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(43)

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(22) 2001 08 17

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(71) 가 가
가 가 6 7 35

(72) 가 가 6 7 35 가 가

(74)
:

(54)

(TPC)가 ()

가 TPC

1

1

2

3

4

5

6 (boost)

7 가

8

*

1. 3.

4. () 8. (CPU)

10. 11.

14. 20.

() 가

10 - 163889

8 가

8 (1) () (4) (2) R () () (2)가
(3) A/D (5) / (7) R (CPU)(8)
CPU(8) (3) (1)

50 () (2) (1) 가 가
R 50 가 50 0V
, R 50 , R

() 가,

(R) CPU(8) (R) () CPU(8) (R) (R) 가 (R) CPU(8) (7) 50 (1) CPU(8) (3) 가 50 ()

(3)가 (1) 가 50 (1) (4)가 50 (1) 가 (1)

(3) CPU(8)

(9)

CPU(8)

(1) 가 (1)

(1) 가

ICs가

, A/D

가,

가

(Code Division Multiple Access: CDMA)

(near - far Problem)

(Transmission Pow

er Control: TPC)가

TPC가

(matching)

, TPC가

가

가

1 (1)

(4)

(2) (10)

가

(2)

2 , 1 , (10) (1)

3 , 1 2 , (1)
(2) , (2) 가 . ,

1 3 가 , 가
가 가 . , 가

1 7

1 TPC가

1 , 8

1 , (11) ,
TPC 가 (12) (20)
(4) .

(4) (CPU) (8)

ss) 2 19 (14) (11) CPU(8) 3 (cla
PU(8) 2dB (15) (15) (11) DC C
(1) (16)

(1) , , 가
(18) .

(1) (3) (17)
() (4) .

18) (17) , (14) CPU(
(11)

TPC가 8
CPU(8)

CPU(8) (3) , (3)
(10)

2, C₀ (3)
 1 (L₁), 1 (C₁) 2 (L₂) 2 (C₃)
 R₀ (1)
 R₁ (3)

[1]

$$L_1 = \frac{XL_1}{\omega}, L_2 = \frac{XL_2}{\omega}$$

$$C_1 = \frac{1}{\omega \cdot XC_1}, C_3 = \frac{1}{\omega \cdot XC_3}$$

$$XL_1 = XC_0, XC_1 = Q \cdot R_0$$

$$XC_2 = R_L \cdot \sqrt{\frac{R_0}{R_L - R_0}}, XL_2 = XC_3 + R_0 \sqrt{\frac{R_L}{XC_3}}$$

1, = 2 f가 Q = 3, R_L = 50 = 5.65E9가 , R
 0, C₁, L₂, C₃

[1]

R ₀ (Ω)	C ₁ (pF)	L ₂ (nH)	C ₃ (pF)
2	29.4	2.79	17.3
5	11.8	5.3	10.6
10	5.89	8.84	7.1
20	2.95	14.9	4.3

1, (1) (R₀) 2 20
 가 (3) R₀ = 2 R₀ = 20
 (C₁, L₂, C₃)
 2 R_L = 50 R₀ = 2 20 (W)
 (dBm) (A)

[2]

measured order	Power [W]	Power [dBm]	I _o [A]	R ₀ [Ohm]
0	2.6800	34.700	1.2500	2.3900
1	2.4200	33.500	1.1500	3.4200
2	1.9200	31.680	0.95000	4.8000
3	1.4500	29.200	0.70000	6.6000
4	0.89000	25.080	0.45000	10.500
5	0.37700	17.540	0.35000	21.000

$R_0 = 5$ (1) 0.37W
 $R_0 = 2$ (1) 4.8, 0.8W
 $R_0 = 2$ (1) 2.39, 1.9W
 $R_0 = 20$ (1) 21, 2.68W
 $R_0 = 10$ (1) 10.5
 $R_0 = 2$ (1) 2, (3) 가 (1) $R_0 = 20$
 $R_0 = 2$ (3) 가 (3)
 $(R_0 = 2)$ 가 $R_0 = 2, R_0 = 5, R_0 = 10, R_0 = 20$
 (C_1, L_2, C_3) (22) 3 (mismatching)
 (23 25)

[3]

GSM Power			No. 1	
CLASS	Power [dBm]	Power [mW]	Efficiency [%]	Current [mA]
0 - 2	39	7943.28		
3	37	5011.87		
4	35	3162.28	50	247.05
5	33	1995.26	50	155.88
6	31	1258.93	36	136.60
7	29	794.33	28	110.82
8	27	501.19	23	85.12
9	25	316.23	19	65.01
10	23	199.53	15	51.96
11	21	125.89	12	40.98
12	19	79.43	9	34.48
13	17	50.12	7	27.97
14	15	31.82	5	24.71
15	13	19.95	4	19.48
16	11	12.59	3	16.39
17	9	7.94	2	15.51
18	7	5.01	1.5	13.05
19	5	3.16	1	12.35

3 GSM(Global System for Mobile Communication) 900MH

z TPC [Power(dBM), Power(mW)] [Efficiency(%)]

[Current(mA)] (1 19) , (11)

2dB .

