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(71) 가 가
21

(72) 46-1 203II

21 가 가

21 가 가

21 가 가

(74)

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(54) - ,

1

, 1

PWM

, 1

1, 2

1, 2

1

1 1 .

2 1 IC .

3 1 1 .

4 3 .

5 .

6 1 2 .

7 6 .

8 1 .

9 1 .

10 1 .

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TR : FL :

BAT : 101 104 : 1 4

P1, P2, N1, N2 : 200 : IC

CT : PWM Fb :

IS : BCT :

DUTY :

- (,) .

(CCFL) . CCFL ,

CCFL 600V . , 1000V ,

CCFL (Royer) 가 가 (磁
芯) , , 가

2 1 , 1 3 가
 , 2 4 1 3
 가 가 .
 3 1 , 1 가 가
 , 2 1 가
 가 , 3 1 가 ,
 2 가 4 , 2 2 가 , 가 1
 가 , 4 , 2 가 가 , 1
 .
 4 1 3 , 1 4
 MOS
 5 1 4 , 1 4
 .
 6 1 2 2
 , 1 ,
 1 2 1 1
 1 1 , 2 1 2
 1 2 , 2 1 2
 1 1 3 ,
 1 2 4 ,
 2 ,
 ,
 2 1 3 , 2 4
 2 4 , 3 3 , 4
 3 1 4 1 , 2 4 1 2
 1 4 , 1 가 2 4 2
 1 4 가

[]

1 1 2 , PWM IC

1 2) B 가 , TR 1 (107) T 2 (108) (, 1) A (, TR (, T BAT VCC가 VCC

1 N MOSFET(, NMOS)(101) TR 1 (107) 1 NMOS(102) TR 1 (107) 2 NMOS(101) NMOS(102)가 TR

1 (107) 가 .

, 1 (107) T 2 B 1 (105) 3 P MOSFET(, PMOS)(103) 가 . PMOS(103) NMOS(101) MOS(104) , 1 (107) T 1 A 2 (106) 4 P NMOS(102)

NMOS(101), NMOS(102), PMOS(103), PMOS(104) (,)

2 BAT VCC가 NMOS(101), NMOS(102) TR 1 (107) (108) , PMOS(103), PMOS(104) (105, 106) FL

(111), (112) (117), (118) FL 가 , IC(200) . (114), (115) FL , IC(200) (111) TR . 113, 116, 119, 120 . , 151, 152

IC(200) . 1 1P PWM (,) DUTY가 . 2 2P (BOSC) , (131)가 BCT가

3 3P PWM (OSC) , (132)가 , PWM CT가 . 4 4P 가 3 3P (133) , RT 가 . 5 5P , GND

6 6P 3 3P , (134) SRT , GND , (134) RT (133) SCP가 .

4 4P (135)가 , (135) 7 7P

9 9P (140) FL (,) IS가 , 1 (136)가 . 8 8P 1 가 , 8 8P 9 9P , 가 , FB , PWM

10 10P (139) FL 가 (,) VS가

, 2 . 10 10P (137)가 8 8P .
 11 11P (143) (142) ST가
 가 STB가 가 12 12P (141)가
 , SS가 .
 13 13P , IC . 14 14P
 , IC .
 15 15P FET . 16 16P NMOS(101)
 N1 . 17 17P NMOS(102) . 18 18P
 NMOS(104) P2 NMOS(103) PI
 . 20 20P VCC .
 IC(200) 2 , OSC (201) 3 3P (132) 4
 4P (133, 134) PWM CT , PWM (214)
 , (203) .
 BOSC (202) , 2 2P (131)
 1 1P BCT . BCT CT (BCT <CT) .
 PWM) OR (239) NPN DUTY (, NPN)(234) BCT (221) , 1 1P ()
 DUTY가 2 2P BOSC (202)
 (203) PWM , (204)
 P1, P2, NI, N2 , PMOS(103, 104), NMOS(101, 102) 가 .
 B (205) ST가 , (142), (143) ST
 (217) Vref6 , (217) (217)
 (203) , 249 . , (217) OR
 (243) , PWM (FF) (242) . (205) PWM 가 SS가
 (214) SS
 , (216) Vref5 , OR (247) NMOS(246)
 (134) , PWM CT , OR (247)
 (213) .
 1 (211) FL IS가 , Vref2(, 1.25V
) I1 NPN(235) . NPN(235)
 8 8P 가 FB , PWM (214) .
 PWM (214) CT , FB SS가
 PWM CT , AND (248) (203) FL .
 , AND FB가 , 가 FL .
 , 8 8P 9 9P (136)가 , FB 가
 PWM
 2 (212) FL VS가 , Vref3(, 1.25
 V) I1 NPN(238) 8 8P VS
 38) FB가 , FB가 Vref1(, 3V) , PNP (, PNP)(231)가
 , FB
 (215) VCC (240, 241) , Vref7(, 2.2V) ,
 VCC가 , OR (243) FF (242) .

