

(19)  
(12)

(KR)  
(A)

(51) . Int. Cl. 7  
G09G 3/36

(11)  
(43)

2003-0072238  
2003 09 13

(21) 10-2003-0013080  
(22) 2003 03 03

(30) JP-P-2002-00057274 2002 03 04 (JP)

(72) 5 7 1 가 가

(74)

(54)

가 - , 가

1

1 1 .  
2 1 PWM 1 가 가 (V P )

3a ,  
 3b , (V<sub>COM</sub>)  
 4 3  
 5 (8)  
 6  
 7 6 PWM (103) 가 가 (V<sub>P</sub>)

1 :                    2 :  
3 :                    4 : DC/DC  
6 :                    7 :

PWM (pulse width modulation) (gradation display)  
가 . PWM , , 가  
가 . PWM , , 가  
,

4-142592 PWM  
6  
,

(101) 가 (102); (101) (103);  
,

(101) 가 (104) 가 (102); (100);  
,

(102) (101) (106) 가 (105); (105) 1  
,

(101) , (106), (103);  
,

가 .

7 6 PWM . 1 (1V) , (103) 가 가 (V<sub>P</sub>) 가  
 , (101) 가 (V<sub>G</sub>) 가 (V<sub>D</sub>) , (V<sub>GH</sub>) , (V<sub>D</sub>)  
 (104) , 가 (V<sub>P</sub>) , (T<sub>w1</sub>) , (104)  
 , (V<sub>P</sub>) , (V<sub>G</sub>) 가 (V<sub>GL</sub>) , (102) , 가 (V<sub>V</sub>)  
 가 , (VP) . 1 , (102) , 가 (V<sub>V</sub>)

<sub>D</sub>) 가 (104), 가 (101) 가 (V<sub>D</sub>) 가 (V<sub>G</sub>) 가 (V<sub>GH</sub>), (V<sub>D</sub>) 가 (V<sub>P</sub>) 가 (V<sub>P</sub>) 가 (T<sub>w2</sub>), (V<sub>D</sub>) 가 (V<sub>G</sub>) 가 (V<sub>GL</sub>), (V<sub>D</sub>) 가 (V<sub>P</sub>) 가 (V<sub>P</sub>) 가 (V<sub>G</sub>) 가 (V<sub>GL</sub>).

4-142592 , 가 가 ,  
, (flickering) (burning) 가 , 가  
- V GONN , V GONP  
, V GONN V GONP

. PWM

가

가

3b

가

가

3b  
 가  $V_{COM}$  (7) 가  $V_{COM}$  (4)  
 $(V_D)$  (4)  
 $(V_{GONP})$   
 $(V_{GONN})$   
 $(V_G)$   
 $ON$ )  
 PWM

, 3a

,  
 $(V_{GONN})$   
 $(V_{GONP})$

(V COM )

, -  $(V_{GONP})$  -  $(V_{GONN})$  ,  
가 , -  $(V_{GONP})$  -  $(V_{GONN})$  ,  
,

가

ON- 가 , - (V\_GONN) - (V\_GO

ON- (I<sub>ON</sub>) 가  
 - (V<sub>GONP</sub>) - (V<sub>GONN</sub>)

$$(T_{WP}) - (V_{GONP}) (T_{WN}) - (V_{GONN}) \quad , \quad 가$$

$$(T_{WN}), \quad , \quad (T_{WP})$$

$$(\text{T}_{WN}) \quad , \quad (\text{T}_{WP}) \quad , \quad (\text{T}_{WN}) \quad , \quad (\text{T}_{WP}) \quad \nmid$$

(T<sub>w</sub>),

$$ON - (I_{ON}) , \quad - (V_{GONP}) \quad - (V_{GONN})$$

$$_{WN})^{\top}, \quad , \quad . \quad (T_{WP})$$

, , 가 , (V  
com ) .

