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(30) 98 - 006499 1998 01 16 (JP)

(73) 가 가
,

2 2 3

(72) 2 2 - 3 가 가
2 2 - 3 가 가
2 2 - 3 가 가

(74)

⋮

(54)

L () 2 , LVTTL (NOR) SST
, LVTTL ()
SSTL , SST
L ,

1	1	(1000)
2	1	(120)
3	1	(100)
4 (a)	4 (h) 1 3	1 (1000)
5 2		(200)
6 (a)	6 (h) 5	(200. 1)
7 2		(200)
8 (a)	8 (h) 7	(200. 2)
9 2		(200)
10 (a)	10 (h) 9	(200. 3)
11		(9000)
12	(1 ; LVTTL)	
13 SSTL		(2)

< >

1, 104 : NOR

2, 4, 5, 6 :

3 : NAND

100, 200 :

102 :

120 :

121 :

122 :

123 :

124 :

125 :

126 :

128 :

1000 :

I1 I4 :

가

11

11 9.2, ..., 9.n)	(9000)	(1.1, 1.2, ..., 1.m),	(900)	(9.1,
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[1.1, 1.2, ..., 1.m ; ..., EXTm	, (900) 9. n)	(1) (1) (900)] (900) (D1, D2, ..., Dn)	EXT1, EXT2, (9. 1, 9. 2, ..., (1)
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TTL(Transistor Transistor Logic) LVTTL

12

12

12 NOR	(1)	(1)	LVTTL	, NOR	[,
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12 NLT2	NOR . P	(1) P MOS	MOS PLT1	PLT1 PLT2	PLT2, N . N	VDD N	MOS MOS	MOS NLT1	NLT1 NLT2
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P 1	MOS EXT1, EXT2, ..., EXTm	PLT2 N)	MOS NLT1	VIN(1			
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P L	MOS PLT1 N . NOR	PLT2 N (1) P /	MOS MOS NLT2 MOS	NLT1 CMOS , PLT1 N MOS	P NLT2	MOS SE
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P	MOS	PLT2	N	MOS	NLT1	N	MOS	NLT2
		VIN		VOUT가		VOUT	11	(900)
LVTTL		,			VIN		2.0V	,
LVTTL).							0.8V (
LVTTL		(1)		MOS				가
,	SEL		()				(1)
,	12	NOR	(1)					, P
MOS	VIN	PLT1		, N	MOS	SEL	L	
VIN	가			, H	VOUT	NLT2		,
NLT1	MOS	PLT2가	L		H	VIN(2.0V)	, N	MOS
P						, L		
S	SEL	H		, P	MOS	PLT1		MO
VIN	NLT2가	L		, NOR	(2)	가	,	VOUT
LVTTL			VDD	3.3V			, 60MHz	100MHz
,	CPU, MPU		가					가
,	LVTTL			TTL				가
,	가		가					,
,	가							(LVTTL)
,	가							
TL		,	13	SSTL(Stub Series Terminated Logic)		가	.	SS
13		, SSTL		(2) P	MOS	PST1	PST2	N M
OS	NST1, NST2	NST3		. SSTL		(2)		
,	, SSTL			(2)	(2)			
13	Z1	, P	MOS	PST1	N	MOS	NST1	VDD
Z1	VDD	Z1	P	MOS	PST2	N	MOS	NST2
P	MOS	PST1		P	MOS	PST2		P
MOS		PST1 N			NST1	(X1)		

N MOS NST1 , , VDD \times 0.45V(VDD가
 3.3V 1.5V) Vref . N MOS NST2
 VIN . Vref VH(, \pm 0.4V)

N MOS NST3 Z1 . N MOS NST3 . N MOS NST3
 SEL . N , , (2)
 N MOS NST3 / / , , (2)

P MOS PST2 N MOS NST2 VIN
 VOUT . VOUT , 11 (900)
 .
 , 13 (2) SEL H , (2)
 가 , VIN Vref . , L VIN , H
 VIN VOUT가 L . , L VOUT가
 H .

SEL L , (2) 가 , VOUT VIN
L . , (2) . ,

, 13 (2) Vref가 , N MOS
NST1 .

가 P SEL H (), X1 , , X1
MOS MOS , P MOS PST1
P MOS PST1 N MOS NST1
X1 가 .

, SEL H (), P MOS PST1 N
MOS NST1 ()가 .

, (9000) 13 (2) , 가 .

2

2

,

LVTTL

SSTL

가

< 1 >

1

가

1

1

1
(124)

(1000)

(121),

(122),

(123)

(121)
(123)
/RAS,
(123)

(122)

/CAS,

A

,
(
/WE
)(123) (121) (122)
(124) (124) (123)
(1000) (124) (1000) 가

(120) (1000) (126), (128), (125)

(126)
(124)
(128)
(126) (126) (DQ)
DQ

A (DQ) DQ가 (124)가 (123) (128)

(120) ext. CLK . (123),
 (121) (122) ext. CLK

(120) ext. CKE
ext. CKE (H (Vref + VH)) ,

(124) L ext. CKE
, 가 SEL
(125) SEL .

(126) (122) (128)] 가 . (120) ext. CKE [(121),
., , , (120) .

(120) ,
ext. CKE CKE

,	1	(120)			2	
2		(120)	(100),	(102)	NOR	(104)
	(100)		2			
Vref		SEL	N2			
CKE			(100)		SEL	
	VOUT1	VOUT2	N4	N5		
(102)	VOUT1	VOUT2			NOR	(104)
	VOUT2		(102)		VOUT1	CKE
	(2 OUT).					

12 (NLT1 NLT2) , NOR (1) P MOS (PLT1 PLT2) N MOS

, 1 가 (,
)
 < 2 >
 . 2 1 1
 (1000) .
 2 (1000) 1 (100)
 (200) 2 (200)
 5
 3 1 (100)
 . 5 [200 ; , (200. 1) (I2),
 NAND (3) (4)
 (I2) N1 SEL ()
 /SEL .
 (4) P MOS PST1 PST2 N MOS NST1, NST2 NST3
 . 2 .
 , (4) (I1) (I1) /SEL
 . N MOS NST3 P MOS PST2 N (I1) (I1)
 SEL . N5 CKE MOS VOUT2 가 , , (4)
 SSTL .
 NAND (3) P MOS PLT3 PLT4, N MOS NLT3 NLT4
 . P MOS PLT3 P MOS PLT4 N MOS VDD N MOS
 NLT3 . N NLT3 NLT4
 , NLT3 N NLT3 NLT4
 , Y2
 .
 P MOS PLT3 N MOS NLT3 CK
 E . P MOS PLT4 N MOS NLT4
 (I2) /SEL . P MOS NLT4
 OS NLT3 NLT4 CKE
 , NAND (3) LVTTL N4 , LVTTL PLT3 N M
 1 VOUT1 VOUT
 .
 , 5 (200. 1) 6 (a) 6 (h)
 .