(218) OR (239) SS NPN(234) 1 Vref8(, 2.2V) NPN(234)가 (211) 가 , SS가 AND (232)가 (244) I2

(219) Vref10(, 3.0V) (218) Vref9(, 3.0V) (206) I3 NPN(238) 2 (212) (220) FB (219, 220) FB가 (245) OR (206) 가 (242) Q (203) FF(242) FF (242) Q ()

PWM DUTY가 DUTY가 BCT BCT (ON DUTY) PWM 가 (OFF DUTY) PWM 가 , FL

PWM CT 50kHz 가 150Hz BCT , PWM 가 FL 가

(L) , NPN(234) DUTY가 BCT (221)

(232)가 I2 (211) NPN (235)가 , FB

PWM (214) 2 (-) , (+) CT가 , PWM

DUTY가 BCT , NPN(234) (232) IS , NPN(235) (211) NPN(235) FB 8, 9 (136) (214) (203) P1 N2 가 , PWM 가 PWM PMOS(103, 102)가 PWM PMOS(103, 104) 가

PWM (203), (204) P1 N2 3 1 5 4

1 , PWM N1 , 2 CT FB 1 NMOS(101) NMOS(102) 2 PMOS(103) N2 , 3 P2가 (204) P1 , 4 PMOS(104)

1 P1 N2 CT NMOS(101) PMOS(103) NMOS(102) PMOS(104) 2 NMOS(101) PMOS(104)가 1 2

, NMOS(101) PMOS(103) CT (, FB) , NMOS(102) PMOS(104) , CT NMOS(101) PMOS(103)가 FB가 (, FB)

3 T 가 4 (a) , N1 H , NMOS(101)가 , 1 (107) , 1 A , 1 BAT(VCC) 가 . , 2) B 1 L , PMOS(103)가 , 1 C1 PMOS(103) , 가 , 1 A (, A) Va GND .

ii , N1 L , P1 H , NMOS(101) PMOS(104) 가 4 (b) , 2 B, T , TR , NMOS(102) , 2 BAT(VCC) , T, 1 A , TR 2 (106), PMOS(104) , T, 1 A Va VCC 2 , Vf 가 , 2xVCC+Vf .

ii A Va TR 1 가 , ii' 가 , Va VCC . 가 , 1 (107) , P1 N2 , 1 (107) 가 , 가 . 1

iii 2 , N2 H , NMOS(102)가 , 1 (107) T 4 (c) 1 A 1 (107) , 2 P2 L , PMOS(104)가 , T 가 . A Va VCC 2 (2xVCC) .

iv , N2가 L , P2가 H , NMOS(101) PMOS (104) 가 4 (d) , 1 A, T iv TR , NMOS(101) PMOS 2 가 NMOS(101) , 1 A, T BAT(VCC) , T, 2 B 가 TR 2 (105), PMOS(103) , T, Vf B 가 -Vf . A Va

iv iv' , TR 2 가 , ii' iv' A Va VCC . , 2 B B i iv A Va .

