

(19) (KR)  
(12) (A)

(51) 。 Int. Cl. <sup>7</sup> H04B 1/69 H03K 5/00	(11) (43)	10-2005-0000335 2005 01 03
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(21)	10-2004-0046561
(22)	2004 06 22

(30)	JP-P-2003-00178416	2003 06 23	(JP)
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(71)	가 가		
	100-6334	2-	4-1
	가 가		
		3 1 17	

(72)		3 1-17 가 가	
		3 1-17 가 가	

(74)

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(54)	가 가
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1 CLKD10 10 , DLL (8) , VCO(7) CLKD1 CLKD10 CLKO , CLKD  
CLKS (9) , 10 (9) (3) (9) CLKC  
(10) CLKC N 가 가

1		1	.
2	1	DLL	.
3	1	DLL	.
4	1		.
5	(a), (b)		.
6		2	.
7		3	.
8	7	VCO	.
9	7	VCO	.

1 :

2, 21, 31 : PLL

3, 14, 24, 44 :

4, 32 : PFD

5, 33 : CP

6, 34 : LPF

7, 35 : VCO

8, 22 : DLL

9, 23 :

10, 36 :

11, 13, 41, 43 :

12 :

42 :

(SSCG: Spread Spectrum Clock Generator)  
EMI(Electro Magnetic Interference: ) 가 .

PLL(Phase Locked Loop: )  
PLL , PLL

가 , ROM(Read Only Memory)  
( , 6,377,646 ).

, PLL  
( , ' 6,292,507 ).

가 , 가  
가 가

가  
가 가

가 가

1 1 1 1  
2 1 2 2  
2 2 가 1  
1 2 1  
2 1

가 가

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1, 1 (1), PLL (2) (3)

PLL (2) (PFD)(4), (CP)(5), (LPF)(6), VCO( ) (7), DL  
L( ) (8), (9) (10) PLL (2)  
가

CLKR (1) CLKI M ( 1/M )  
(4) (1) CLKR (10)  
CLKC (4) UP, DN  
(5) (4) UP (5) VC  
DN VCO(7) (6) VC CLKO  
DLL (8) VCO(7) CLKO CLKD1  
CLKD10 (9) DLL (8) CLKD1 CLKD10  
CLKS (3) (9) (1/N ) (1  
0) (9) CL  
KC

2, DLL (8) 10 (11), 10 (12), 10 (13), (14)

10 (12) , VCO(7) CLKO VCC  
(12) (11) (12) (11, 13)  
GND (13) (12) CLKD1 CLKD10  
(14) VCO(7) CLKO , (12) CLKD  
10 가 CLKO 1 (11, 13)

3 1 DLL (8) (9) CLKD1 CLKD10 DLL 3 , C  
LKO VCO(7) CLKS1, CLKS2 (9)

CLKO T1 (12) CLKD1  
CLKO T2 CLKD2 T1 10  
(12) CLKD1 T2  
가 , CLKD3 CLKD10  
CLKD10 CLKO T1

(9) DLL (8) CLKD1 CLKD10 CL  
KS (9) (3)