I3) . P MOS PST3 , /SEL ()
 . (5) P MOS PST3 /
 . , (5) SSTL .

, 7 (200.2) 8 (a) 8 (h)

, SEL H (, Z1(N) MOS /SEL L (t0 t1). P MOS
 PST3 , (5) NST1 NST2) L .

, N MOS NLT2 , P MOS P MOS PLT1) L
 Y1(P MOS PLT1 P MOS PLT2) L
 , NOR (1) 가 .

H (Vref + VH CKE 가 VOUT2 , NOR (1) (5)
 CKE VOUT1 L .

, SEL 가 (t1). L

P MOS PST3 가 가 (5)

, P MOS PLT1 가 가 Y1 가 VDD
 NOR (1) 가 NOR (1) CKE VOUT1

NOR (1) , ext. CKE 0.2V
 , NOR (1) CMOS
 , 가

, 2 (200) 9

3, 5 7 (100, 200)
 . 9 [200 ; , (200. 3)] (14),
 NAND (3) (6)

(14) N1 SEL (/SEL) .

(6) P MOS PST1, PST2 PST3 N MOS NST1, NST2
 NST3 . 7

(57)

1.

，
 1 (124);
 2

(小振幅)

1

(1, 3)

2 (2, 4)

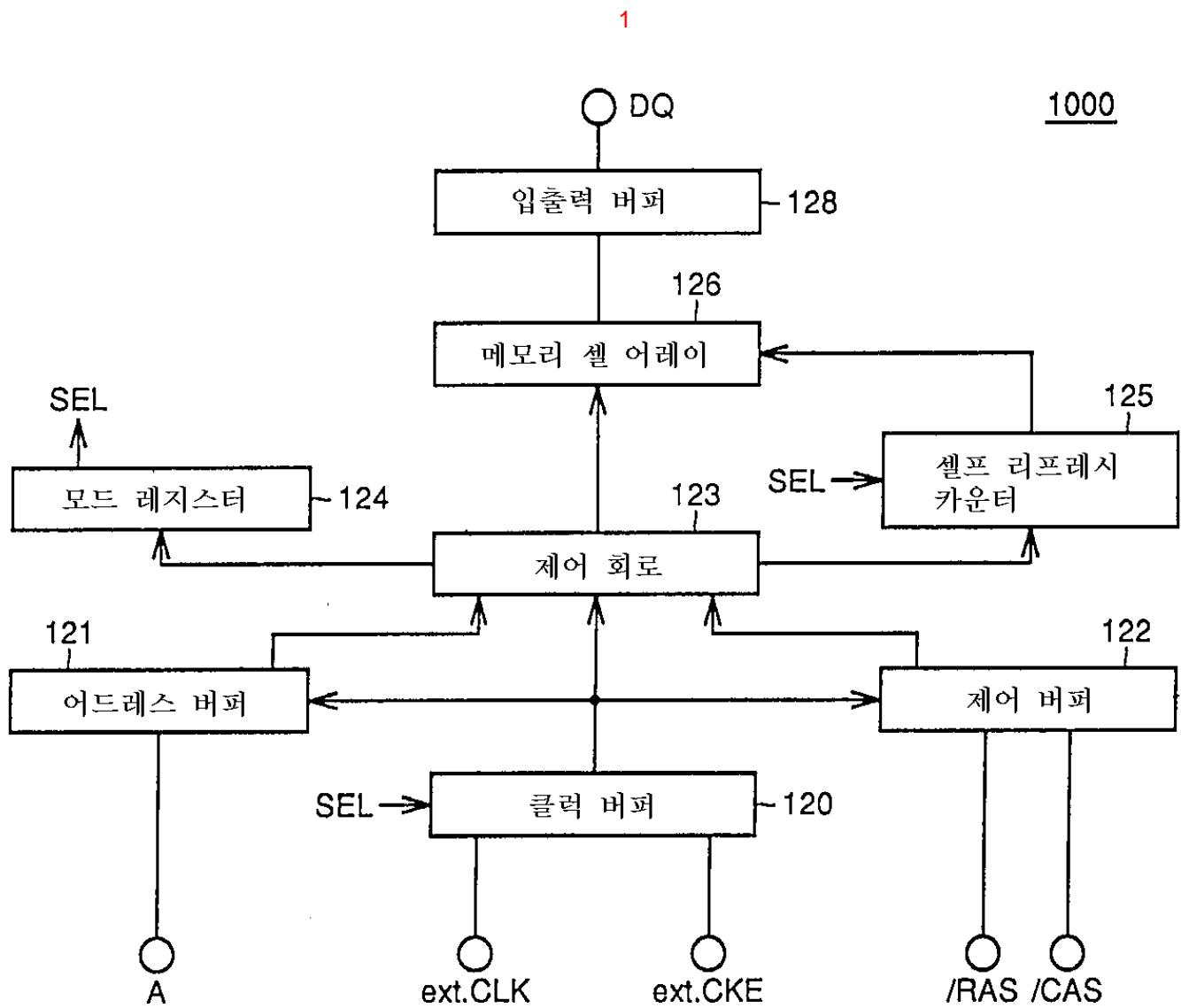
2.

1

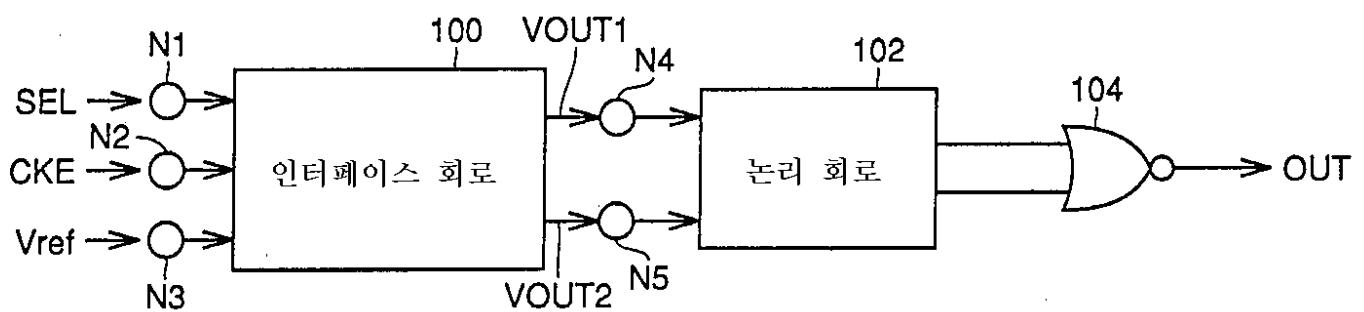
(126);