1

(1),

2), (3), DC/DC (4), (5), (6), (7) 7

$$(5) \quad (\mathbf{V}_{\text{GONP}} \quad \mathbf{V}_{\text{GONN}}), \quad (S5) \quad (2)$$

$$(6), \quad , \quad , \quad (2) \quad (3)$$

(S2 S3) , (5) (S5)

(7) (1), (S4) DC/DC (4)  
(7) 가 (1)

가 ON- 가 . , 3 a

, DC/DC (4) , (7) (S4) , 가

$$, \text{DC/DC} \quad (V_{\text{COM}}(4), \quad , \quad \text{가} \quad , \quad V_{\text{COM}} \quad . \quad , \quad (7) \quad \text{가} \quad V_{\text{COM}} \quad (\text{S4})$$

, 2 1 , 가 가 (V<sub>P</sub>) . 2 1 PWM  
 ) 가 (V<sub>D</sub>) 가 (V<sub>GONP</sub>) , , (V<sub>D</sub>) 가 (V<sub>P</sub>) . 가 (V<sub>P</sub>) , 가 (V<sub>P</sub>) (1  
 ) 가 (V<sub>D</sub>) , (T<sub>WP</sub>) (V<sub>D</sub>) 가 (V<sub>P</sub>) , , (V<sub>P</sub>) (V<sub>G</sub>)  
 ) , ( ) . , , , (V<sub>COM</sub>)

1 가 (V\_G) 가 , 가 (V\_GONP) (V\_D) 가 , 가 (V\_GONN) , , 가  
가 , 가 (V\_P) , 가 (V\_P) (V\_D) , , (T\_WN) (V\_D)  
가 (V\_D) , 가 (V\_P) . , , 1 (V\_G) 가 , , , (V\_COM )

Diagram illustrating the driver stage for a liquid crystal panel (LCD). The circuit consists of a bridge rectifier with diodes D1-D4, a filter capacitor C1, and an inductor L1. The output is connected to a half-bridge consisting of MOSFETs Q1-Q4. The gate drive circuit includes a reference voltage  $V_{REF}$ , resistors  $R_{13}$  and  $R_{14}$ , and a current source  $I_{ON}$ . A feedback loop uses a resistor  $R_{15}$  and an operational amplifier  $OP_1$  to compare the output voltage with the reference. The system is controlled by a microcontroller (MCU) through pins 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. Pin 10 is connected to ground. The MCU provides PWM signals and digital control signals like SOG (system on glass).

SOG

COG (chip on glass)

(1V)

(1H)

2

(1V)

 $(V_D)$ 

ON-

 $(I_{ON})$  가  
PWM $(V_G)$  $(V_{GONP})$  $(V_{GONP})$  $(V_{GONN})$ 

3a

3b

ON-

, PWM

가

(57)

1.

 $(V_{GONP})$  $(V_{GONN})$ 

2.

1

 $(V_{GONP})$  $(V_{GONN})$  $(V_{GONN})$ 

3.

1

**4.**

3

ON-      (I<sub>ON</sub>) 가  
           (V<sub>GONP</sub>)      ,      (V<sub>GONN</sub>)

**5.**

3

ON-      (I<sub>ON</sub>) 가  
           (V<sub>GONP</sub>)      ,      (V<sub>GONN</sub>)

**6.**

3

(T<sub>WP</sub>)      (T<sub>WN</sub>)

;      가      ,      (V<sub>GONP</sub>)

**7.**

3

(T<sub>WP</sub>)      (T<sub>WN</sub>)

**8.**

3

(T<sub>WP</sub>)      (T<sub>WN</sub>)

;      가      ,      (T<sub>WP</sub>)      (T<sub>WN</sub>)