5 A Va , FL lo , 5(a) 1 1 S(104) 2 , A Va (106) lo , 5(b) PMOS(103) 1 (105) 1 PMO Vf 가 5 (a) A Va VCC 2 , PMOS(103, 104) (105, 106) Vpeak가 5(b) A Va ii VCC 5 6 , Vpeak가 Vpeak . 가

1 (107) T A, B PMOS(103, 104) (105, 106) , PMOS(103, 104) NMOS(101, 102) , ,

6 1 , PMOS(103, 104) 3 2 . 7 6

6 3 PMOS(103, 104) , .

6 , N1 NMOS(101) CT
 , FB가 .

N2 NMOS(102) NMOS(101)가
 , FB가 .

PMOS(103) NMOS(101)가 , NMOS(102)가 Toff
 , NMOS(101)가 .

PMOS(104) NMOS(102)가 , NMOS(101) Toff
 , NMOS(102)가 .

Toff NMOS(101, 102), PMOS(103, 104)가 .
 ii Toff가 PMOS(104)가 . , iv T
 off가 PMOS(103)가 .

7(b),(d) PMOS(104, 103) Toff
 가 Toff .

NMOS(101, 102) , PMOS(103, 104) , 가 PMOS(103, 104)
 , Vf .

8 9 1 .

8 3 PMOS(103) 1 (105) 4
 PMOS(104) 2 (106) 1 . 8

9 8 3 (103), 4 (104) NMOS .
 , 1 4 (101 104) NMOS , 가 ,
 , IC(200) 3 4 (103), 4 (104) NMOS
 , (103, 104) 3 6
 N3, N4 .

10 TR T가 BAT
 VCC 1 NMOS(101) 1 A , TR 1 (107)
 B 1 , TR 1 (107) 2 VCC 2 NMOS(102) 2

, 1 (107) T 2 B 1 (105) 3 NMOS(103)
 가 NMOS(104) , 1 (107) T 1 A 2 (106) 4

1 4 (101 104) 1 1 4 (101 104)
 , 10 , 1, 2 (101, 102) PMOS .

10 , 1 4 (101 104) 3 6
 N3, N4 IC(200) .

1 4 MOSFET . 1 4

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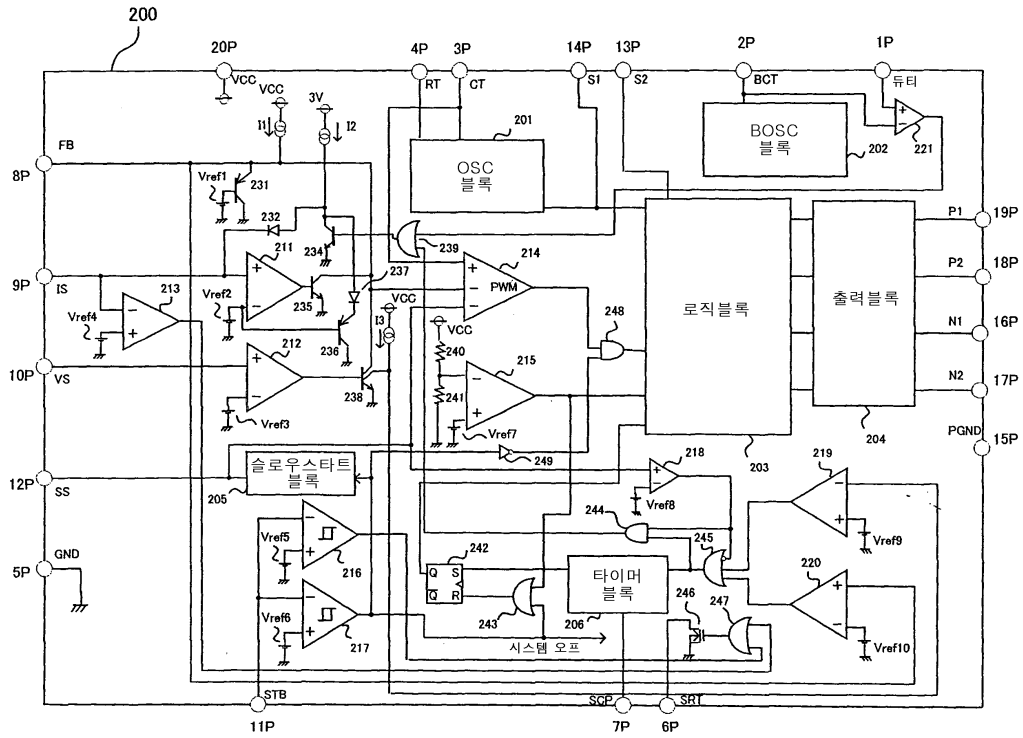
2