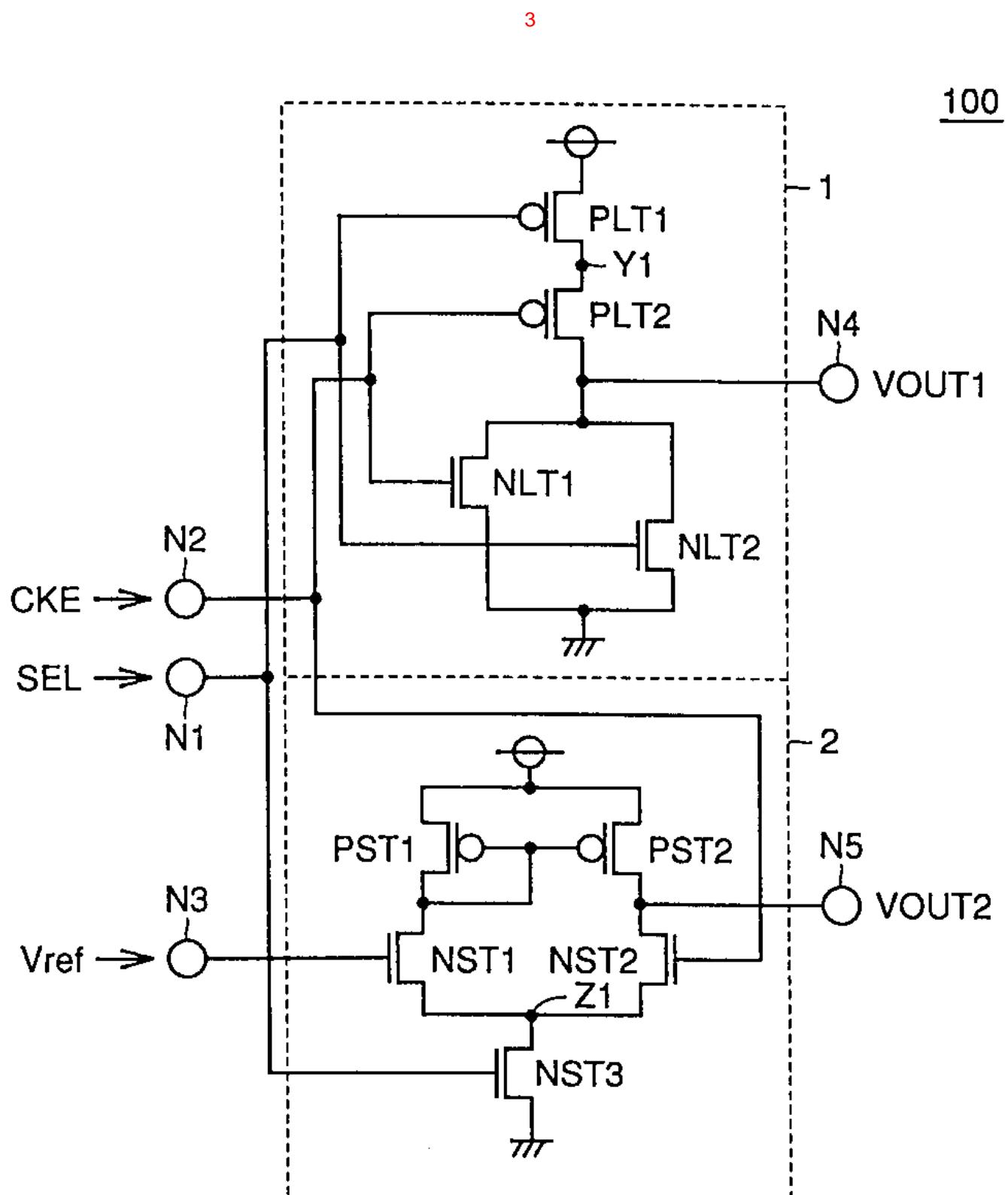
(125)

2 (125)