**9.**

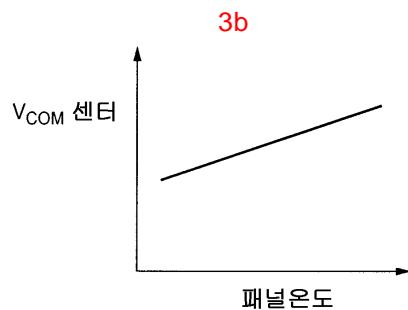
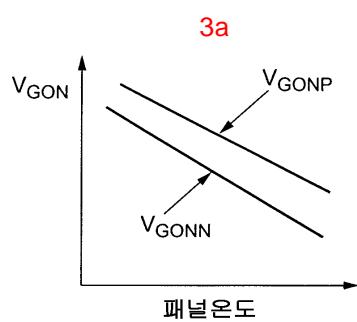
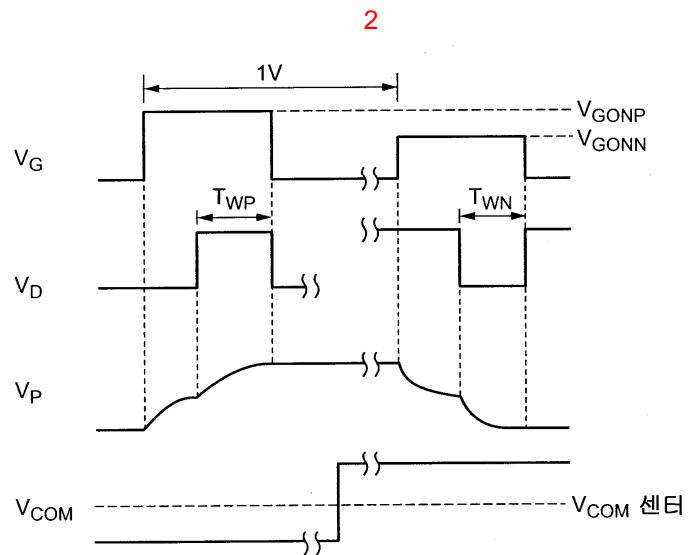
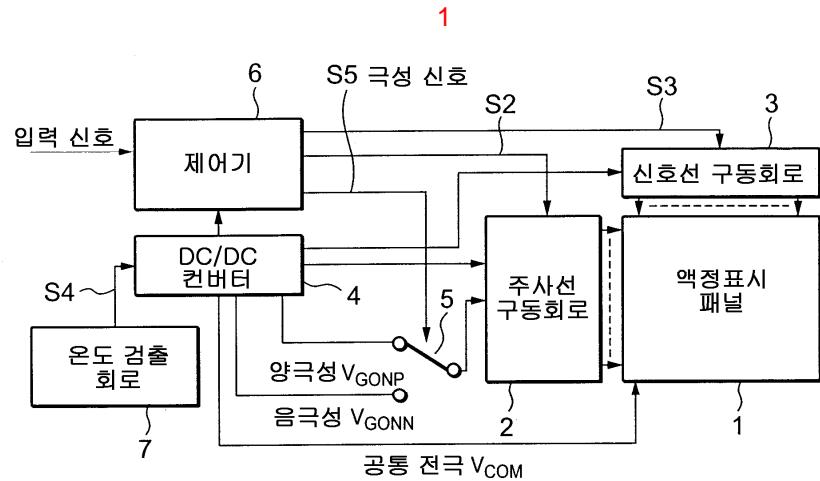
3

(T<sub>W</sub>)      ;

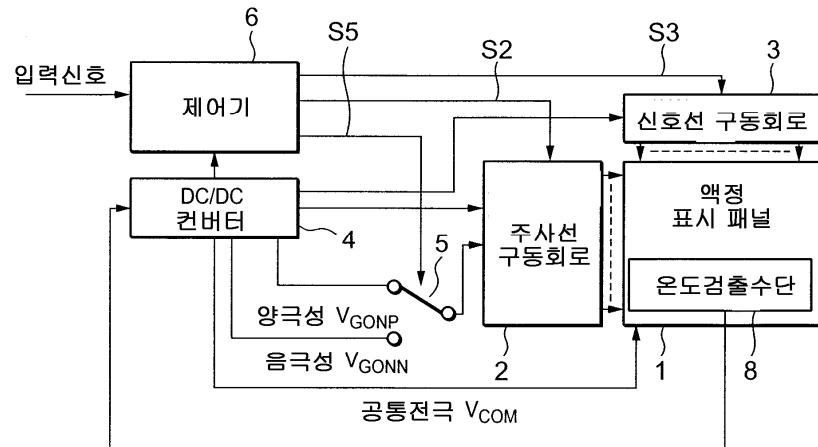
**10.**

3

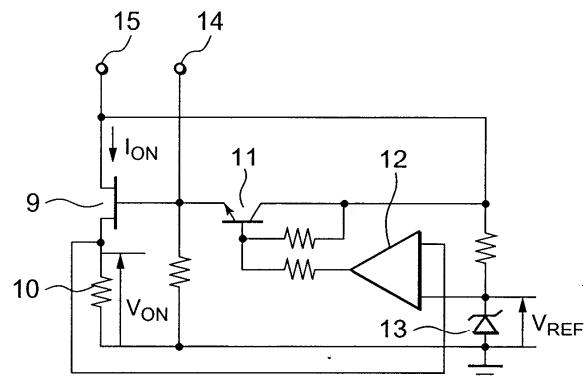
- ;
- ;
- ,
- (T<sub>w</sub>) ;
- ,
- ON - (I<sub>ON</sub>) ,
- 11.**  
9 , - (V<sub>GONP</sub>) - (V<sub>GONN</sub>)
- 12.**  
10 , - (V<sub>GONP</sub>) - (V<sub>GONN</sub>)
- 13.**  
4 , (T<sub>WP</sub>) (T<sub>WN</sub>)
- 14.**  
5 , (T<sub>WP</sub>) (T<sub>WN</sub>)
- 15.**  
9 , (T<sub>WP</sub>) (T<sub>WN</sub>)
- 16.**  
10 , (T<sub>WP</sub>) (T<sub>WN</sub>)
- 17.**  
1 , 가 , (V<sub>COM</sub>)
- 18.**  
1



