

(19)  
(12)

(KR)  
(B1)

(51) 。 Int. Cl. <sup>6</sup>  
H03G 3/20

(45)  
(11)  
(24)

2001 07 12  
10 - 0295678  
2001 05 02

(21) 10 - 1999 - 0010528  
(22) 1999 03 26

(65) 2000 - 0061474  
(43) 2000 10 16

(73)

1

(72)

18 - 3

(74)

:

(54)

가

(AGC)

1, 2

, 1, 2

, 2

CMOS

MOSFET

IC 가가

3

1

2 1

3

4 3

5 3

6 3 AGC

\*\*\*

\*\*\*

12 : 1 16 : 2

20 : 22 :

24 : 100 :

102 :

가

RF(Radio Frequency)

2

RF

RF

RF

RF

가

가

가

,가

가

가

MOSFET

가

가

1

가

가

1, 2

(12),(16)

1, 2 (12),(16)

(Dual gate) MOSFET

가

1, 2 (12),(16)

(10)

(10) (AGC) ( ) (AGCin) , 1, 2 (1  
 2),(16) 가 1, 2 (12),(16) 가 .  
 2 (10) 가 .

(OP) (R1) (AGCin) 가 (R3)  
 (R2) (D1) (OP) (OP)  
 (R4) (- VCC) , 가 (R3) (R1  
 ),(R2),(R4) (e.g.,10K ) , 가 (R3) (e.g.,50K ) ,  
 (D1),(D2) , (D2)  
 (thermistor) .

(14) SAW(Surface Acoustic Wave) , 1 (12)

AGC ( ) (AGCin)가 , (10) (AGCin)  
 1, 2 (12),(16) .

, 2 (AGCin)가 (OP) (Vref)  
 (AGCin > Vref), 1 (R3 R2)/R1 , (AGCin)  
 가 (Vref) (AGCin < Vref), 2 가 R3 R1 (OP) ,  
 2 1 가 (OP) ,  
 (10) 1, 2 가 .

, 1, 2 (12),(16) (RFin) (RF  
 out) , 1, 2 (12),(16) 가

, (14) 가 SAW 1 (12) (insertion loss) ( 20dB)  
 , SAW (14)

, (10) 가 (AGCin) 1, 2 (12),(16) 가  
 , 1, 2 (12),(16)

, 2 (+VCC, - VCC)

, (Bipolar) 가 , CMOS  
 가 .

, SAW IC 가 IC .

가

CMOS

IC 가가

1

1, 2

, 1, 2  
, 2

1

2

3

, 1, 2

(12),(16),

(20),

(22)

(24)

1, 2 (12),(16)

, 1, 2 (12),(16)

(20)

CMOS

(22) 1, 2 (12),(16)

1

(12)

(shift)

(HPF)

, 2 (16)

(L)

(C)

(24)가

4

(20)

가

2 (20)  
(V1),(V<sub>x</sub>)

(VDD)

(VSS)

, (OP) MOS

(AGCin)

1,

(OP)  
(OP)

(R1)

(102)

1

(V1)

(R7)

(R5)

(AGCin)

(OP)

(100)

(R<sub>A</sub>),(R<sub>B</sub>)

(100)  
(OP)

(VDD)

2

(R)

PMOS  
(Va)

(PM1)  
, NMOS

(AGCin)

NMOS

(NM1)

(NM1)

(22)

5

NMOS

(NM2)

(20) AGC ( )

(AGCin)

, 가  
가

가

1, 2

(12),(16)  
가

, 1, 2 (12),(16) 가 (20)가 , 1, 2 (12),(16)

4 DD , (AGCin)가 (100) (VDD) 1/2V  
 , (102) (R<sub>A</sub>),(R<sub>B</sub>) (Va) PMOS (PM1)  
 1 (V1) , (100) (100) (102) 가 가  
 (Va) PMOS (PM1) NMOS (NM1) 가 , (102)  
 1 (V1) 가

(20) 1, 2 (V1),(V<sub>X</sub>) 가 가 , 1, 2 (V1),(V<sub>X</sub>)  
 (AGCin)

$$V_x = R5 \frac{VDD}{R+2R5} + \frac{R}{R+2R5} \times AGCin$$

$$V1 = Vtn + \sqrt{\frac{(W/L)_{PM1}}{2(W/L)_{NM1}}} \times (VDD - Vtp - Va)$$

,  $Va = AGCin \times \frac{R_B}{R_A + R_B}$  , Vtn, Vtp (NM1) (PM1)  
 , (W/L)<sub>PM1</sub> , (W/L)<sub>NM1</sub> (PM1) (NM1)