CLKS1 (9) 가 CLKD10 CLKD9  
, (9) t0 t5 가  
CLKS1 CLKD10



(10) DLL (8) (9) , , CLKO (1) /  
 , 1 ,  
 5 (a), (b) N , 5 (b) 가 5 (a) CLKO  
 CLKI 200MHz, M 50  
 N 50 N 49 CLKO 200MHz가  
 : -2%)가 CLKO 196MHz(  
 CLKR T3 250ns (T4/T3)  
 T4 N , 5 (a) CLKR T3 50 49  
 N , 5 (b) 가 200MHz 196MHz  
 ( : -2%) CLKO가 N 50  
 N 49 CLKO  
 T4가 40 $\mu$ s 가 (T4/T3)=160 가  
 20 $\mu$ s)가 가 CLKO 가 (T4/T3)=80 T4(  
 CLKO  
 M 20 CLKI 200MHz,  
 CLKR T3 100ns가 , 가 200MHz 190MHz  
 N 20 19 CLKO가 T4  
 ( : -5%) 가 (T4/T3)=200 가 C  
 가 20 $\mu$ s 가 200MHz 196MHz ( : -2%)  
 N 19 200 , N 20  
 N 19 가 , CLKO  
 /  
 , 가 , 가  
 , 1 CLKO T1 1/10 , CLKC (9)가  
 4 10 , (10) N 1 T1 1/10  
 CLKC (10) N 0.1  
 (10) M, N 50 (1) CLKI 200MHz, (1)  
 T3 250ns CLKC (1) CLKR  
 (9)가 가 200MHz 199.6MHz ( : -0.2%)  
 : -0.2%) CLKO가 1/10 10  
 CLKO  
 (1) CLKI 200MHz, (1)  
 (10) M, N 5 CLKC (1) CLKR T3  
 25ns , 가 200MHz 196MHz ( :  
 (9)가 , ( :

-2%) CLKO가 T4가 20 $\mu$ s (4) 가 10 가  
 가 (T4/T3)=800 가 , CLKO (4)  
 , DLL (8) (12) 가 10 , DLL (8) (12) 가  
 CLKO  
 2 DLL (8), (9) (3) 가  
 2  
 6 2 (1), PLL (21), DLL (22),  
 (23) (24)  
 PLL (21) (4), (5), (6), VCO(7) (10)  
 PLL (21) , 1 PLL (2) (3), DLL (8) (9)가  
 (10) VCO(7) CLKO N CLKC  
 . PLL (21) (1) CLKR  
 CLKC 가 ,  
 DLL (22) 2 DLL (8) 가 10  
 CLKI , CLKD11 CLKD20  
 CLKD11 CLKD20 3 DLL (8) CLKD1 CLKD10 가 CL  
 KI 1/10  
 (23) DLL (22) CLKD11 CLKD20  
 CLKS (24) (23) (1) (2)  
 3) CLKS M CLKR  
 , CLKI 1/10 CLKR  
 , 10 CLKO  
 , DLL (22) 가 10 , DLL (22) , PLL (2)  
 1) 가 CLKO 가 가  
 , 2 DLL (22), (23) (24) , 가  
 가  
 3  
 7 3 , 6  
 DLL (22)가 PLL (31)  
 PLL (31) (32), (33), (34), VCO(35) (36)  
 . PLL (31) CLKI . PLL (31) CLKC  
 가 , CLKV1 CLKV5 (23)  
 8 , VCO(35) 5 (41), 5 (42), 5 (43), (44)  
 5 (42) , VCC  
 (42) (41) (42)

GND

(42)

(43)

CLKV1 CLKV5가

(41, 43)

(44) (34) VC

(9) 7 VCO(35) (23) CLKS21, CLKS22 (9) , CLKV1  
CLKV5 VCO(35) (23)

CLKV1 CLKV5 T5 . 3 (42) CLKV2  
(42) CLKV1 T6( T5 1/5) 2 (42) CLKV3 CLKV5 C  
T6

(23) VCO(35) CLKV1 CLKV5 CLKS  
(23) (24)

CLKS21 (23)가 t20 CLKV3 CLKV2  
(23) CLKS21 t25 가  
「L」 CLKV2 t20 「H」 CLKV3 t22 t23  
「L」 , t25 「H」 CLKS21 CLKV3 T6  
CLKV2 가

CLKS22 (23)가 t21 CLKV3 CLKV4  
(23) CLKS22 t26 가  
「L」 CLKV4 t20 「H」 CLKV3 t23 t24  
2 T6 t27 「H」 CLKS22 (23) CLKS2 C  
LKV3 CLKV4 가

, PLL (31) CLKV 5 1/5 , PLL (21)  
CLKR . , PLL (21) CLKO

, VCO(35) (42) 가 5 , VCO(35) (42)  
PLL 가 (21) CLKO 가 가 . , (42)

