) (Cst)
 (ΔV) 10V 가 20V
 , 가 (Vpixel) Vpixel = + (ΔV) 가
 (ΔV) 가 3 가
 , 2 (Rising Time)

2

$$Rising\ Time(\tau_{on}) \propto \frac{r_1 d^2}{\epsilon_0 \Delta \epsilon (V^2 - V_{th}^2)}$$

3 5V (G#n - 1) , (G#n - 1)
3 (G#n - 1) (V_{th} = 1.0V, ΔV = 10V) .

3

$$Rising\ Time(\tau_{on}) \propto \frac{r_1 d^2}{\epsilon_0 \Delta \epsilon (15.0^2 - 1.0^2)}$$

(G#n - 1) (V_{pixel}) + (ΔV) 15V가
(G#n - 1)
가 . , 가 .

(G#n - 1)

;
;
;
가 60Hz 가 ;
;
.

1 -

2 -

, 4 8 .

4 .

4 , (32) ; (2
2R, 22G, 22B) 30Hz (23) (H)
(25) (21) ; (32) (DL)
(28) ; (21) (28)
(22R, 22G, 22B) (28) (2
4) ; (21) (GL) (30) ; (21)
(32) (30) (V, H)
(28) (30) (26) .

(21) (()) (22R, 22G, 22B) (24)
, (23) 30Hz (V) (V)
(25) 가 (H)
(26) .

(24) (21) (22R, 22G, 22B)
(22R', 22G', 22B') (28) .

(26) (21) (V) (H) (()
V) (30) (H) (28) (()
V) 30Hz , (21) (23)
, (H) (25) (V) 가
, .

(28) (26) (H) (24)
(22R', 22G', 22B') (32) (DL) ,
(28) (26) (H) R, G,
B (Dot at a Time Scanning) (Line at a Time
Scanning) .
(Transfer Enable) (H) 1 ()
A/D () 2 () . 2
(DL) 가 ()

(30) (26) (V) (DL)
(22R', 22G', 22B') ()
32) (GL) (30) (V)
(High) (Start Pulse) 1 () ,
(GL) / () ,
(GL) () /
(GL) .

(22) (34) , (GL) (DL)
 (Thin Film Transistor; " TFT") .

(34) / () 가 .

TFT (34) , (GL) ,
 (DL) . (34) .

TFT (34) , 가
 (Gray Scale)
 (Storage Capacitor; Cst₁) . (Cst₁) 5 .

5 , (B) (GL) (DL) TFT(T2) , TFT(T2)
 (Cst₁) (Clc₁) (Cst₁)
 (Cstcom) , (Clc₁) (Vcom) .

(28) () 가
 (DL) , (30) (GL)
 (GL) (GL)
 TFT(T2)가 - (28) 가 가
 , 가 (32) , 가 (30)
 .

6 (Cst₁) TFT(T2)가 - (28)
 (Cst₁) .

6 , 가 (ON) 1H (Cst₁) .
 (Cst₁) 가 (OFF) 1 .

6 (Cst₁) (G#n)
 (G#n - 1) (Cst₁)
 .

6 (Cst₁) 1 (G#n - 1)
 (Cst₁) 1 .

4 .

4

$$Rising\ Time(\tau_{on}) \propto \frac{r_1 d^2}{\epsilon_0 \Delta \epsilon (5.0^2 - 1.0^2)}$$

4, (G#n - 1) (Vth = 1.0V) 5V .

(G#n - 1) 4 3 (r₁d²,
 $\epsilon_0 \Delta \epsilon$) , 9.3 가 .

(Cstcom) 가 . (Cst₁) (G#n - 1)가
 (G#n - 1) (Cst₁) 7 (G#n)

7, (V) 60Hz 30Hz .
 , 30Hz (V) (;)
 가 .

30Hz (V) (Cst₁) (G#n - 1)
 G#n - 1) (Cstcom) (G#n - 1)

8 .

8, (D) (GL#1) (DL#1) TFT(T3) , TFT(T3)
 (Cst₂) (Vcom) (Clc₂)가 .

, (E) (GL#1) (DL#2) TFT(T4) , TFT(T4)
 (Cst₃) (Vcom) (Clc₃)가 .

(D) (Cst₂) (E) (Cst₃) .

, (Cst₂, Cst₃) 가 .

가, 50Hz
 (Cstcom) .

, OS (Windows) 1 - 9
 (DL) (GL)
 (+) (-) (ΔVp) .

, 1 -

10 2 -

10 2 -

2 - 2 2 -

2 가 11a 11b

2

2

(+) (-) (ΔV_p)

2 - 30Hz

(Cst₁) TFT

(Cstcom)

(Cst₁) 가 (Cst₁)

50Hz

가

(57)

1.

가 60Hz 가 ;
;

2.

1 ,

3.

1 ,

30Hz .

4.

1 ,

,
가 .

5.