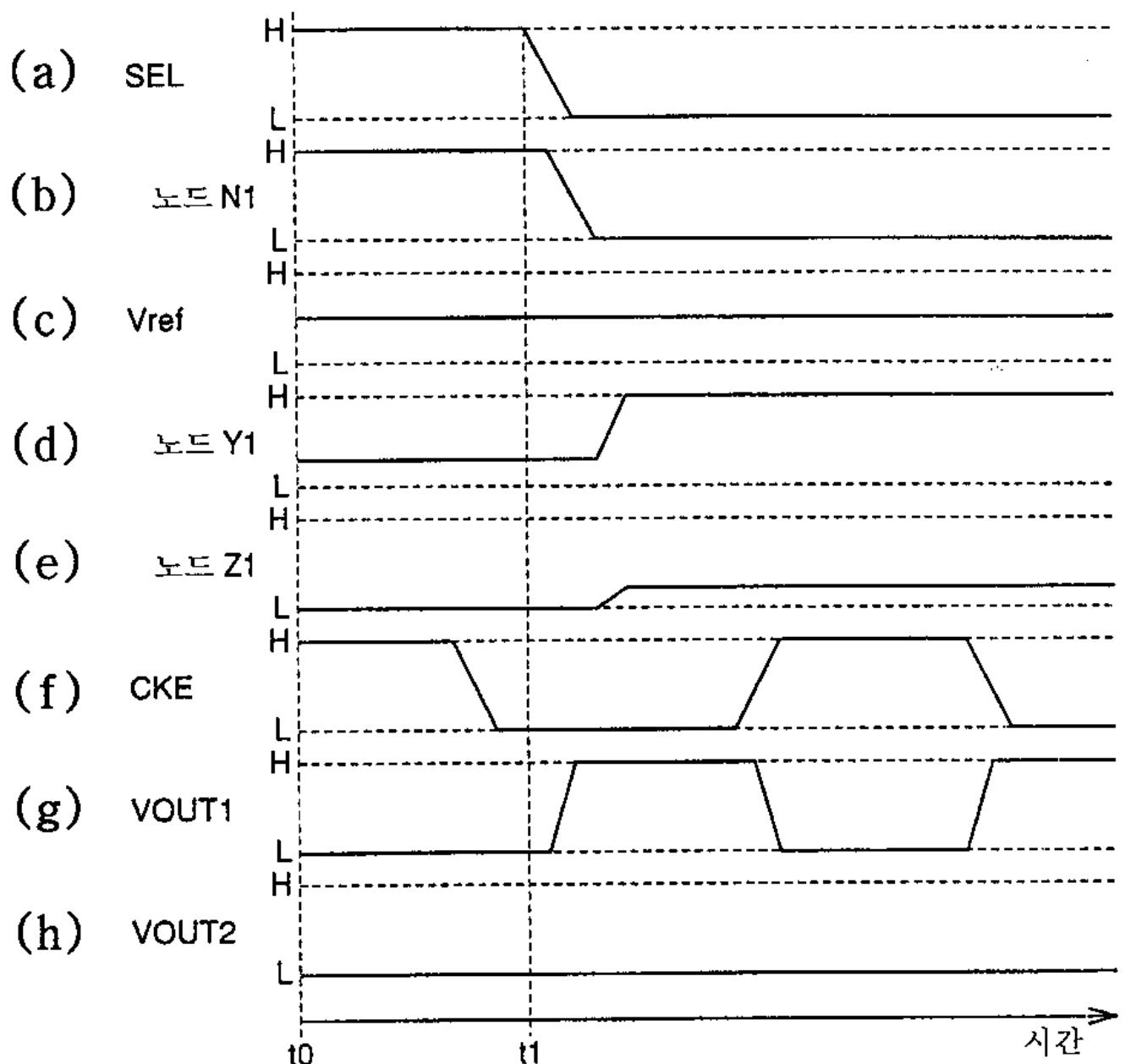


2

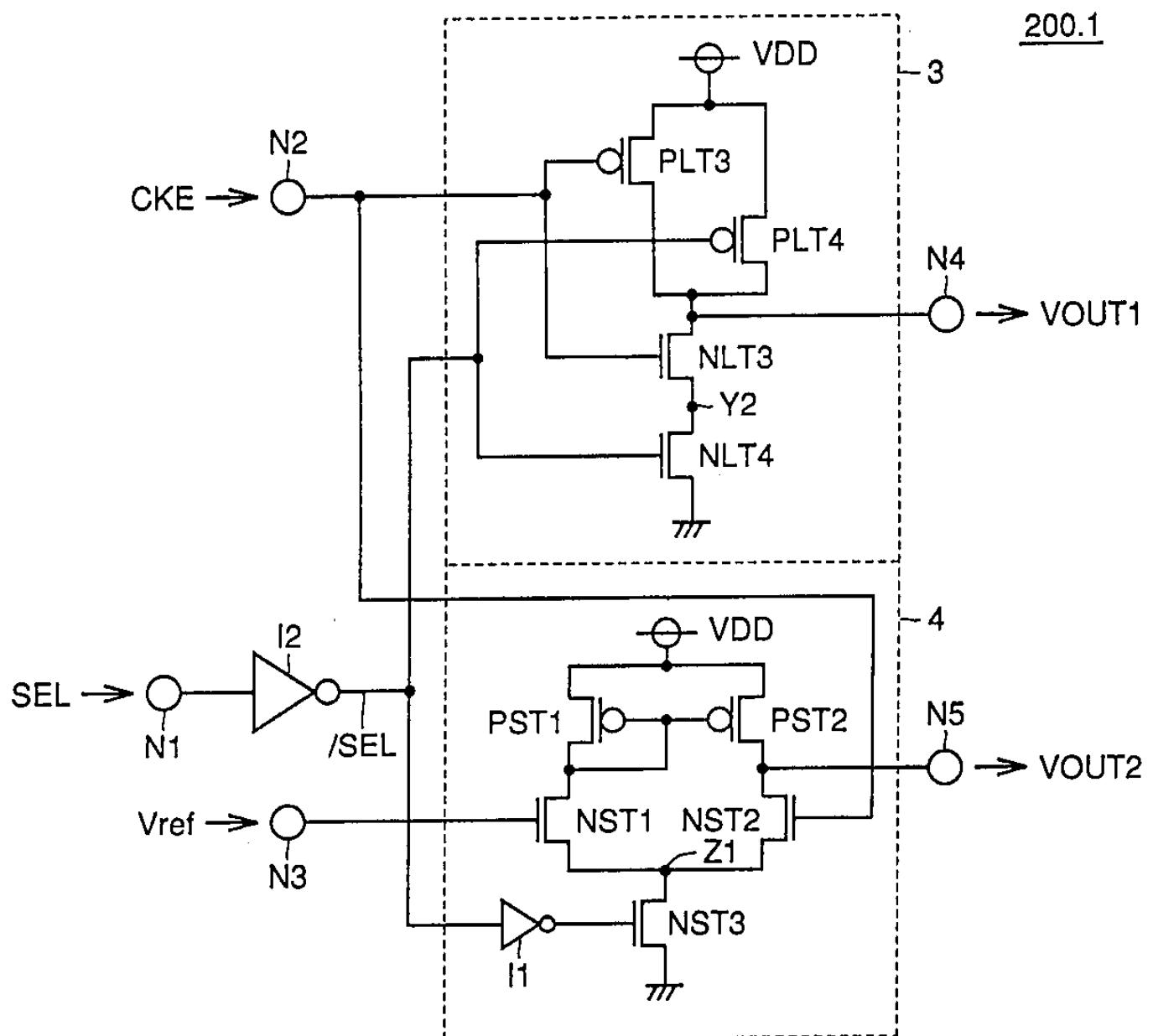
