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(43)

2001 - 0086264
2001 09 10

(21) 10 - 2000 - 0063179
(22) 2000 10 26

(30) 2000 - 007764 2000 01 17 (JP)

(71) 가 가
,
2 2 3

(72) 2 2 3 가 가
2 2 3 가 가

(74)
:

(54)

TM가 , (2) SON ZSOP (13) High
, (3) TG ,

1 DRAM ,

2 1 (2) ,

3 1 (3) (7) ,

4 2 (13) ,

5 1 4 ,

6 3 ,

7 ,

8 가 ,

9 SN ,

10 2 (13) ,

11 2 ,

12 ,

13 .

1 : ZRAS 2 :

3 : 4 :

6 : 7 :

11 : RXT 12 :

13, 43 :

15 : 17 :

18 : NMOS 19 :

SN :

, DRAM
(101) 가 TG 가 SN BL (101)가 ON BL 가 (100)
()

G SN (100) (101) 13 TG BL T
, SN (101) TG SN (101) TG SN
, TG 가 SN (101) TG SN

igh High SN Low High (101) TG 가 H TG
High SN

(101) TG SN가 (101) TG 가 (101) O
N SN TG High 가 SN SN TG

, 가 ,
, (電氣的),

4 - 28084

(良品)

가

가

4 - 28084

7 - 85668

가

가

5 - 144263

가

가

62 - 202398

가

1

1

2

1

3

1

2

가

4

1

5

4

6

4

5

(1)

1 DRAM (ROW) , , 1 ,

1 , ZRAS (1) (, RAS) ZRAS RAS ZRASE , (2) .

RXT, (2) ZRST, RAS ZRASE , BLEQM, RXD (3) SON, ZSOP (2)

BLEQM RXT, ZRST RXD (4) , SON, ZSOP (3) (5) ,

TM (6) TM (2) SON, ZSOP (3) TM가 ,

2 RXT (2) RXT (11) , (12) , SON, ZSOP RAS ZRASE SON, ZSOP RXT (11) BLEQM

XD (12) ZRXT RXTM RXD R ZR XD (6) TM (13) SON, ZSO P (3) .

3 (3) 1 (7) 1 N MOS (, NMOS 3 , SON (15) ZSOP P MOS (, PMOS) (15a,15b)) (15c,15d)

(18) (15) BL , (17) (17) NMOS (19) NMOS (18) TG WL , (19) Vcp가 가 .

4 (13) (21~23), (24),(25) (26) (12) ZRXT (21) (24) (26) , (26) (25) (24) .

High (24) ON TM (13) TM가 Low (25) ON TM가 (24),(25) (22)

(24),(25) (23) (13) Low SON (3) TM가 ZSOP가 ZRXD (23)

(26) High T1 (23) TM가 (25) SON ZRXD ZSOP

5 1 4 SON, ZSOP가 T1 T1 (3)

6 3 SON, (b) SON, (e) ZSOP, (c) WL, (d) ZSOP, (f) BL, ZBL, (g) BL, ZBL (f)~(g)

BL, ZBL, (h) 가 Low ZSOP 가 High

T1 SON BL ZSOP

(26) T1 7 R SN 가 High

TG SN TG가 Low R SN 가 High

SN High 가 TG Low 64ms SN TG Low 가 SN

가

SN High Vcc Vcc/2 Vc(t) SN High Vcc Vcc/2 SN C SN 가

1

$$V_c(t) = -R \cdot I(t)$$

2

$$V_c(0) = V_{cc}$$

3

$$I(t) = C \cdot \{dV_c(t)\} / dt$$

4

4

$$V_c(t) = V_{cc} \cdot \exp \{-t / (R \cdot C)\}$$

, Vc(t)가 SN C 30pF 64ms Vcc Vcc/2 R T1

$$R = 3.08 \times 10^{12} \text{ ()}$$

, 8

5 6

5

$$V_{cc} = R \cdot I(t) - V_{cc} / 2 + \Delta V(t)$$

6

$$I(t) = C \cdot d\{V_{cc} / 2 - \Delta V(t)\} / dt$$

, V(t) SN Low Vcc/2 Low

, t=0 V(0)=0.2V 6 7

7

$$\Delta V(t) = (0.2 - 3 V_{cc} / 2) \cdot \exp \{t / (RC)\} + 3 V_{cc} / 2$$

$V(t)=0$, SN High , L H ,
 7 , $V(t)=0$ t T1 .
 9 7 , R C , $V_{cc}=2.0V$, SN T1 5m
 s 9 , $V=0$ 5ms ,
 , 4 (13) 10
 10 (38) (13) (31~35), OR (36), NAND (37)
 (38) NAND (37) (12) ZRXD (31~33)가 (38)
 OR (36) .
 , OR (36) , (34) TM가 , OR (36)
 NAND (37) . NAND (37)
 ZSOP가 (35) SON .
 XD High , , OR TM Low High ZR
 High ZRXD가 Low , ZSOP High , NAND (37)
 Low SON High , NAND (37) OR (36) SON Low .
 Low , High (38) OR TM가 , ZRXD가 High
 T1 Low High High (36) , OR (36) T1
 Low , High
 1 , NAND (37) ZSOP Low T1 Low High , , T
 (13) Low 가 , 10 High 4 , SON High
 , 1 , (3) SN T
 G , , (冗長)
 (2)
 1 ,
 , 2 .