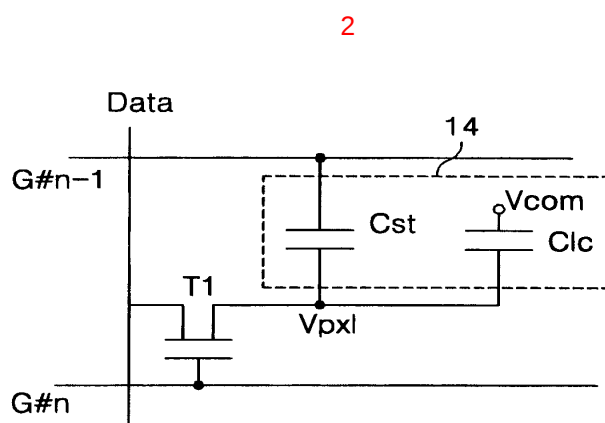
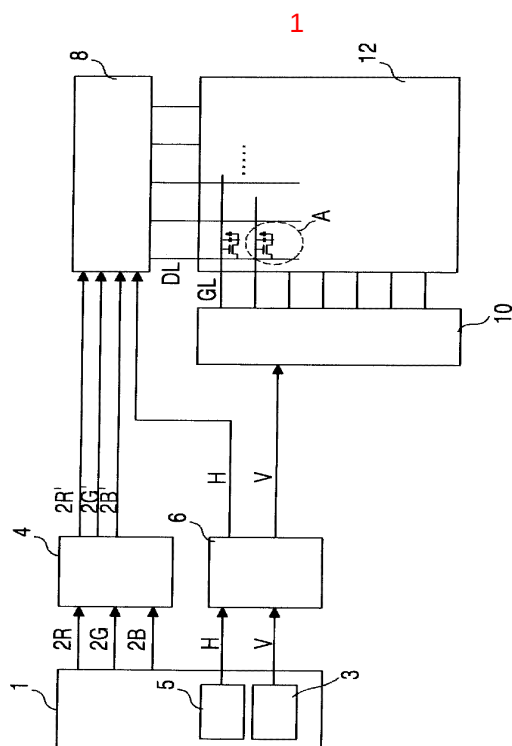
1 ,

1 - .

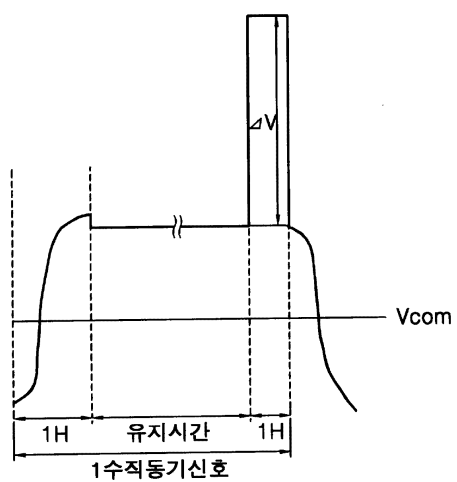
6.

1 ,

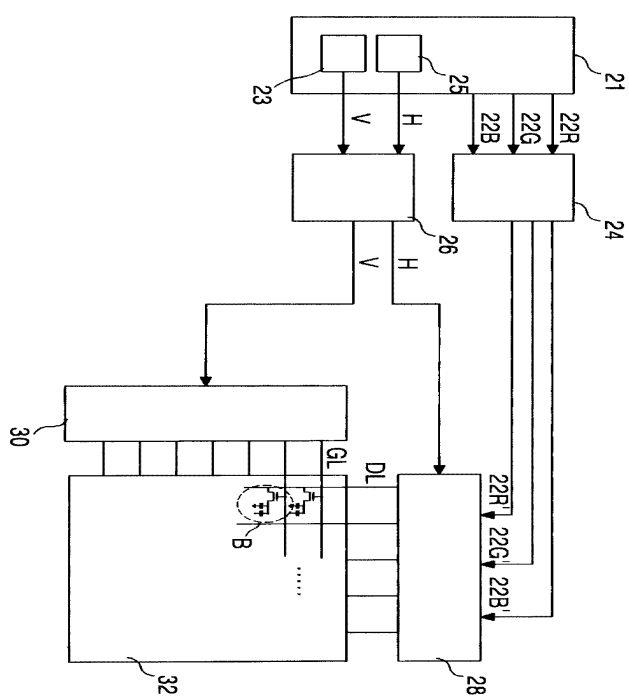
2 - .