, (PM1) (Va) , (V1) (VDD)  
 (PM1) 가 1 (V1) (VDD)  
 , (R<sub>A</sub>),(R<sub>B</sub>) , 1  
 (V1) (2)

, 1 (V1) (OP) 2 (V<sub>X</sub>) (V1 < V<sub>X</sub>),  
 1 6 (A) , 1 (V1) (OP) 2 (V<sub>X</sub>) , (V  
 1 > V<sub>X</sub>), 2 6 (B) , 2 PMOS 가 ,  
 (Va) (PM1) (NM1)

, (OP) (AGC ) 1, 2 (V1, V<sub>X</sub>) 가 6  
 2 (12),(16) , 1 (12) 5 RC , (22) 1,  
 (22) ( = "1" )

2 (16) (open drain) , LC  
 (24) 2 (16)

, 가 . 가

, CMOS , 가 . , SAW IC 가 가

(57)

1.

, ;  
1 ;

1 ;  
2 ;

2

2.

1 ,

MOFET

3.

1 , 2

4.

2 , ,

5.

1 ,

1 ;

2 ;

1 , 2 , 1, 2

1 1 2 ,  
3

6.

2 , 1 2 , 2 1 , 2  
1

7.

5 , 4 5 2MOS 1MOS 4 5 , 1MOS 1MOS 2MOS  
1

8.

5 , , 2

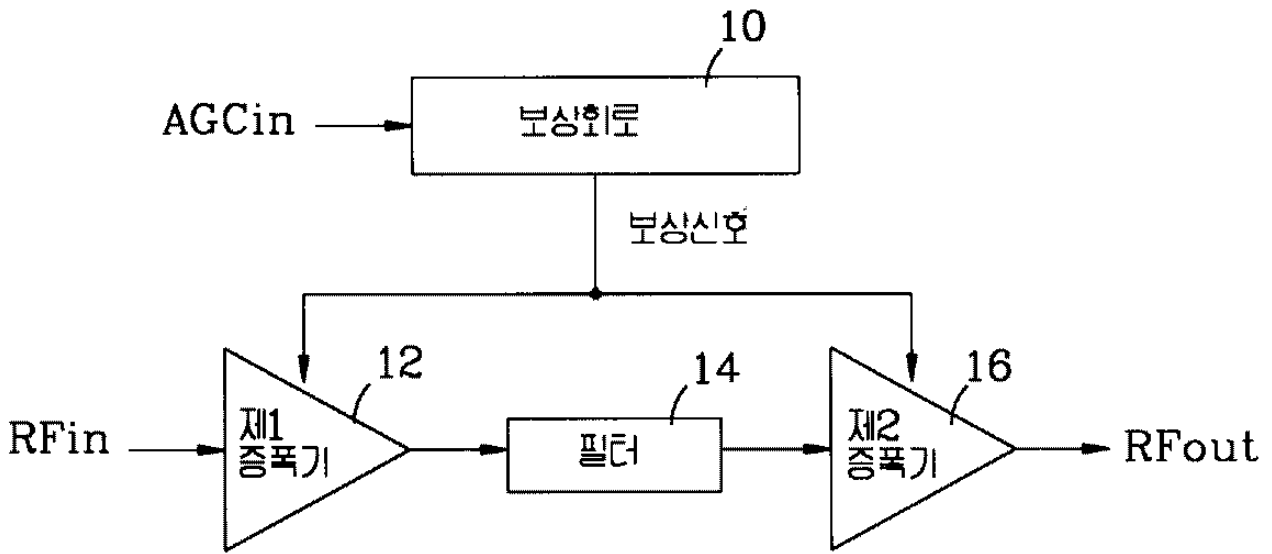
9.

7 , 1MOS PMOS , 2 MOS NMOS  
1, 2

10.