11 2

11 (43) ZWE SON ZSOP

ZWE가 1 ZWE가 2

(43) (51~53), OR (54) NAND (55),(56) ZRXD RS
(55) (56) RS (12)
NAND (55) (51) RS
NAND (56) NAND (56)
ZSOP가, (53) SON

OR NAND (54) (56) 3 NAND (52) 1 OR (54)
TM가

OR (54) High TM가 Low SON ZSOP ZWE ZW
E ZRXD ZWE TM High
OR (54) ZWE SON Low ZRXD ZSOP Hi
gh ZWE가 Low 가

ZRXD가 Low ZWE가 High SON Hig
SON, ZSOP ZSOP Low ZWE High ZRXD
SON, ZSOP ZWE SON, ZSOP SON, ZSOP

TM가 High 2 (43)가,
SON ZSOP ZWE
가 (3) 1

, 1 2 , Z , Low

1

(冗長)

2

1

3

1

2

가

4

5

4

6

4

5

(57)

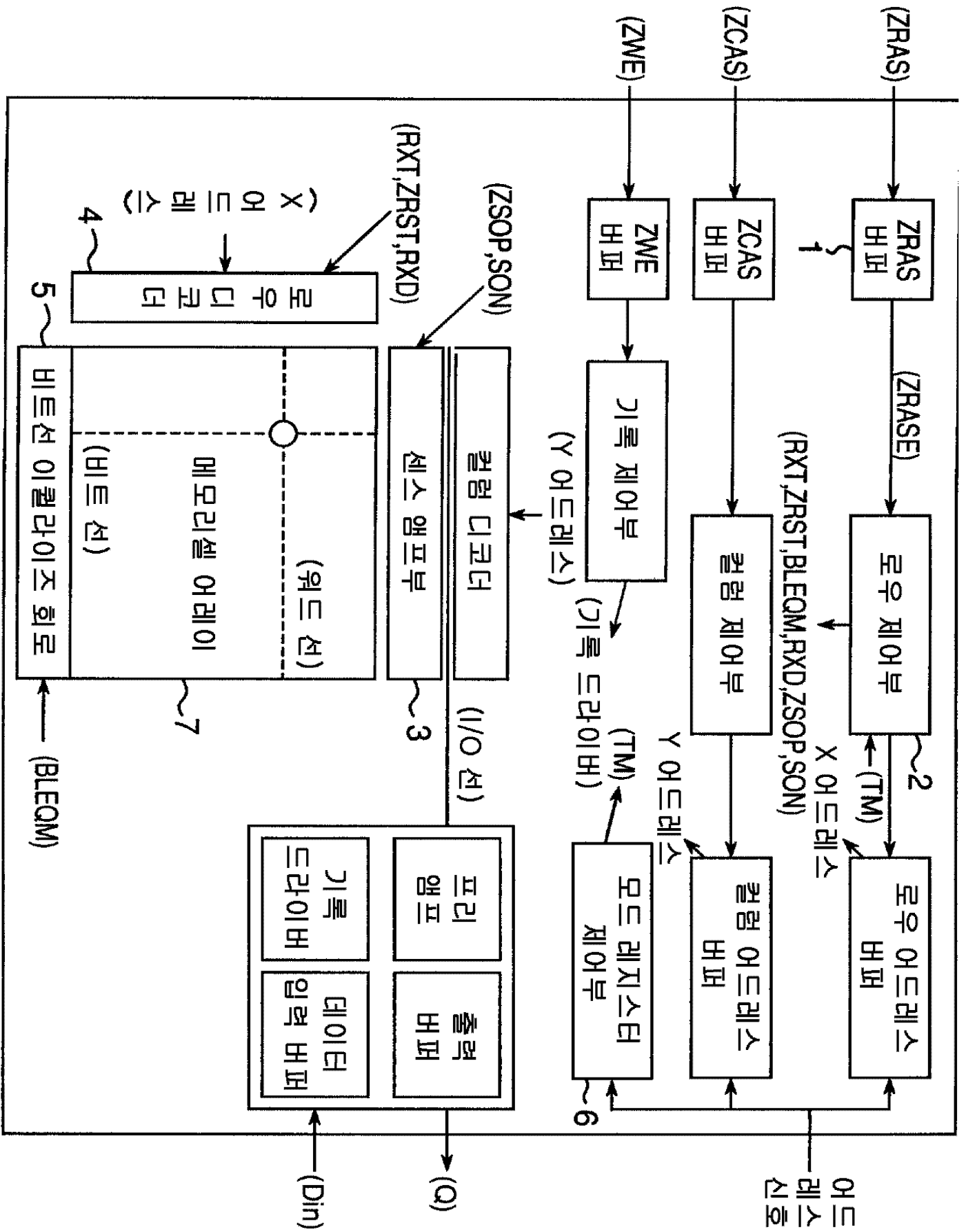
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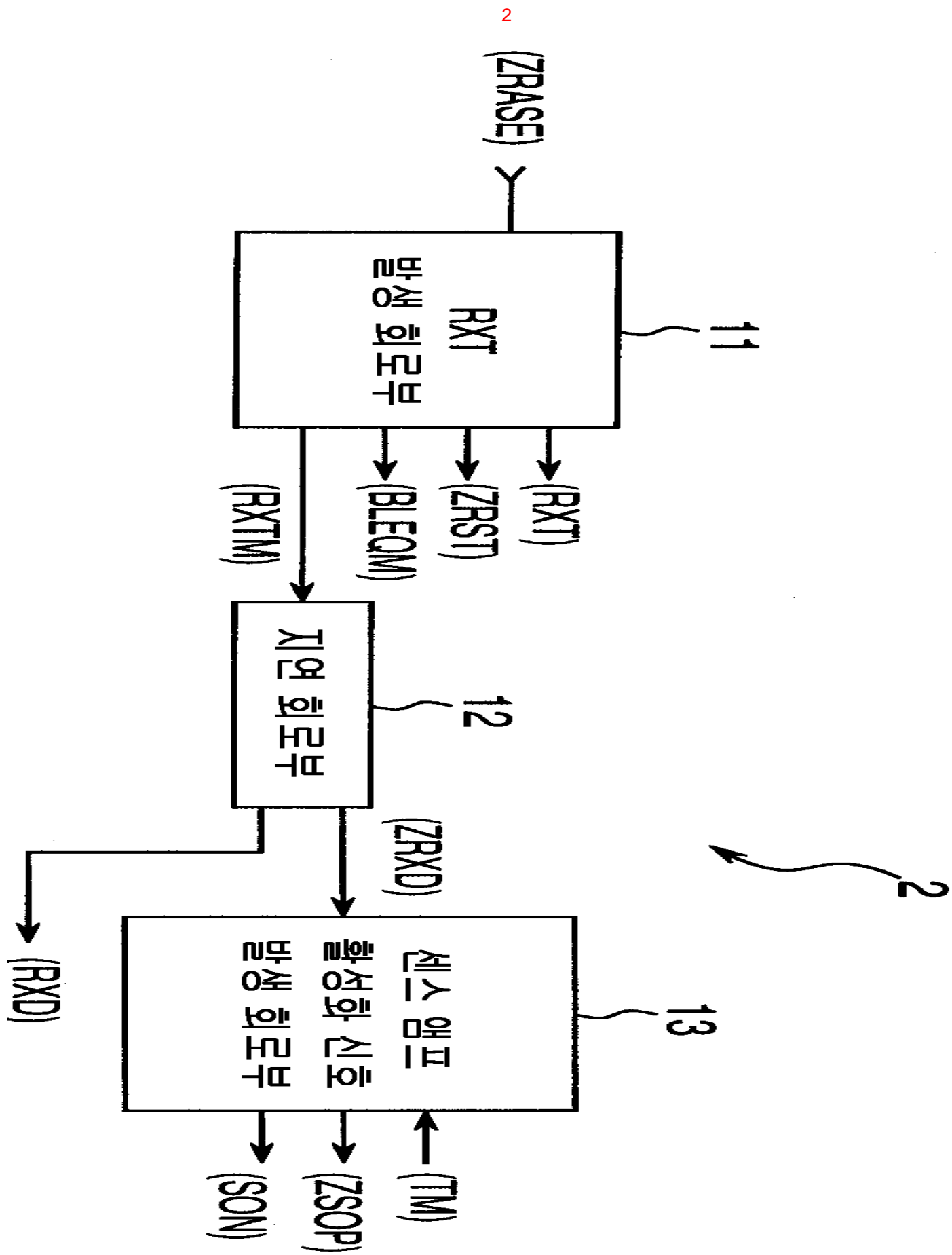
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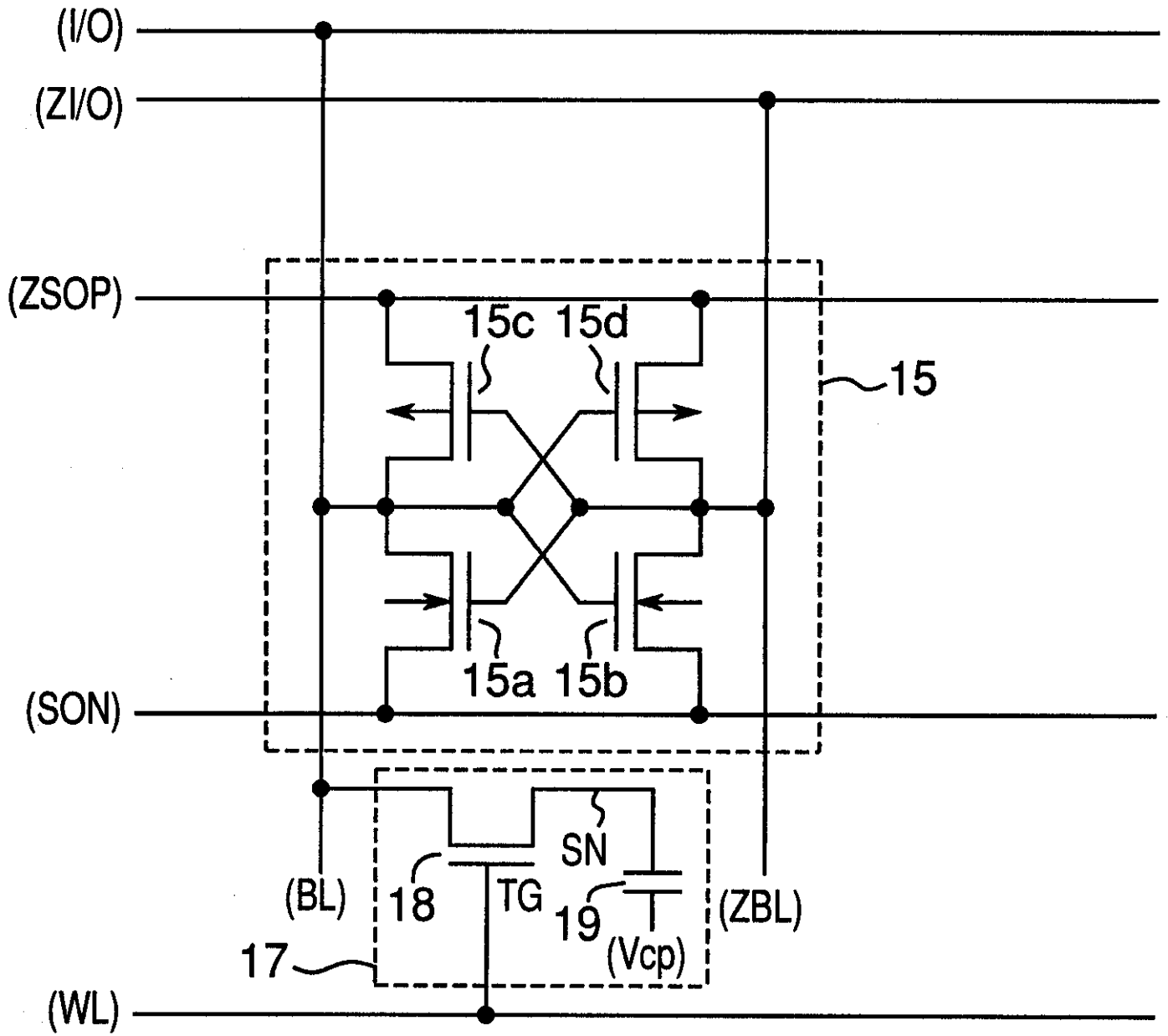