4

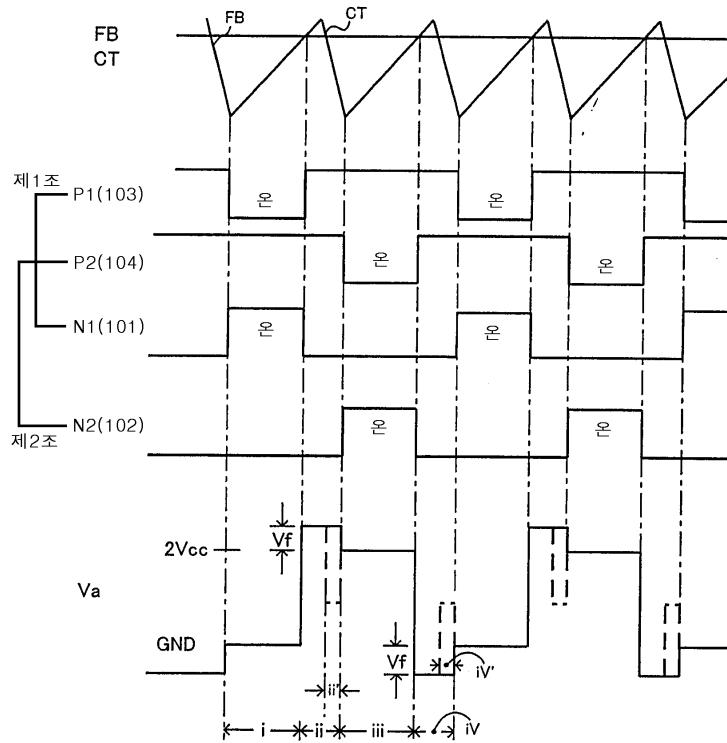
4

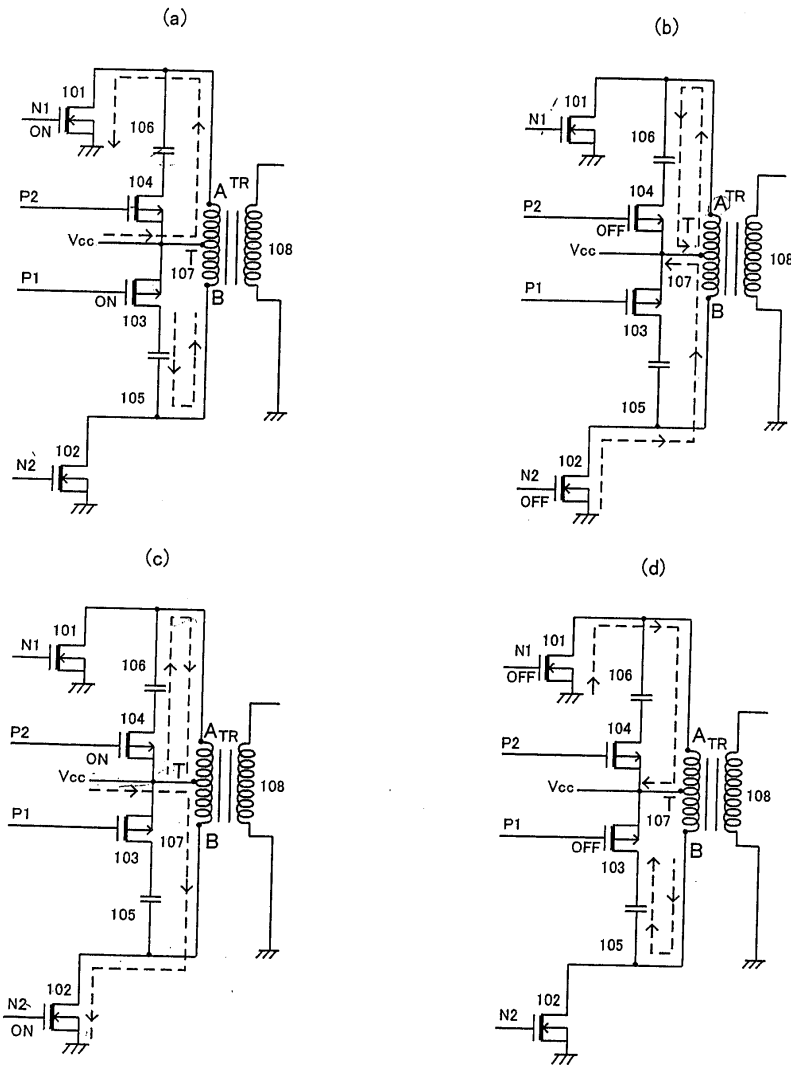
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2