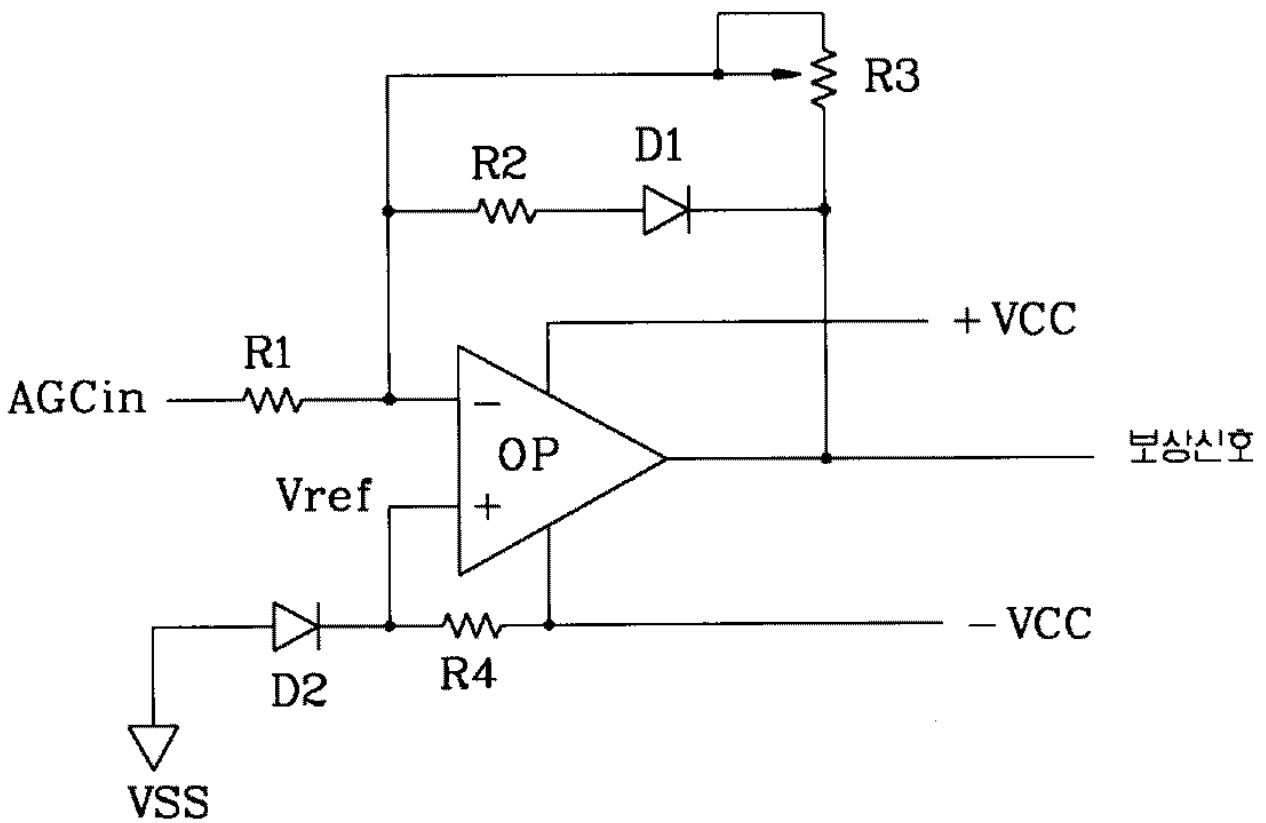
7 , 1, 2 1MOS , 1  
1MOS 1, 2MOS

1