3 No. 1 (1) 6 (577ms) 1/8

(burst) (BT) , , 5 33dBm(2W) 155.

88mA가 8 .

3 , , 33dBm 50% 13dBm 7%

, , (3) 3 4 . 3 4 (3)

, 2 .

, (1) (R₀) (C₀) ,

, (I₀)가 (3) .

(3) , 1 (L₁) (1) (C₀)

1 (C₁) .

3 (C₁'), 3 (L₂') 2 (L₂) 1 (C₁) , 2

(L₂) (4) (R_L) .

2 (L₂) 1 (L₁) 2 (C₃)

(S₂) (L₂) 1 (L₁) 2

(L₂') 4 (C₃') . 1 (S₁) 3 (C₁') 3

(10) (shunt) (S₁,S₂) CPU(8) 가 .

(R₀ = 2) (C₁, L₂, C₃) (R₀ = 1

0) (C₁ ', L₂ ', C₃ ') 1 .

C₁ = 29.4 (PF) C₁ ' = 7.3 (PH)

L₂ = 6.05 (nH) L₂ ' = 2.79 (nH)

C₃ = 7.1 (PF) C₃ ' = 10.2 (PH)

CPU(8)가 3 (C₁ ') 3 (L₂ ') 4 (C₃ ') , 1 2

(1) (10) , 1 2

(S₁,S₂)가 , 1 (S₁) 3 (C₁ ') 3 (L₂ ')가 2

(R₀ = 2) 2 (S₂) 4 (C₃ ') .

(10) 1 2 (S₁,S₂)가 , (R₀ = 10) .

3 (10) 1 2 (S₁,S₂)가 , 4 ,

(S₁,S₂)가 pin (CD₁,CD₂) " (ON)" 가 ,

" (OFF)" 가 ,

(R₁,R₂) CPU(8) " " " " 가 .

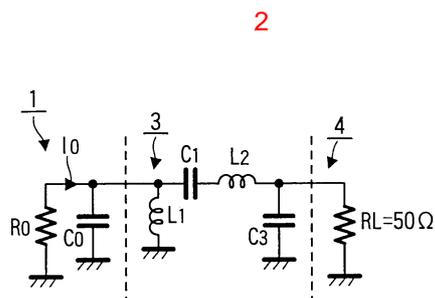
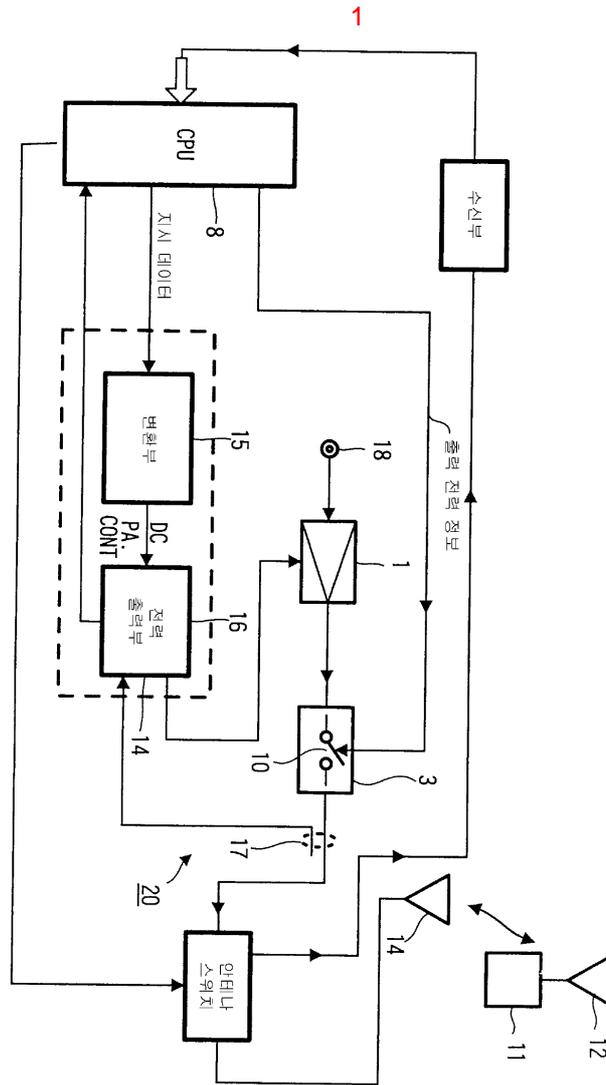
2.