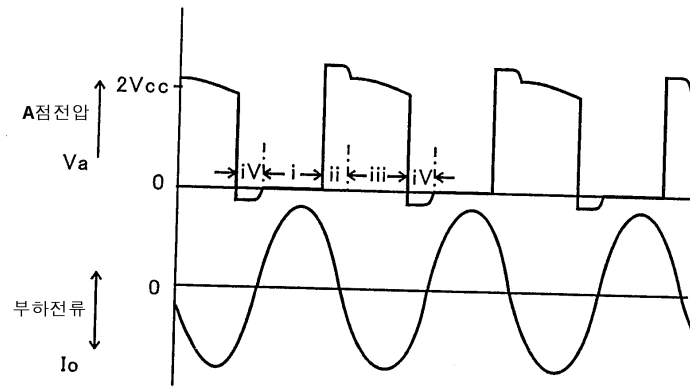
3



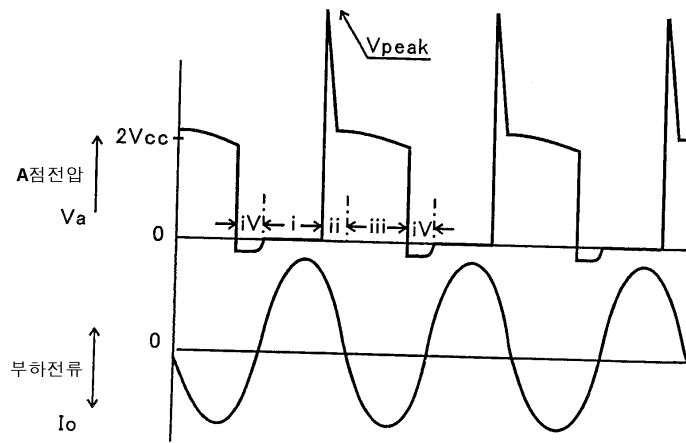


5

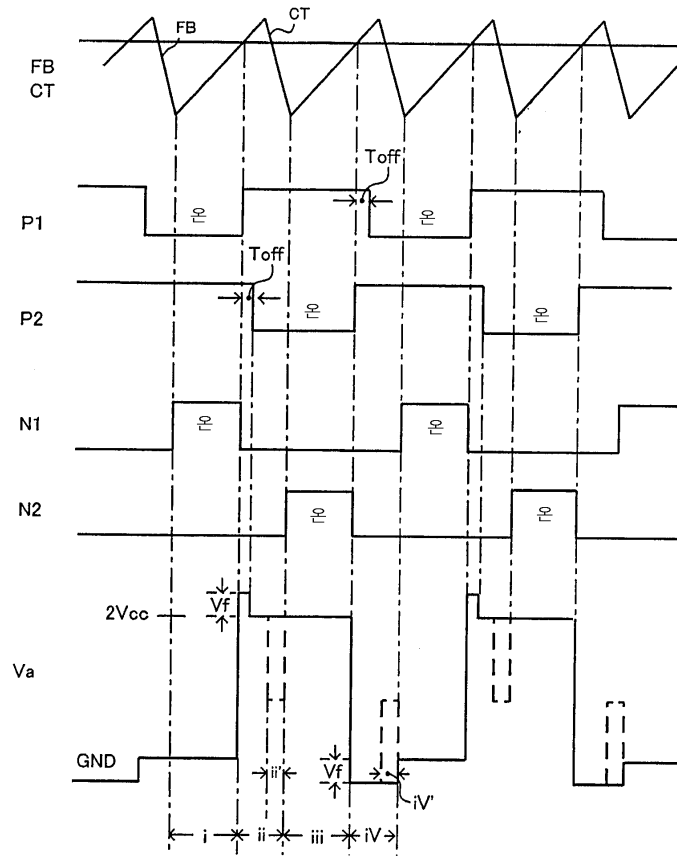