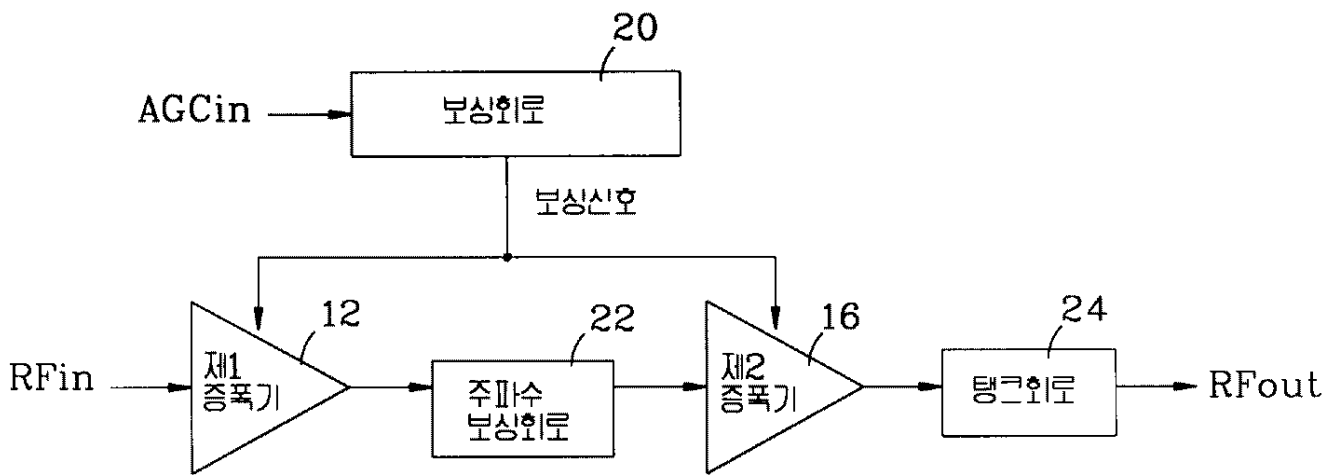
2

10

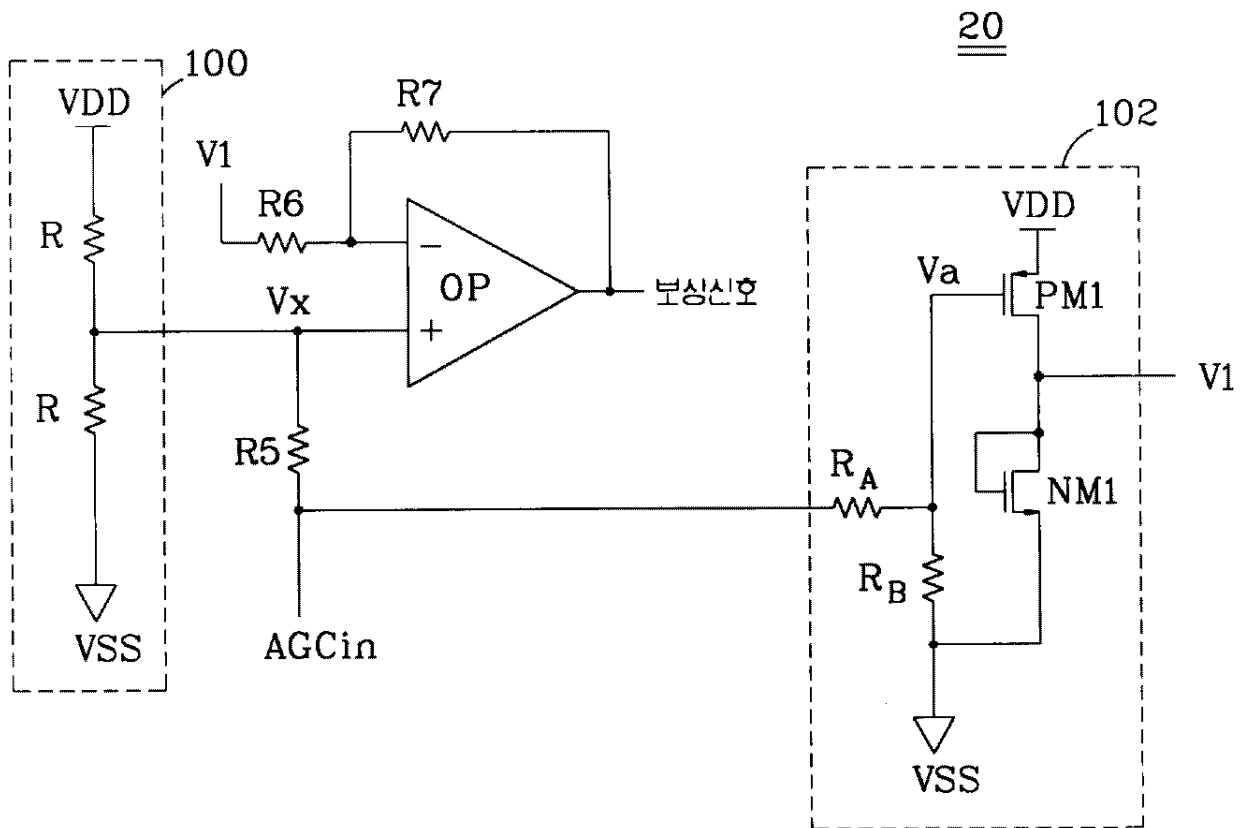




3



4



5