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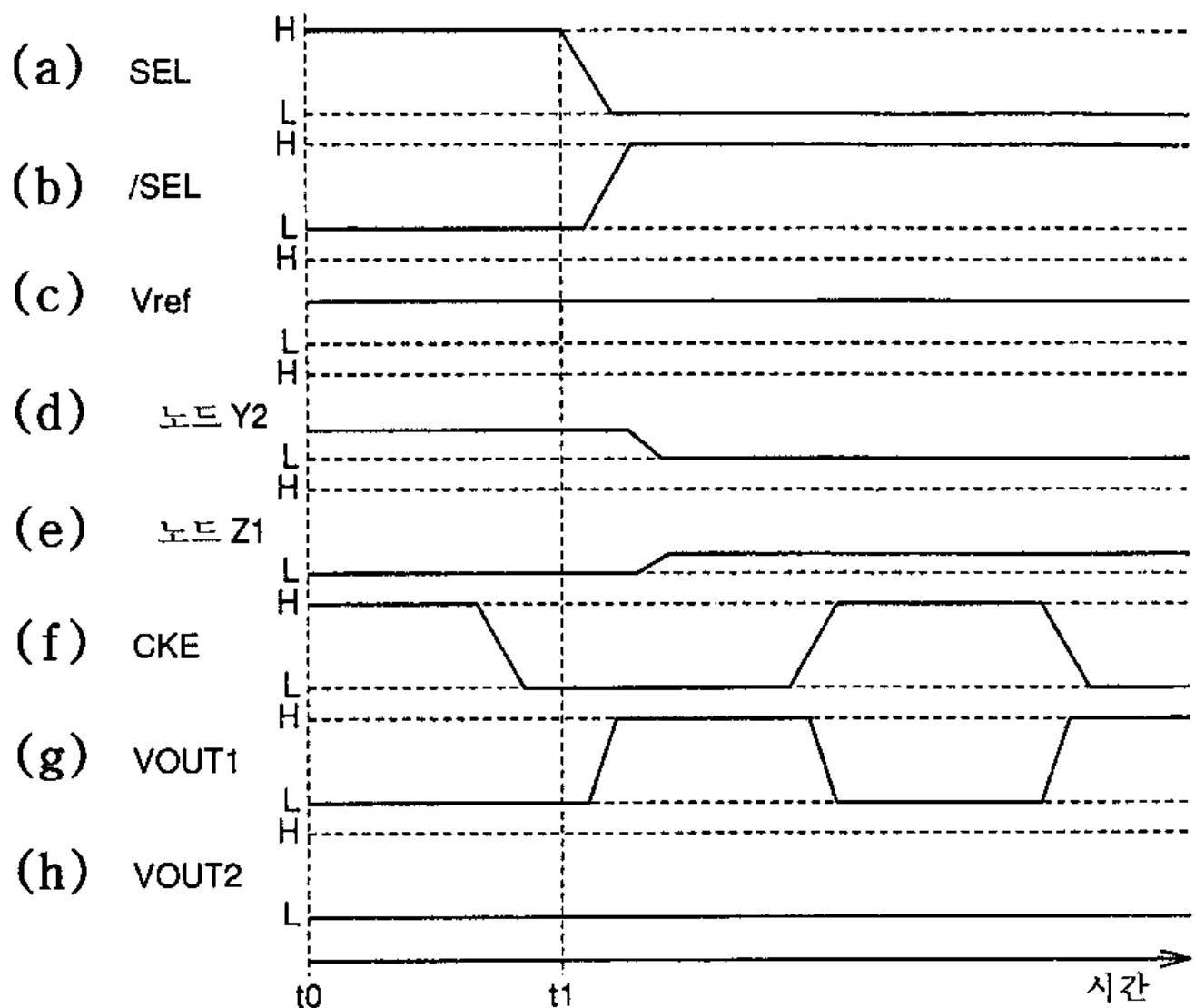