, 3 PLL (31), (23) (24) , 가  
가

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가 가

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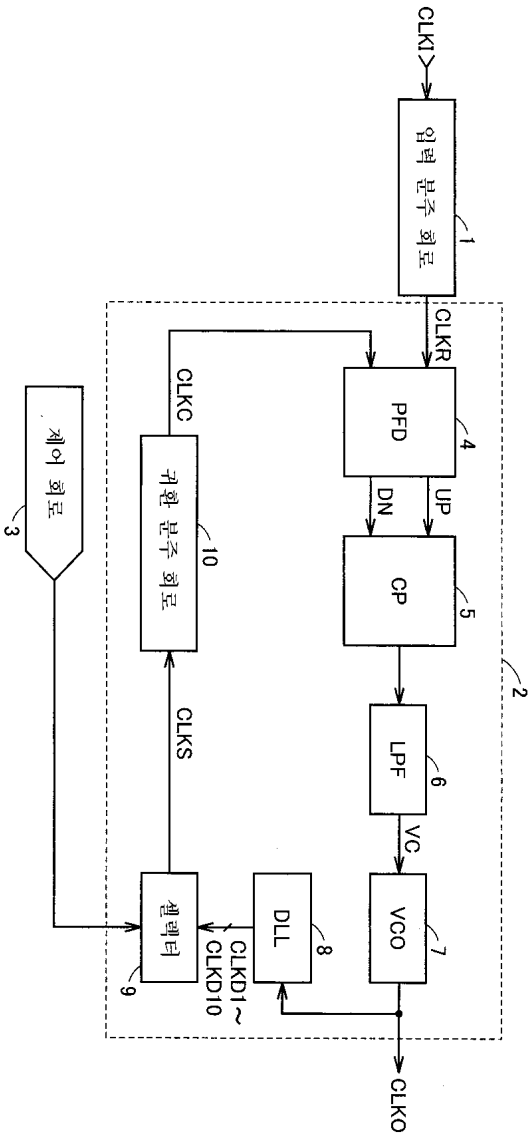