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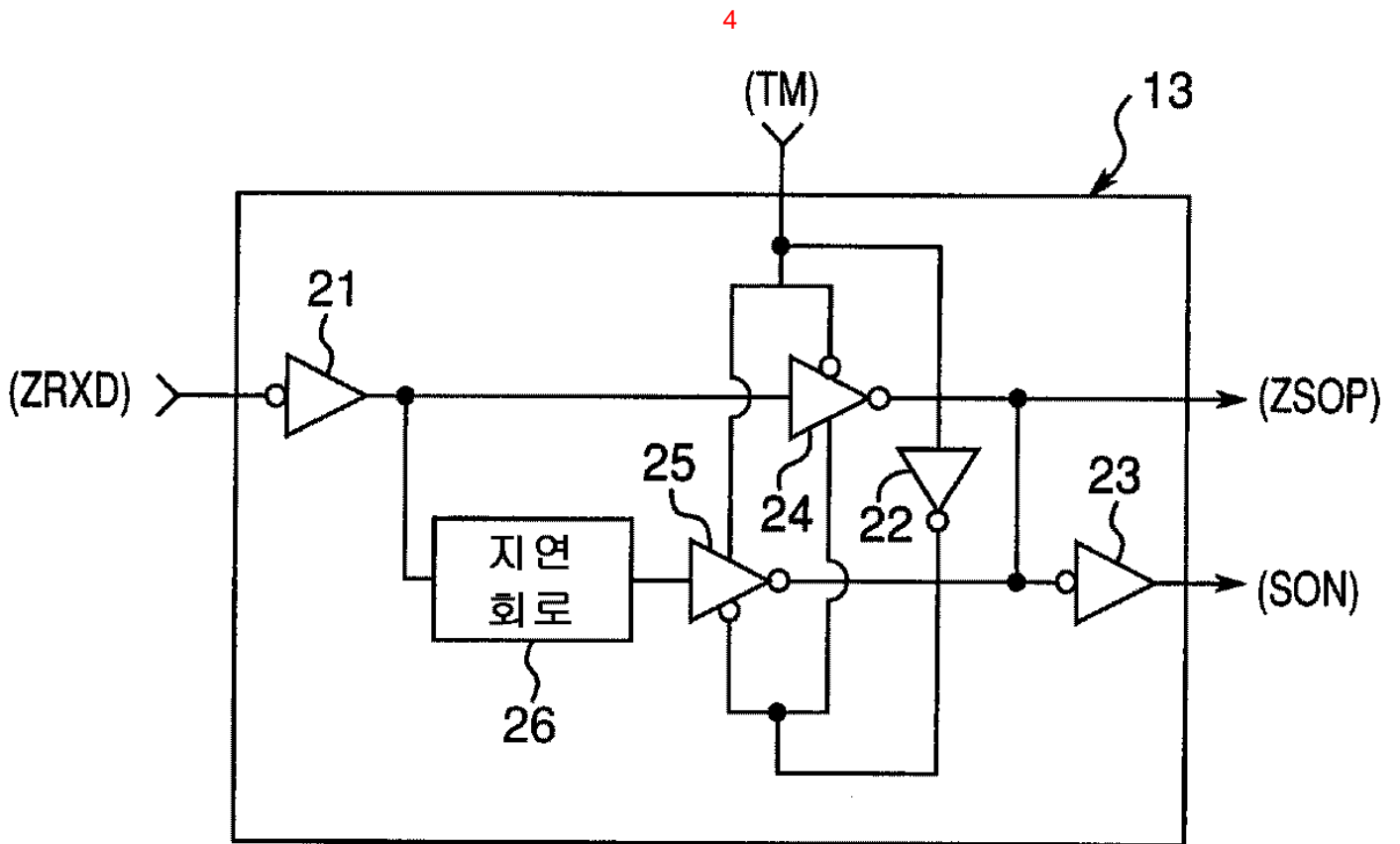
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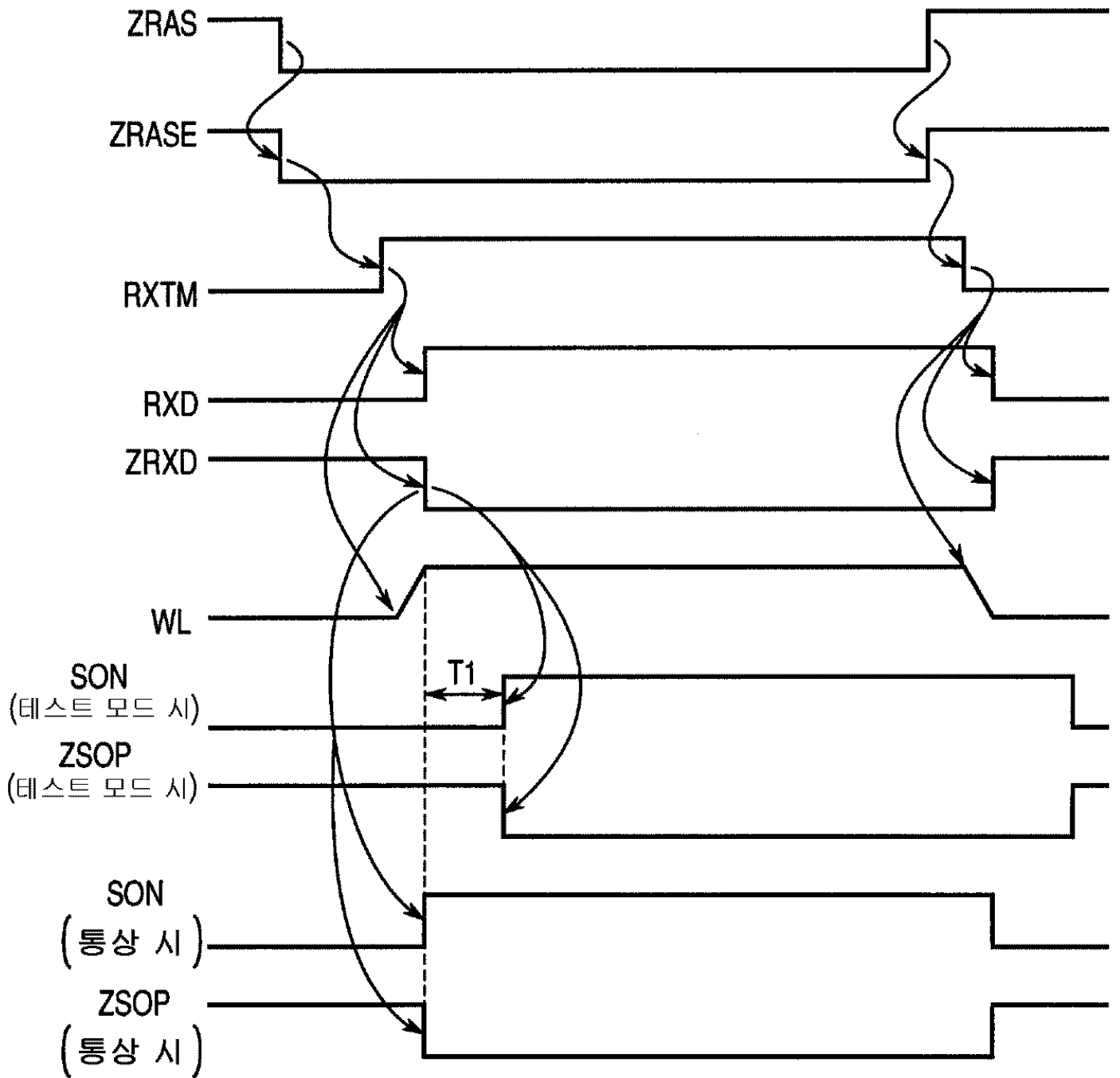
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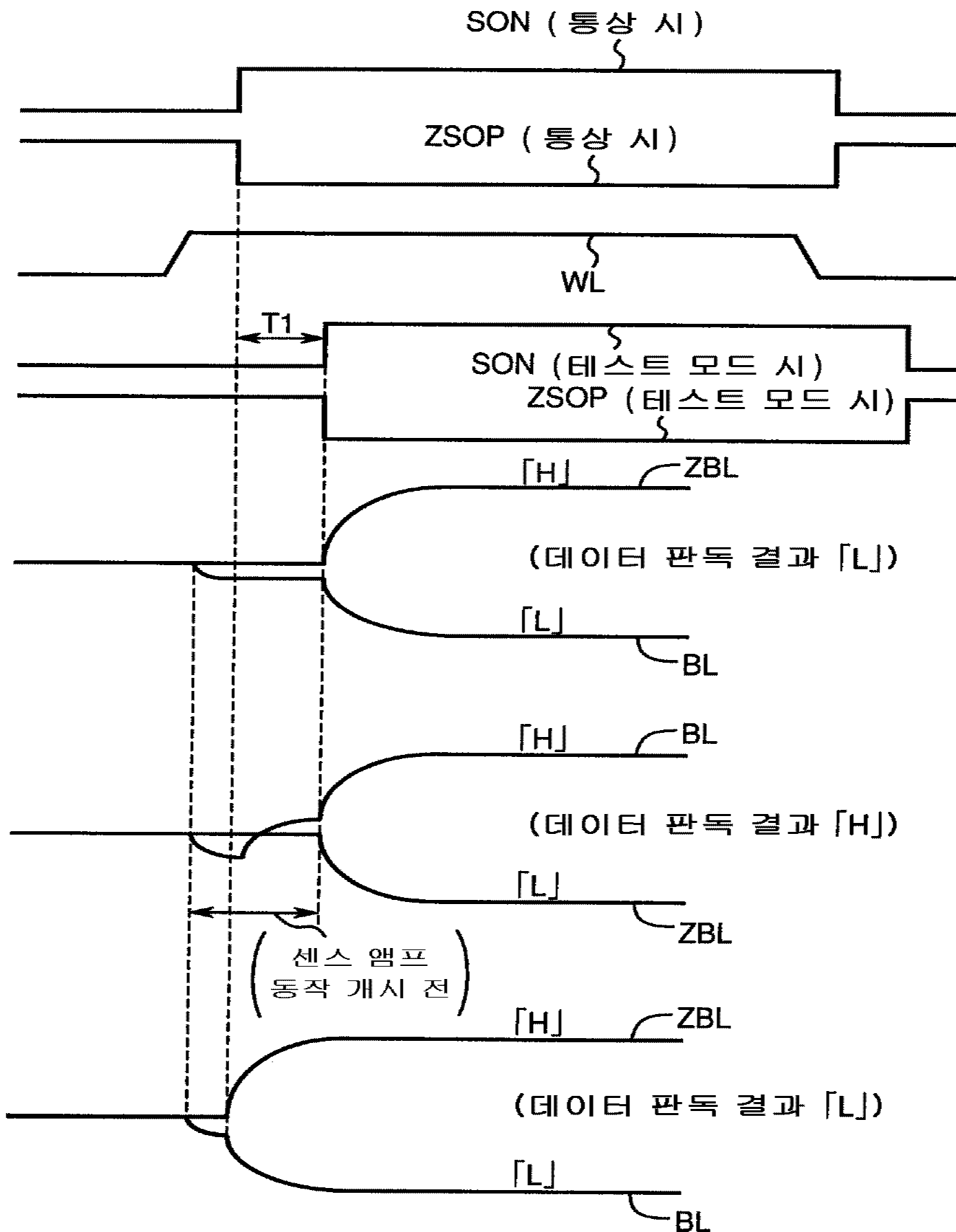