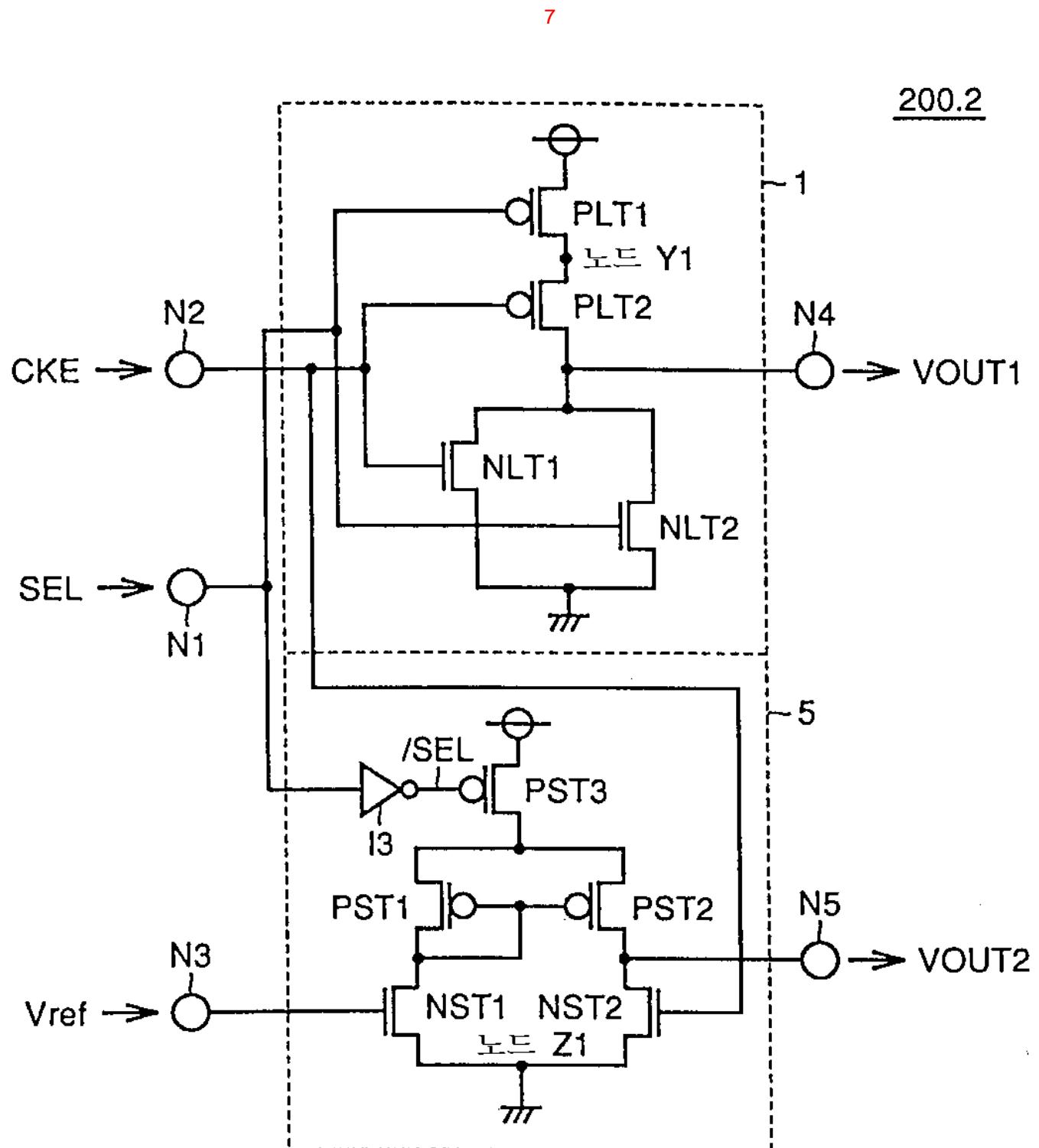
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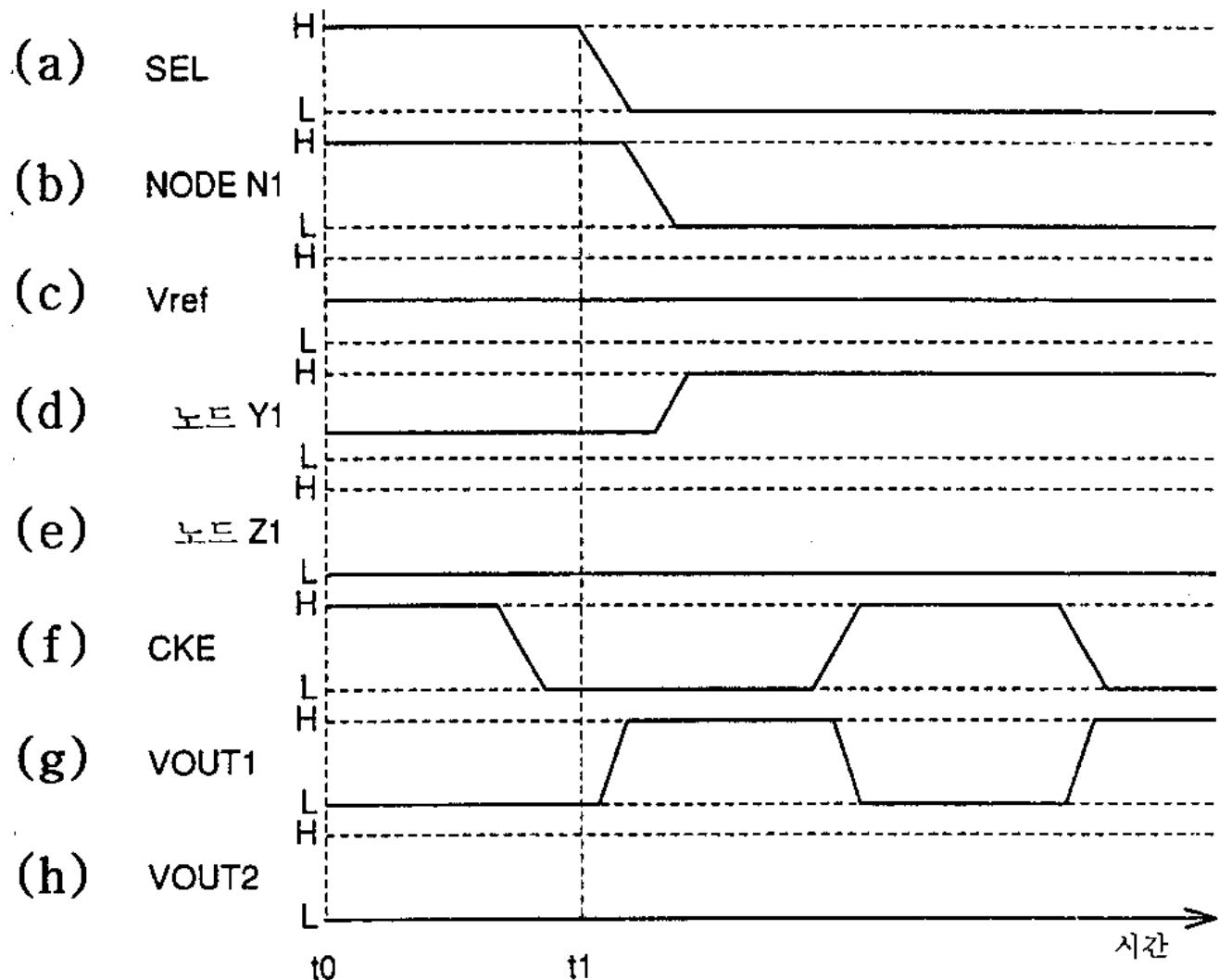