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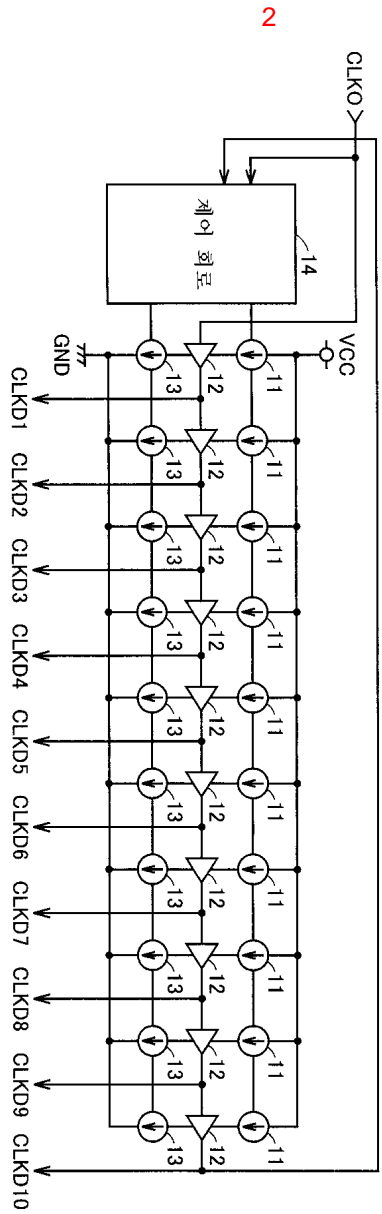
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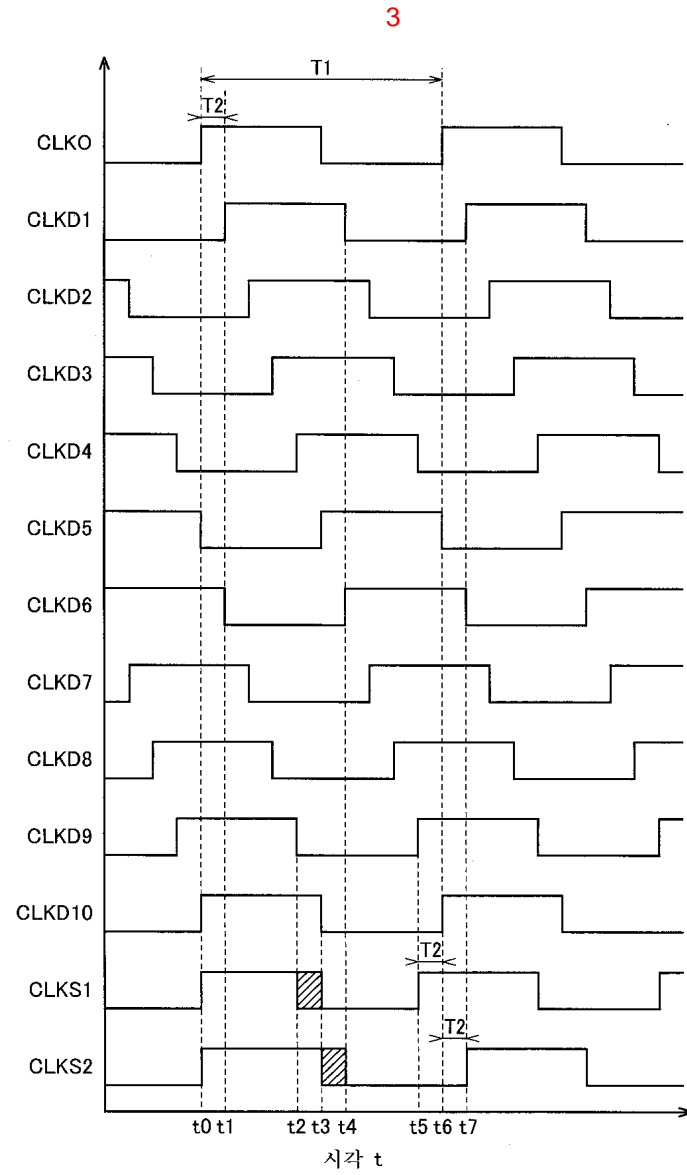
가