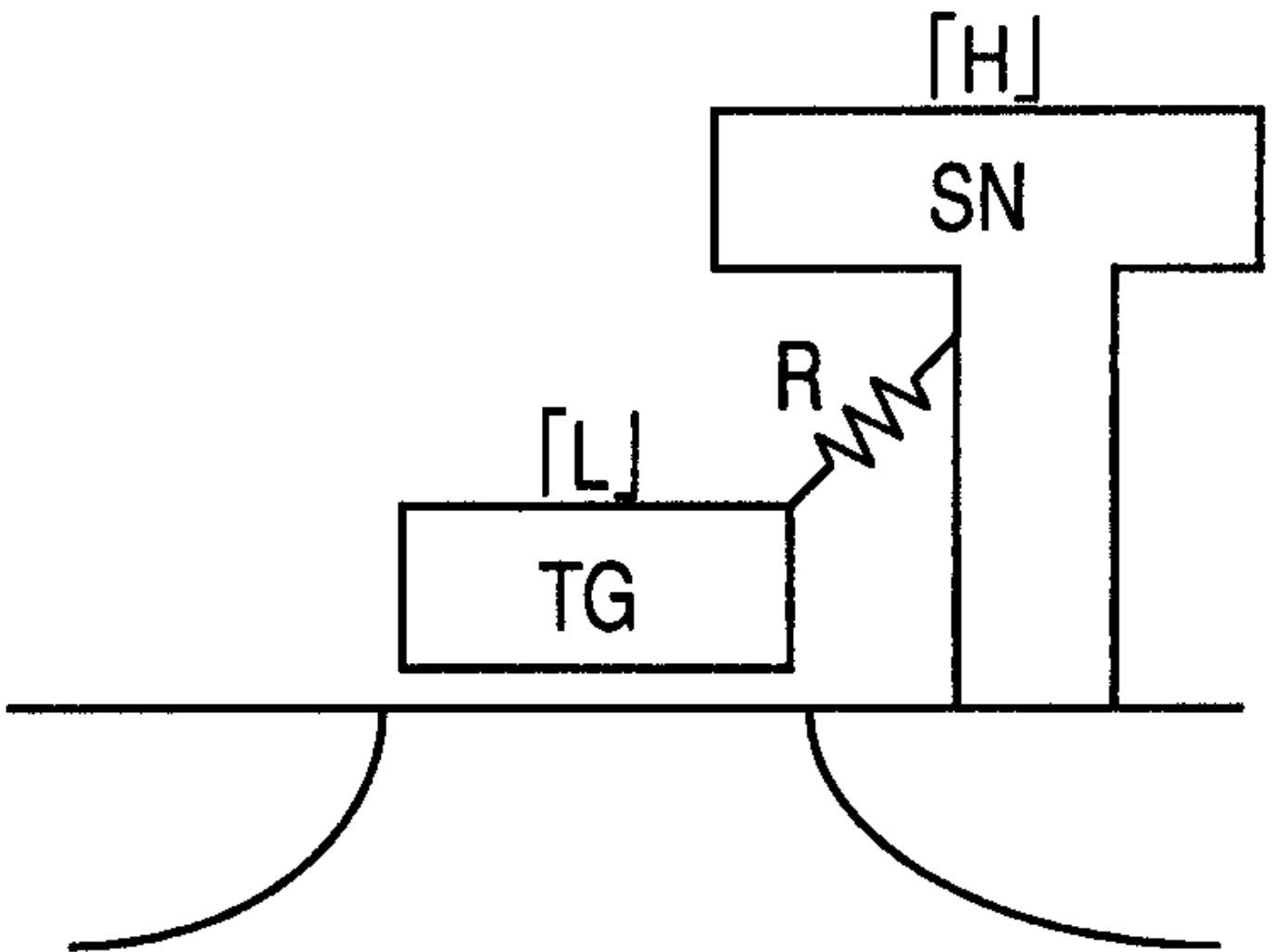




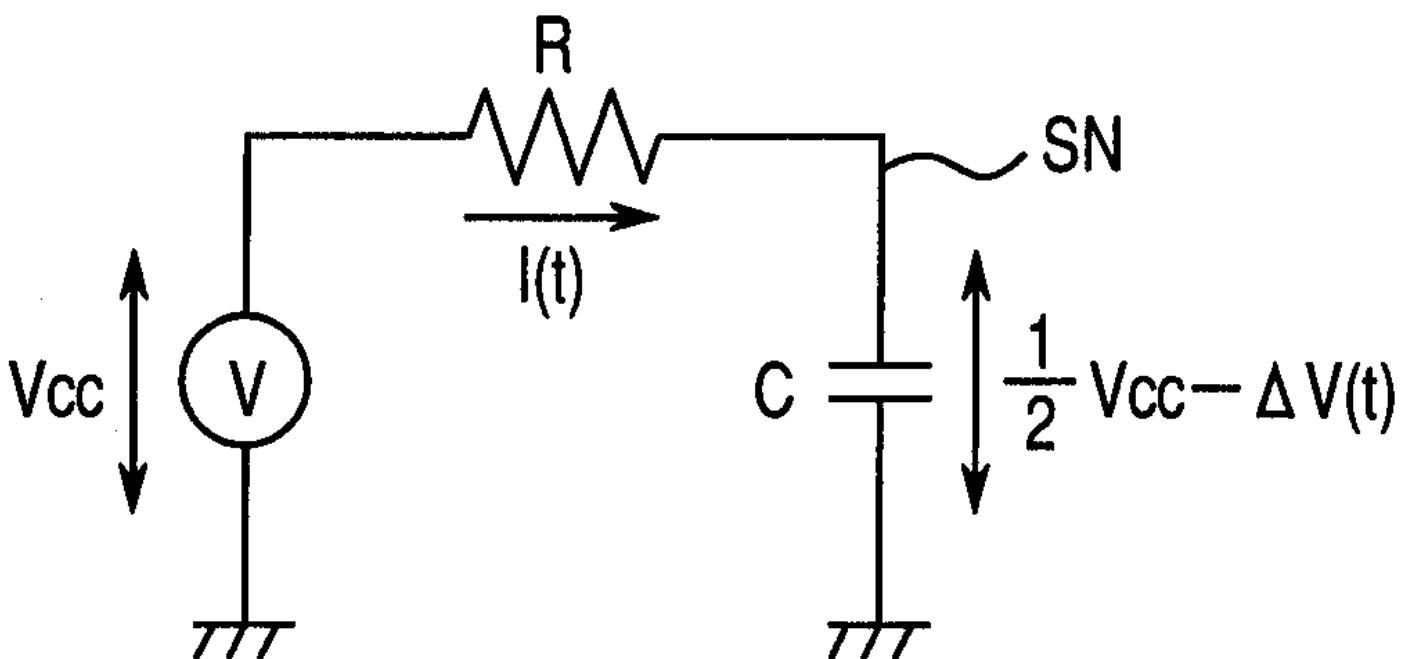
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