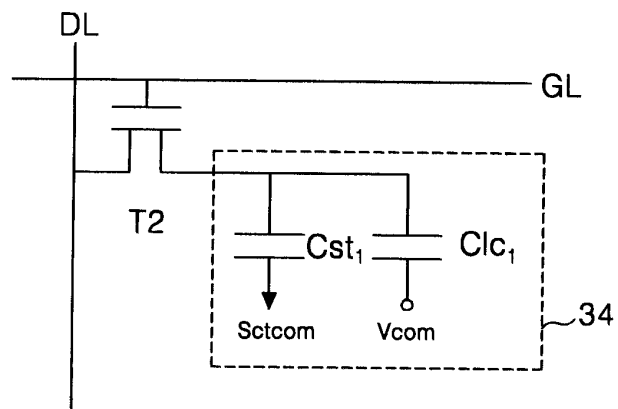
3



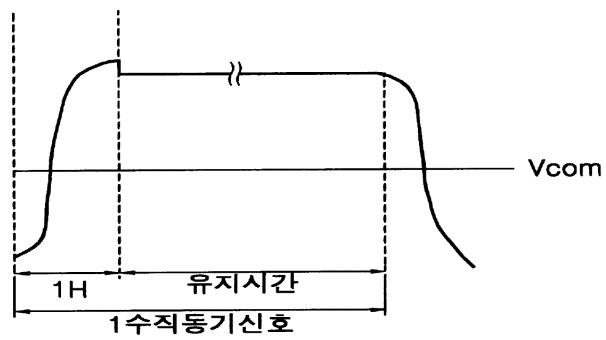
4



5



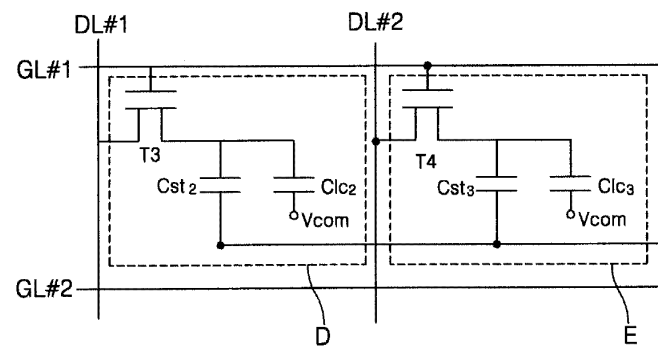
6



7



8



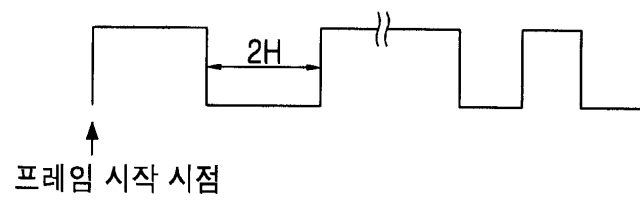
9

+	-	+	-	+	-	+	-
-	+	-	+	-	+	-	+
+	-	+	-	+	-	+	-
-	+	-	+	-	+	-	+
+	-	+	-	+	-	+	-
-	+	-	+	-	+	-	+
+	-	+	-	+	-	+	-
-	+	-	+	-	+	-	+

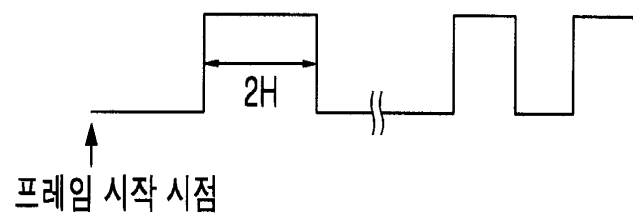
10

+	-	+	-	+	-	+	-
+	-	+	-	+	-	+	-
-	+	-	+	-	+	-	+
-	+	-	+	-	+	-	+
+	-	+	-	+	-	+	-
+	-	+	-	+	-	+	-
-	+	-	+	-	+	-	+
-	+	-	+	-	+	-	+

11a



11b



专利名称(译)	液晶显示器		
公开(公告)号	KR1020020074303A	公开(公告)日	2002-09-30
申请号	KR1020010014221	申请日	2001-03-20
[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	SONG HONGSUNG 송홍성 KWON KEUK SANG 권극상		
发明人	송홍성 권극상		
IPC分类号	G09G3/36 G02F1/133		
CPC分类号	G09G2320/0247 G09G3/3659 G09G3/3614 G09G3/3648 G09G2300/0876		
其他公开文献	KR100770543B1		
外部链接	Espacenet		

摘要(译)

本发明涉及一种液晶显示器及其驱动方法，能够降低前端栅极线产生的闪烁效应，降低垂直同步信号的频率，降低功耗。它形成在薄膜晶体管中，所述薄膜晶体管布置在栅极线和数据线的交叉点，数据线和栅极线与数据线和栅极线的交叉处，所述数据线和栅极线形成为使得该液晶显示器在液晶上交叉面板和提供垂直同步信号的主机控制器和形成在液晶面板上的存储电容器，并通过旁路线连接到旁路线路，其中提供预定电压并补充来自旁路的电压 - 在包括供给和定时控制器的定时控制器中包括水平同步信号的线和具有预定频率的30Hz，并且其中液晶单元被供给液晶面板的数据电压的极性是各个连接的像素和定时信号。数据驱动器所必需的，用于向栅极驱动单元的数据线提供数据，用于提供扫描脉冲以栅极线2为单位在薄膜晶体管中反转的栅极线数据驱动器和栅极驱动单元被驱动到在帧处反转的2点反转系统。