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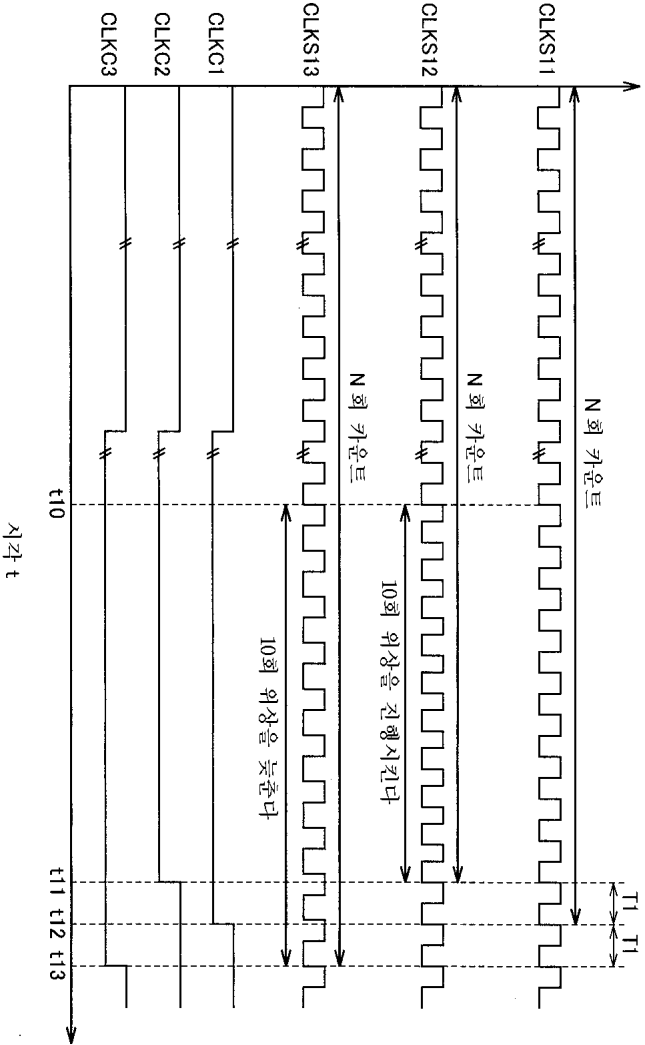
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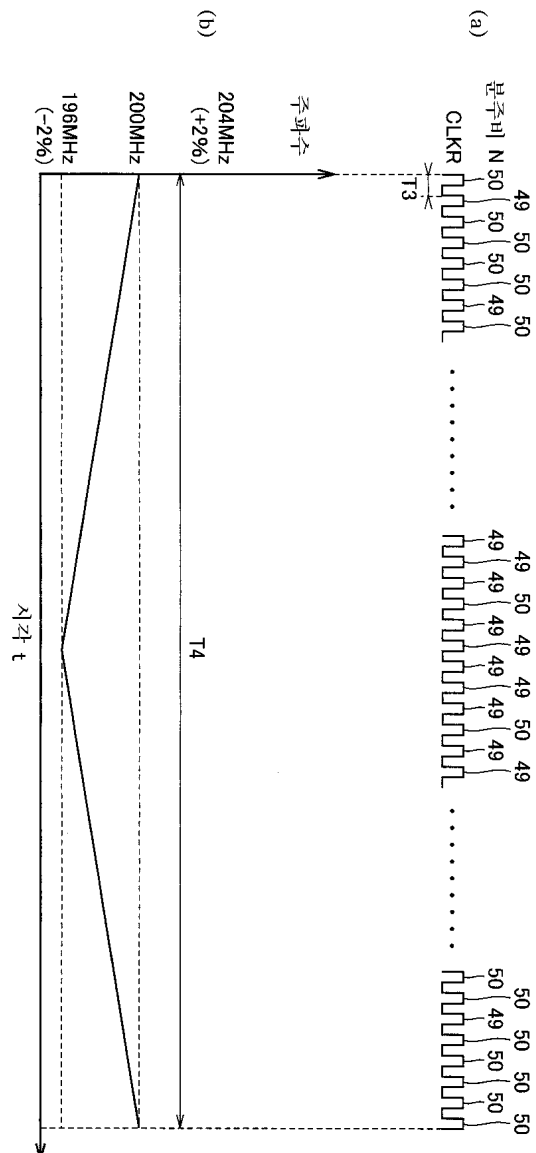