(a)



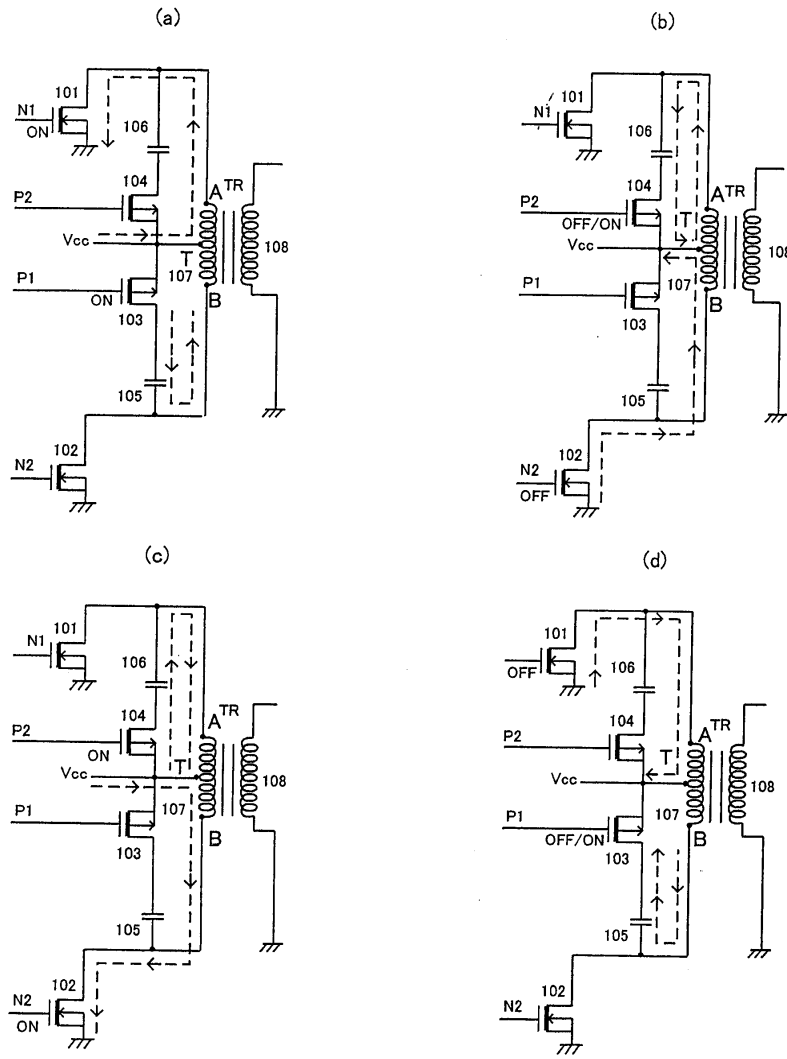
(b)



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