4

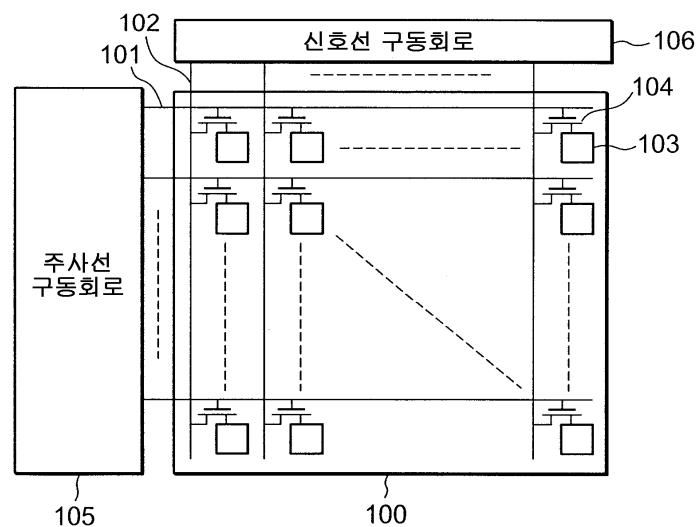


5



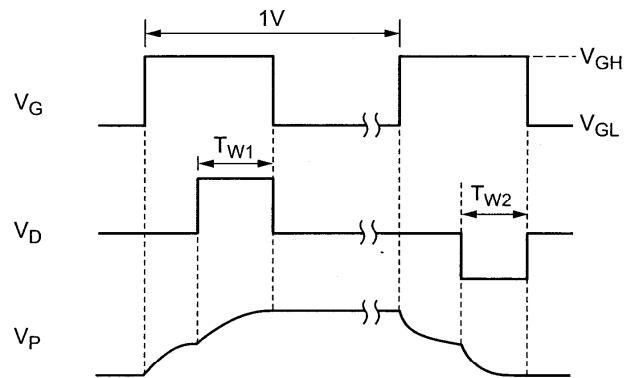
6

## 종래 기술



7

## 종래 기술



专利名称(译)	液晶显示装置的驱动方法和使用该驱动方法的液晶显示装置		
公开(公告)号	<a href="#">KR1020030072238A</a>	公开(公告)日	2003-09-13
申请号	KR1020030013080	申请日	2003-03-03
[标]申请(专利权)人(译)	NEC液晶技术株式会社		
申请(专利权)人(译)	日元号技术可否让这个夏		
当前申请(专利权)人(译)	日元号技术可否让这个夏		
[标]发明人	FUJII GEN		
发明人	FUJII,GEN		
IPC分类号	G09G3/20 G02F1/133 G09G3/36		
CPC分类号	G09G3/3648 G09G3/2014		
代理人(译)	韩国专利公司		
优先权	2002057274 2002-03-04 JP		
其他公开文献	KR100519894B1		
外部链接	<a href="#">Espacenet</a>		

### 摘要(译)

使用有源矩阵液晶显示器的驱动方法，根据脉冲宽度调制模式的驱动，使用薄膜晶体管作为开关装置，监视LCD面板的温度变化。特别是，LCD面板的面板提供了检测装置。根据面板的温度修改栅极导通电压或数据信号脉冲宽度和参考时钟信号的频率。根据写入数据的极性或数据信号脉冲宽度的栅极导通电压的偏移的偏移根据面板的温度确定。当面板温度高时，双极或负栅极导通电压设置为低值。当面板温度低时，双极或负栅极导通电压设置为高值。双极栅极导通电压始终高于负栅极导通电压。液晶显示器。

