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(72) 2 200 307 - 204

(74)

:

(54)

(LCD)

,

PWM

PWM

PWM

,

.

PWM

가 .

가 가

가

가

PWM

1 (LCD) ,

2 1 ,

3 2 ,

4 (PWM) ,

5 LCD ,

6 2 ,

7 6 PWM .

< >

10 : 100 :

200 : 300 :

301 : PWM 302 :

310 : 311 : 1

312 : 2 313 :

320 : 321 :

322 : 가 323 :

324 : 330 :

331 : 3 332 : RS

340 : 341 : 4

342 : 343 : 5

(Liquid Crystal Display)

PWM (Soft start) (Feed forward)

가 LCD .

LCD PDP(Plasma Display Panel), FED(Field Emission Display)

가

가

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가

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10%

가

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EL

LED가

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LED

가

50,000

EL

+5V

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LED

가

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PWM

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, PWM

가

가

PWM

가

가

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LCD

PWM

가

가

가 가

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1

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PWM

가

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2

가

가

가

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3

PWM

가

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LCD

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LCD

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, PWM

PWM

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, PWM

PWM

PWM

,

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LCD , , PWM PWM ; ,

LCD , , PWM PWM PWM PWM 가 PWM PWM PWM

가 , .

1 LCD .

2 1 , 1 2 .

1, 2 (Q1,Q2) LCD (10) (100) (L1), (C1,C2), (T1), 2 (C3) (C1)가 . (D1) (C4) 1 (Q1)

(10) (200) (R3), (210), RC (220), (230), (C7) .

(200) (10) (iLamp)가 (R3) , (D2) (iLamp)가 5 (R4) (C5) RC (220) (R5) (R6) (R6) (C6) (Vfb) .

(300) (310), (320), (330) .

(310) (V1) (Css) 1 (311) , PWM (301) PWM (Vpwm) 2 (312) , 1, 2 (311,312) PWM (Css) (i2) (313) (i1) 314 RS , 315 , i1 , i3 , Vz

(310) PWM (301) PWM (Vpwm) (Css) (10) PWM

(320) (R1,R2) (Vcc) (321) , (321) (Vnc) (Vr) 가 가 (322) , (Vfb) (Vref) (323) , 가 (322) (323) (K) (330) (Vmo) (324)

(330) (310) (320) (Vmo) 1) (302) 3 (331) 1, 2 (Q1,Q2) 332 RS , 333 OR/NOR , 334 1 (Q) , 335 2 (Q2) -

1 LCD 1 5

3 PWM (300)

Out2 1 (Q1) (100) , Out2 1 (Q1) (Q2)가 (D1) (Q2)가 (C4) 가 (C4) (Vcc) 2 (Q2) (C4) (Vcc)

(Clock), Set(S)가 2 (Q2) Out2가 , (Vfb) Comp Comp (324) Vfb = Vref 가

(324) (Vcc) (R1,R2) (Vnc) (Vr) 가 (Vr - Vnc) (K) Vmo 1 Comp, (Vr - Vnc)

1

$$V_{mo} = K * Comp * (V_r - V_{nc})$$

Css Vmo 3 (331) (-) 3 Css가 Vmo 가

Vmo Ct (302) 가 S(Set) 가 Out2 3 (331) R(Reset) 가 (331)

Vmo Css Out2 (iLamp)가 가 Vfb Vref Comp (iLamp)가 Vm
o 가 2 (Q2) 가 .

, Vcc 가 1 Vmo Vmo 2 (Q2)
(iLamp)

3 . Vcc가 Out2 t1 V
cc t2 .

i1 Vz . 1 (311) (-) V1
(311) i2가 Css V1 PWM
i1 Css V1 (ts) Bct (fbct) 가 ts msec
msec Bct Hz

PWM (Vpwm) Bct Css i3
(313) 1 (311) Set(S) 가 i2
(10)가 1 (311) PWM

PWM Css 4 (b) . PWM
Css i1 (a) PWM (c) i3
4

Rt (V2)

2

$$irt = V2 / Rt$$

, irt Ct Bct . Rt
Ct Bct

6 2 , 1 3

M PWM (Vpwm) (300) (Vref) (Vdm) PW
가

(340) , PWM (301) PWM (Vpwm)
 (Css) (10) PWM
 (310) , (Vfb) (Vref) (Vcc) (K)
 (320) , (310) (Q1,Q2) (320)
 (302)
 (330) .