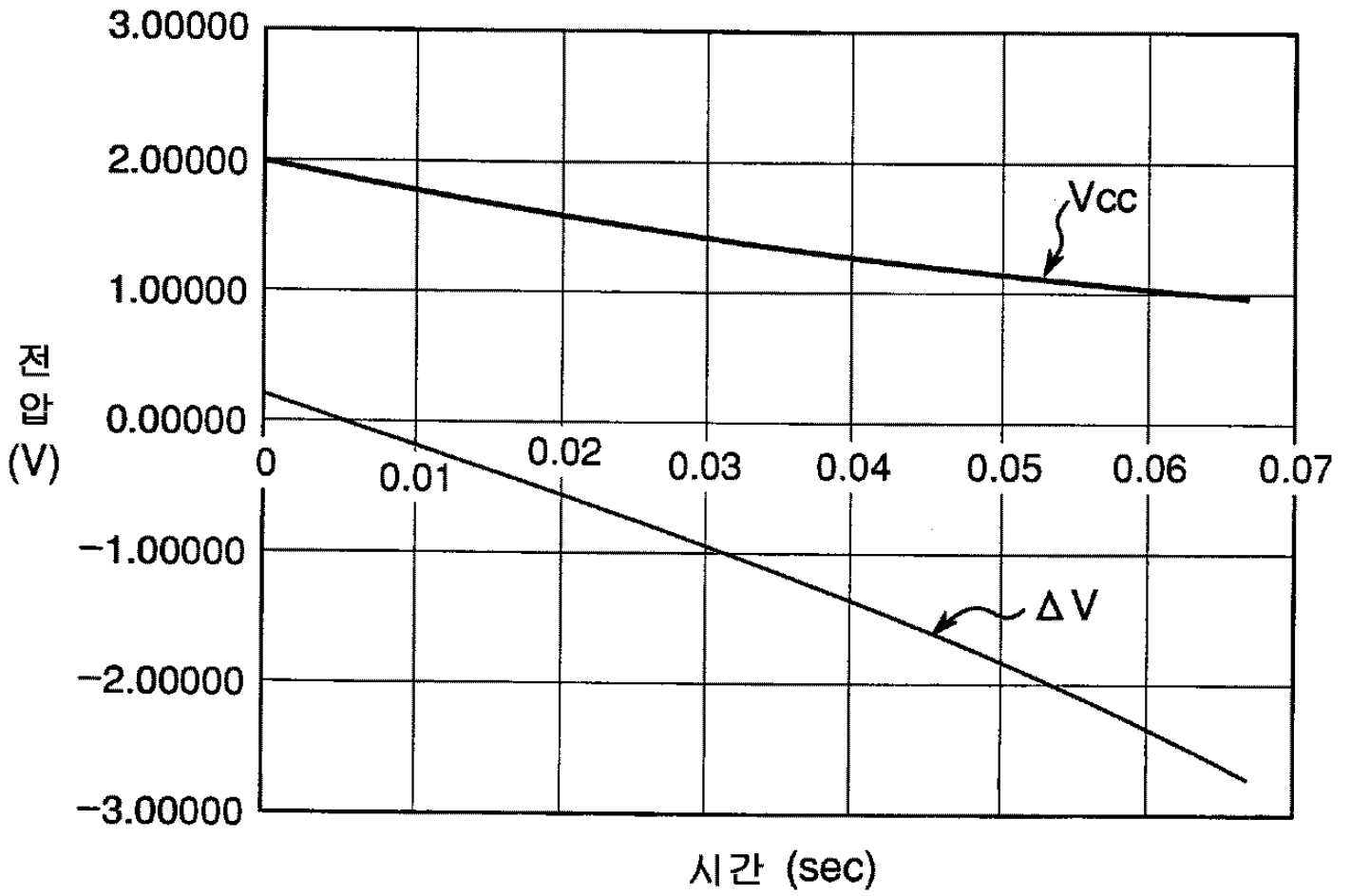
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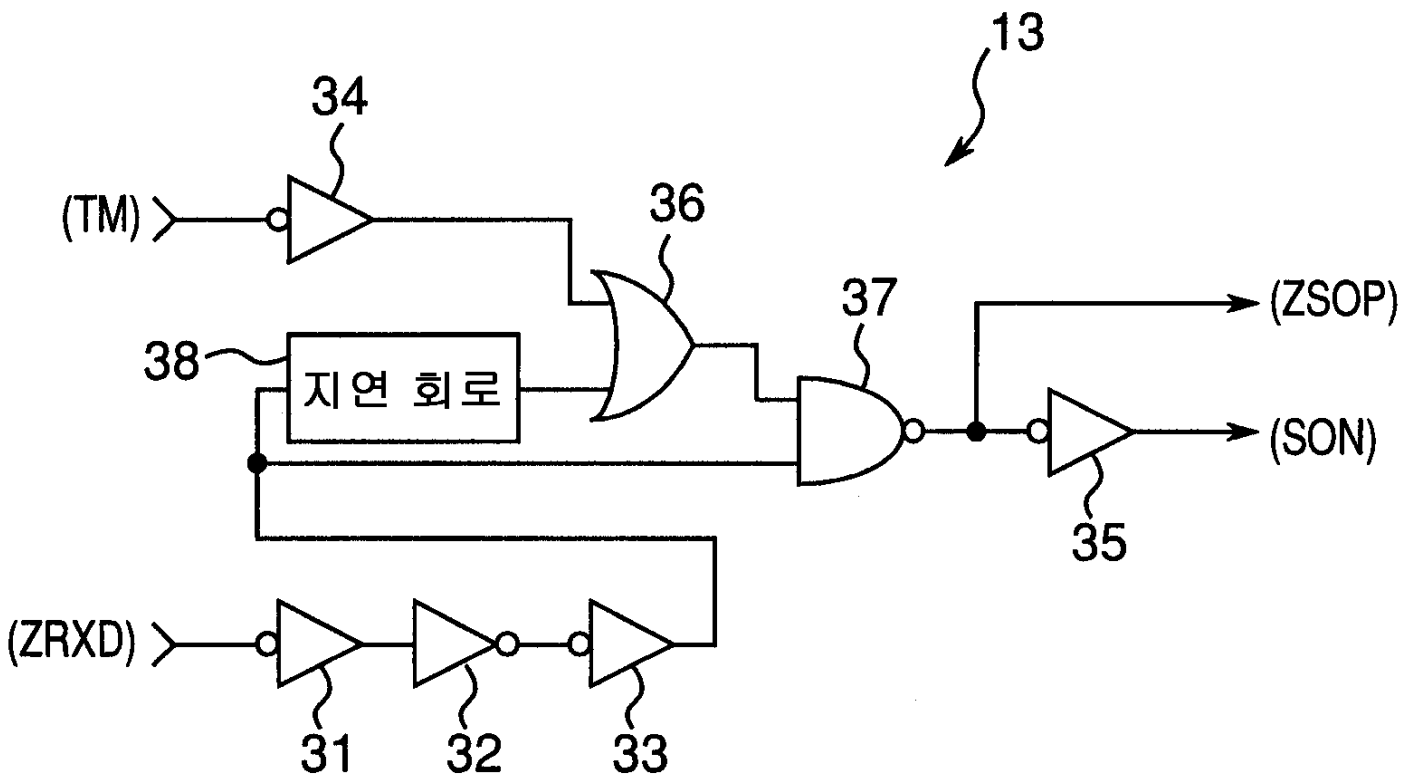