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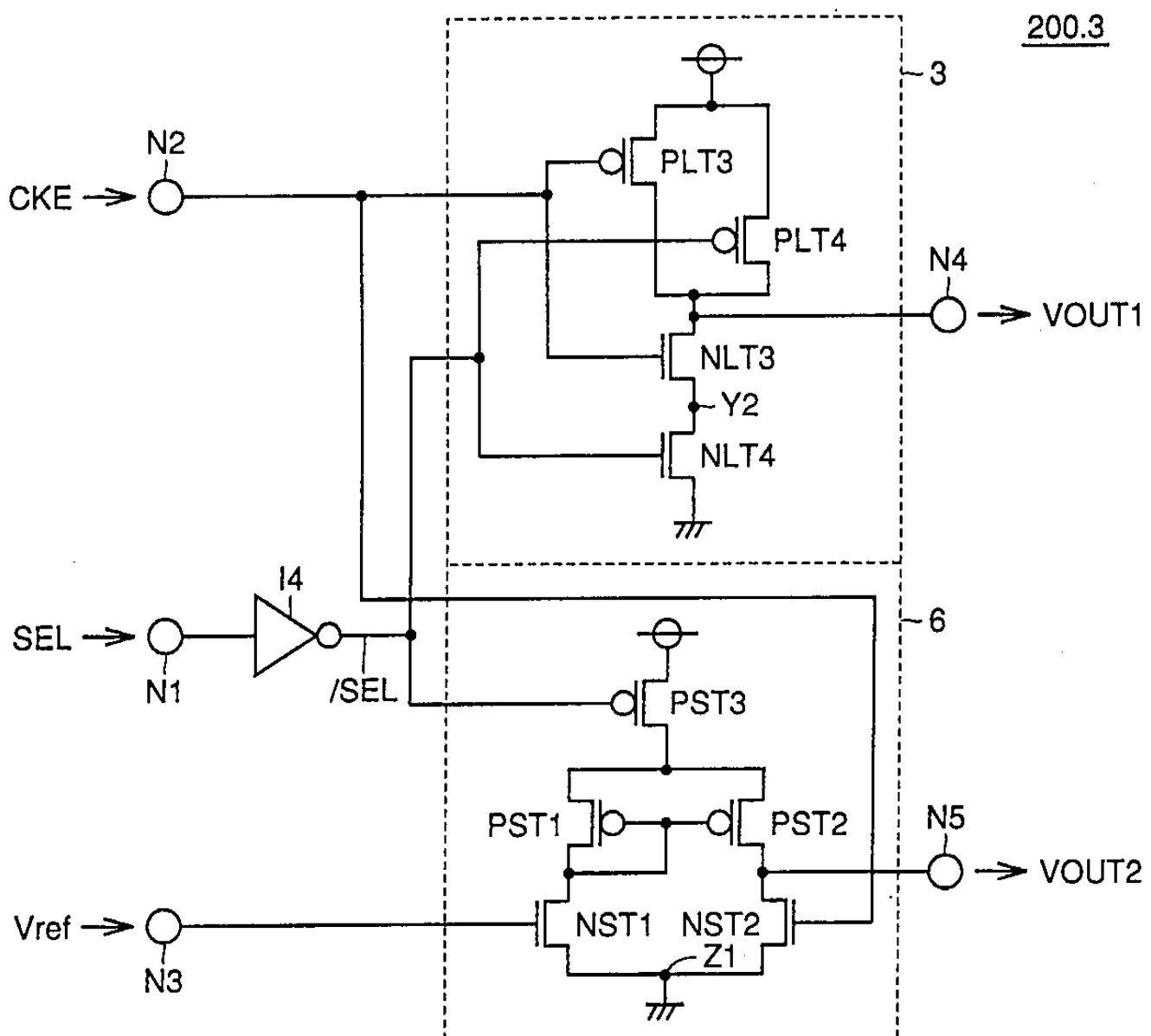