(340) (Vdm) 4 (341) , 4 (341)
 (Vdm) (R3) (i4)가 3 (Q3) , 3
 (Q3) (i4) (i5) (342) ,
 PWM (Vpwm) (310)
 (i5) (V2)
 가 (R4) , 5 (343) , 5 (343)
 5 (343) (Vref) (Vcc) (R5)
 가 가 (320) 가 4 (Q4)
 . 4 (341) 5 (343) (C)

2 LCD
 1 .
 Vref 가 가 Vpwm
 BCt , Out2 PWM

Vdm 가 i4 Vdm R3 . i4 (342) i5
 i5 R4,R5 .
 R4 PWM Vpwm R5 Vref . Vref
 5 (343) V2 .
 7 .

Vpwm (340) 가 R4 V
 ref Vpwm PWM .
 , Vpwm (d) Vpwm V2 BCt
 . R4 R5 PWM 가 R4

R4 R5 (f) R4 가 (e) R4 = R5 (f)
 Vdm V2가 BCt Vpwm
 R4

, V_{pwm} V_{ref} . R3, R4, R5

3

$$i_4 = V_{dm} / R_3$$

3 i_4 i_5 가 가 4 5 .

4

$$V_{pwm} = R_4 * i_4 (= i_5)$$

5

$$V_{pwm} = R_4 * V_{dm} / R_3$$

, V_{pwm} R_4/R_3 V_{dm} 가 .
 V_{ref} 6 .

6

$$V_{ref} = V_{dm} * R_5 / R_3$$

, V_{ref} R_5/R_3 V_{dm} 가 .

PWM
가 .

, 가 가 .
 , PWM 가 .

(57)

1.

(LCD)

, PWM , PWM ;

PWM PWM PWM ,

LCD .

2.

1 , ;

LCD

3.

1 2 ,

1 ,

PWM PWM 2 ,

1, 2

LCD PWM .

4.

(LCD)

, PWM , PWM ;

,

,

,

LCD

5.

4

가 가 ,

가
LCD

6.

(LCD)

PWM

PWM

PWM

가

PWM

PWM

PWM

LCD

7.

4

4

4

가

3

3

PWM

가

5

5

가

4

LCD

가

가

8.

7

가

PWM

LCD

9.