1 ,

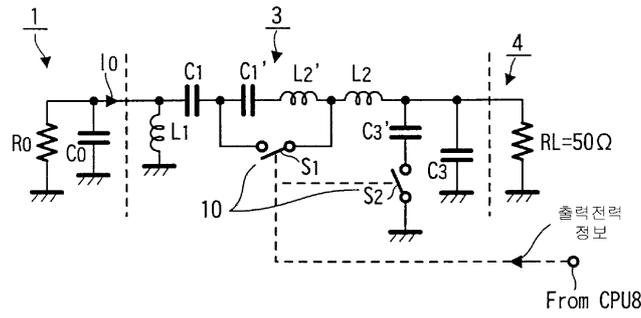
3.

1 2 ,

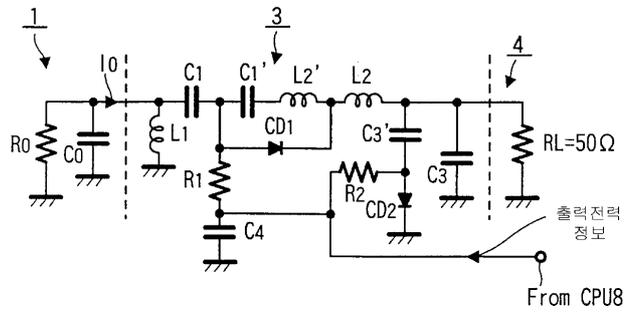
가 ,



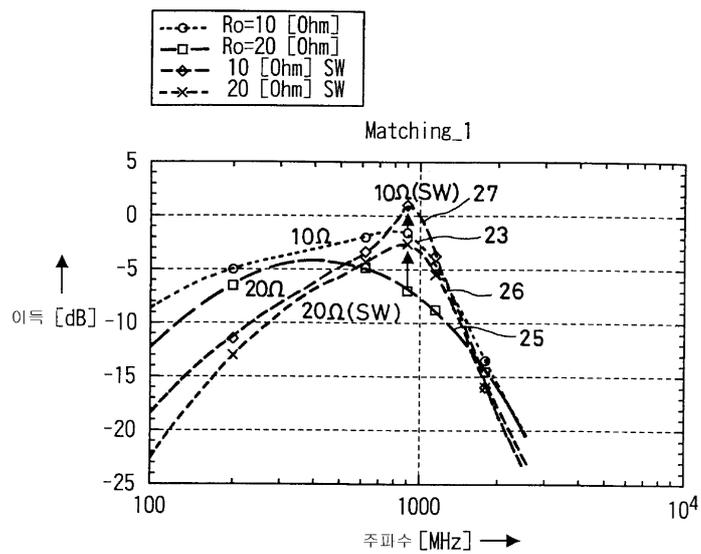
3



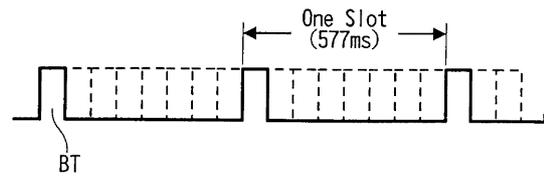
4



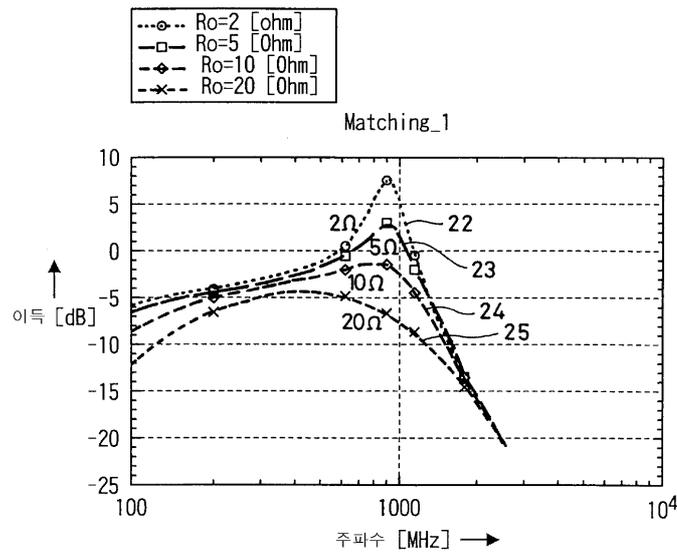
5



6



7



8