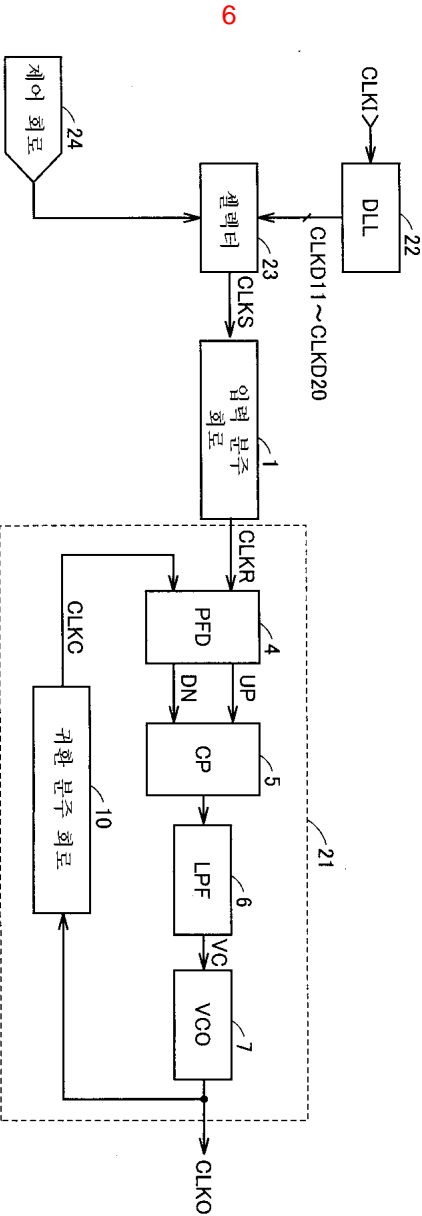


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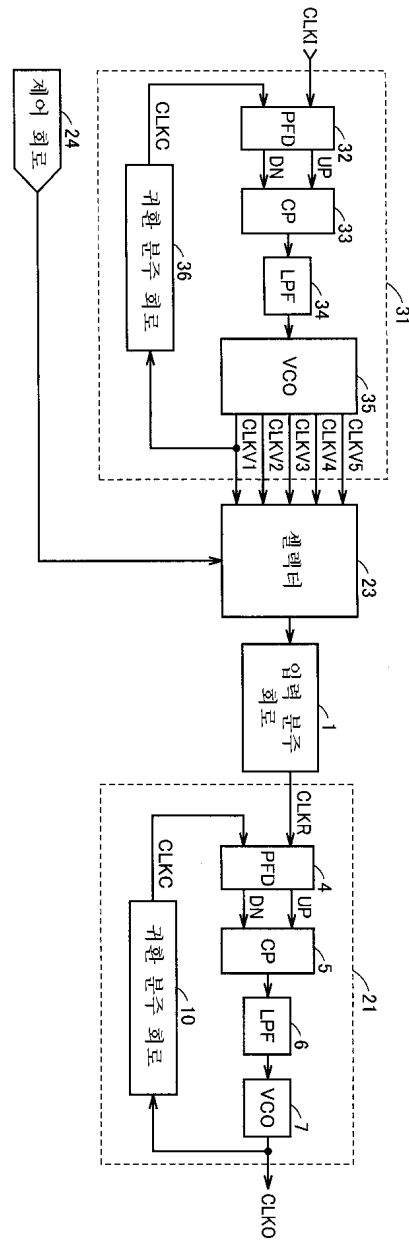
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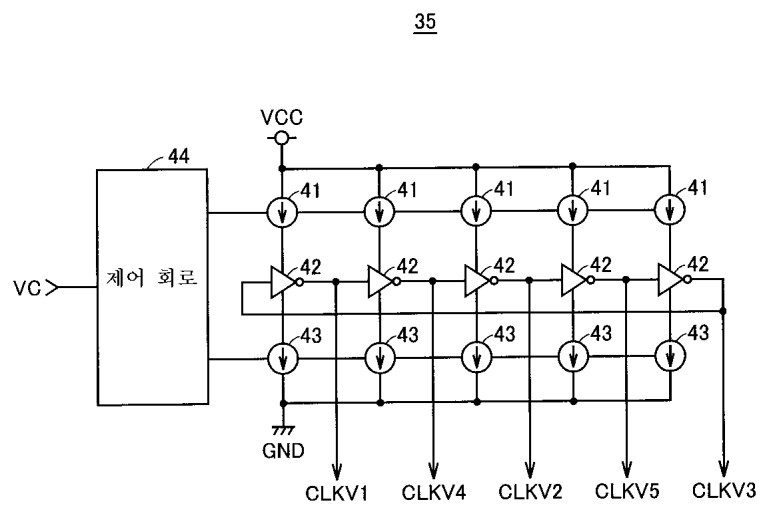




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