7

가

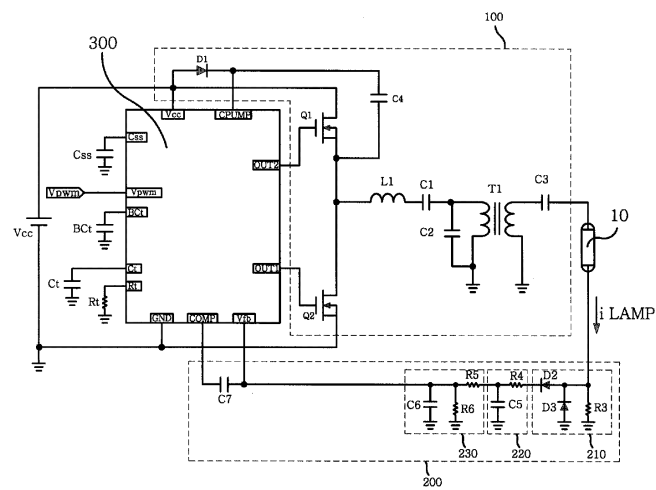
LCD

가

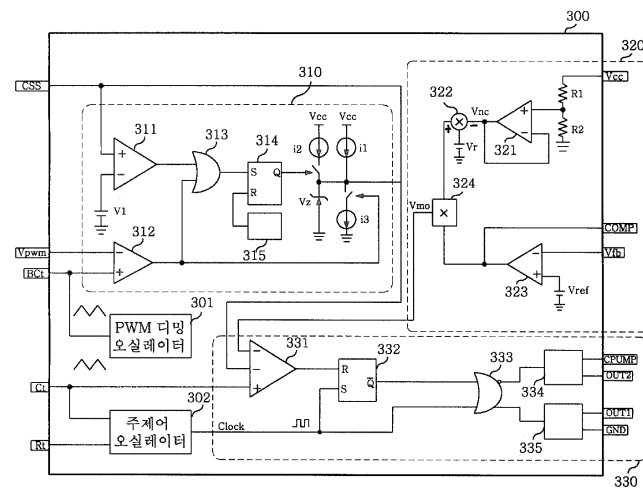
PWM

가

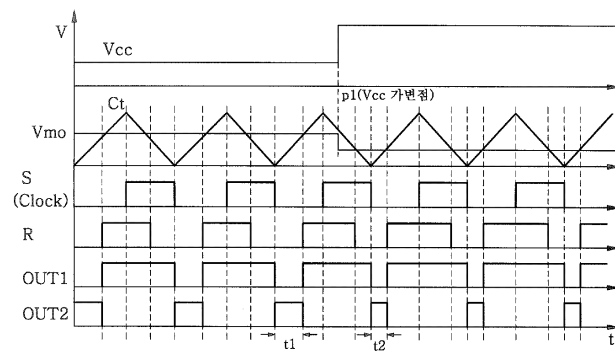
1



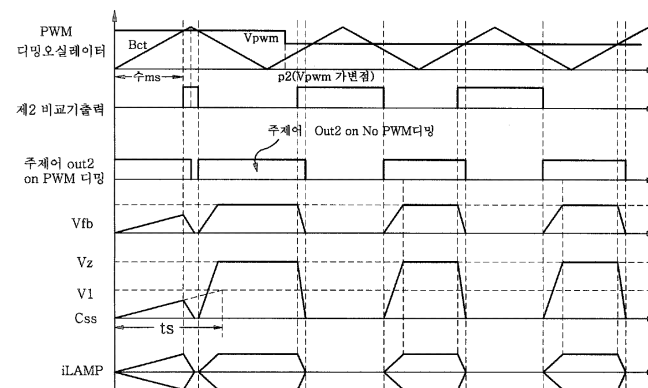
2



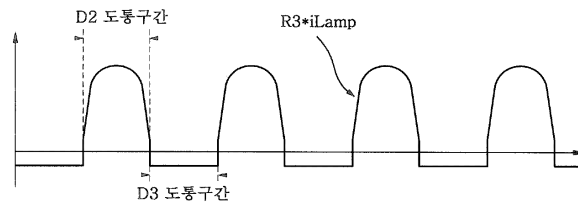
3



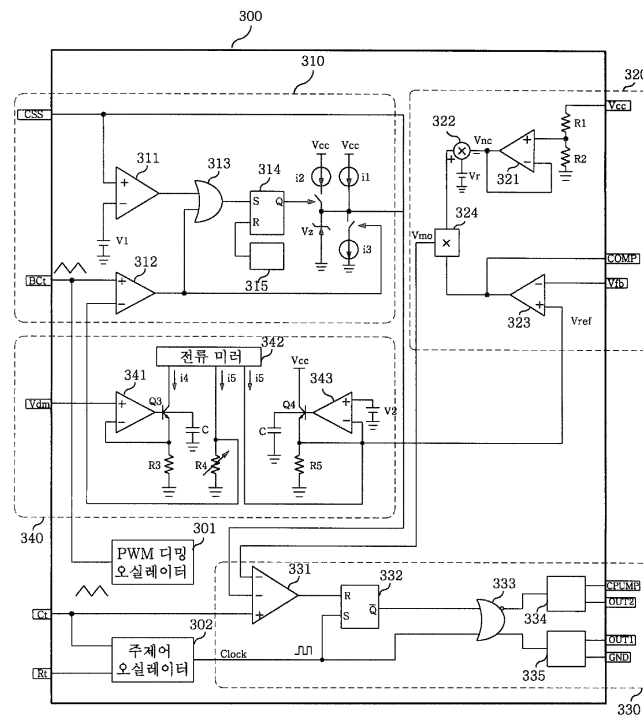
4



5



6



7