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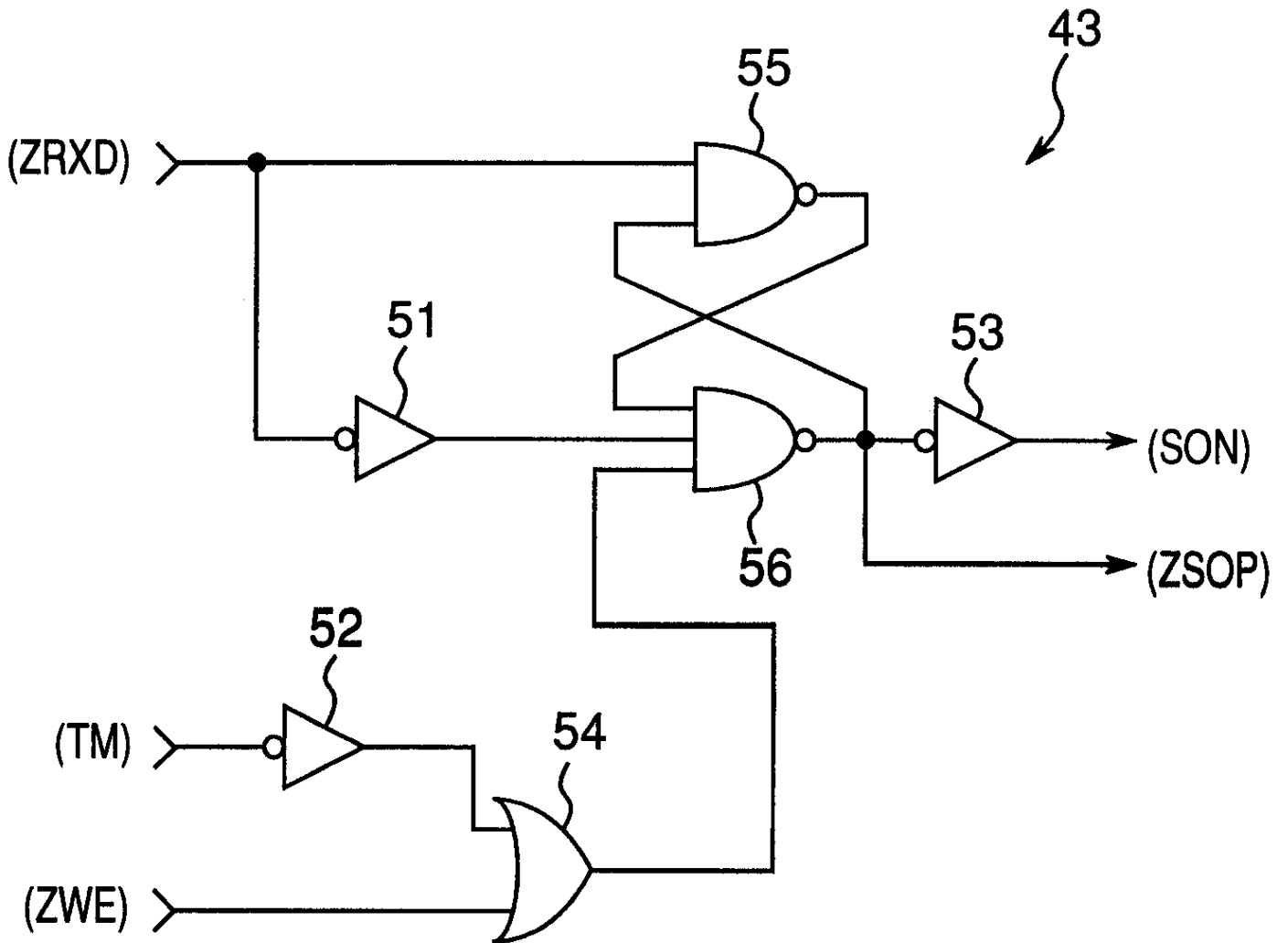
9



10



11



12