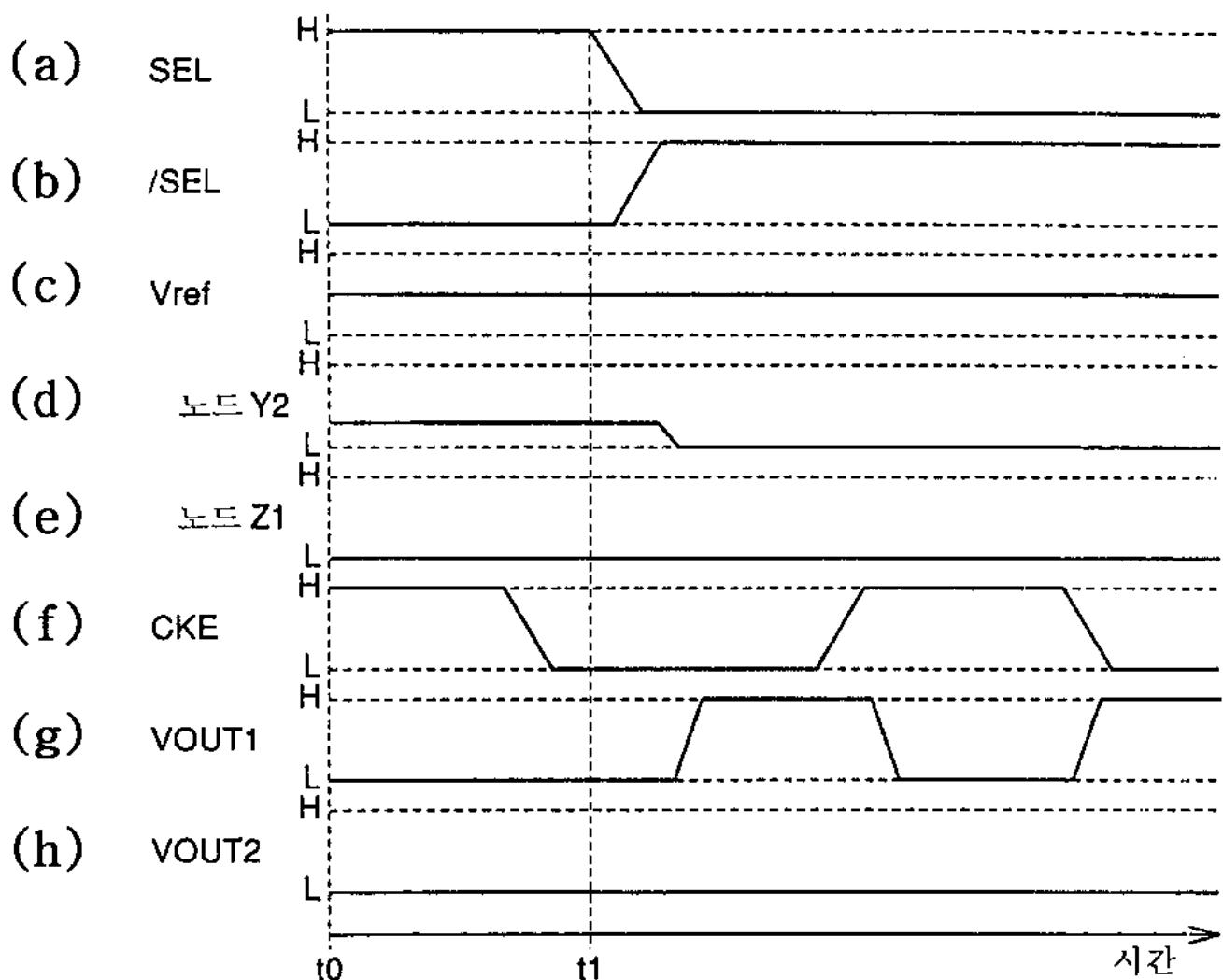




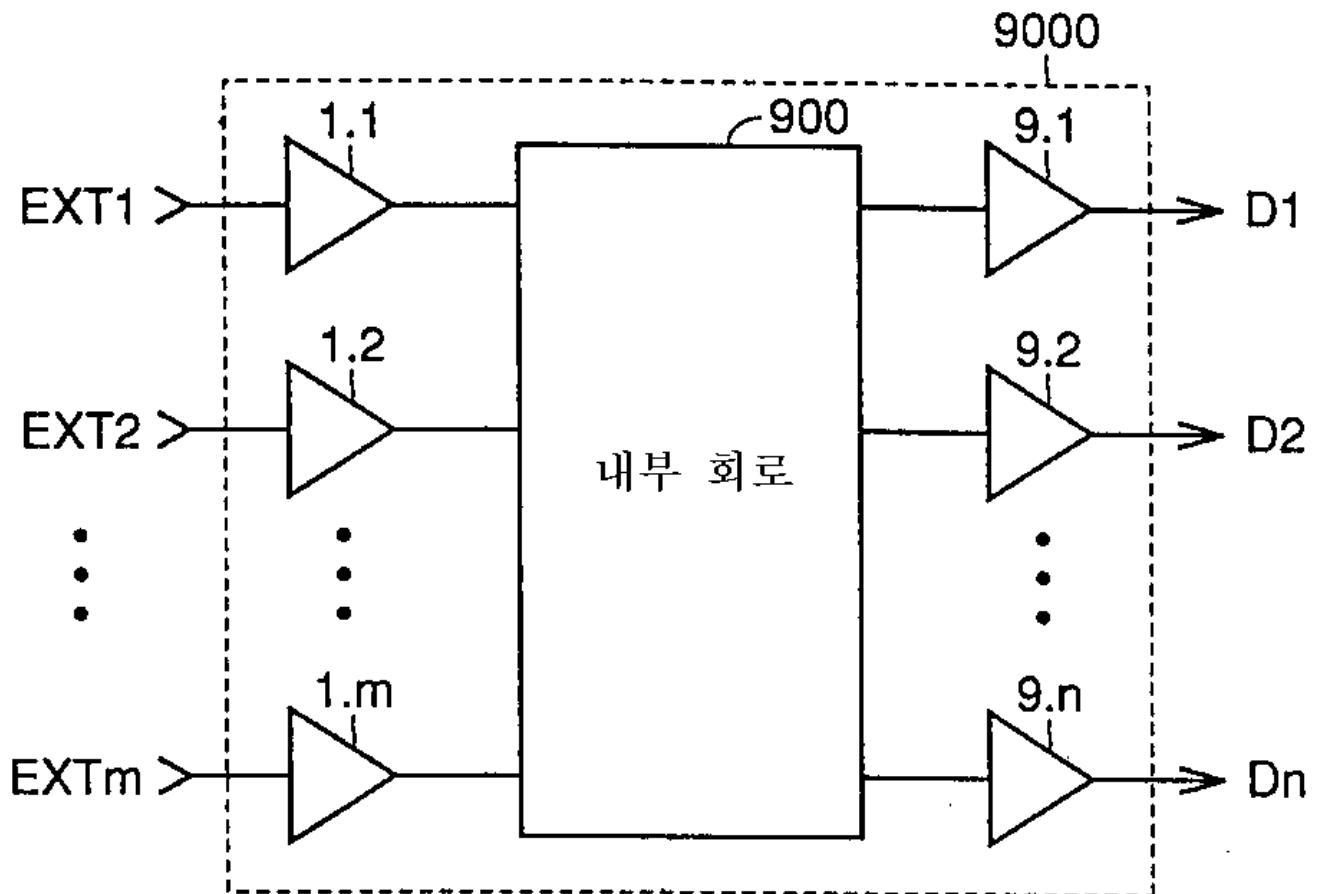
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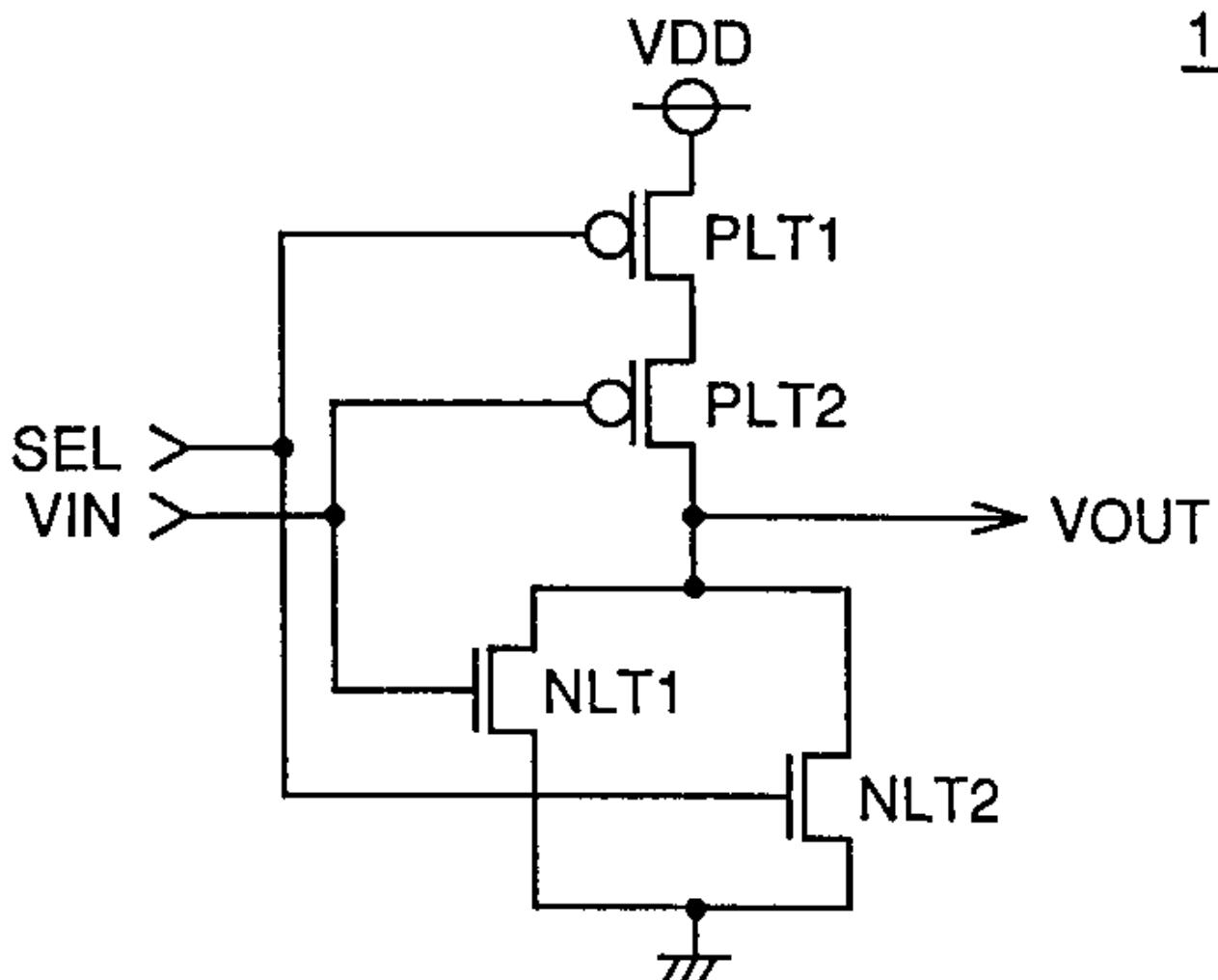
(종래 기술)



12

(종래 기술)

1



(종래 기술)

2

