

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. 7
G11C 5/14

(11)
(43)

2003 - 0028362
2003 04 08

(21) 10 - 2002 - 0050745
(22) 2002 08 27

(30) JP - P - 2001 - 00257198 2001 08 28 (JP)

(71) 211 - 8668 가 가 가 1753

(72) 가 2 - 9 - 1 가 가

(74)

:

(54)

(BIC) (6) (2A - 1, 2B - 1, 2 - 1) (STB) (D1)
(5)

6

1 LCD 1

2 A 1

2 B 1

3 1

4 LCD 2

5 4

6 LCD 1

7 6

8 A 7 1

8 B 8 A 1

9 A 7 2

9 B 9 A 2

10 7

11 LCD 2

12 13 7 10

14 A B 12 13

15 10

1 : 2A - 1 2B - 1 :

5 : 6 :

DA : CLK :

STB : SEL :

(LCD)
()

LCD
signal)

가 (strobe

가 가
가

가

가 가
가

가 가 LCD

(width)

가

, LCD

1 5

LCD 1
(CLK)
(V1, V2 V383 V384)

(STB)
(V2, V1 V384 V383)

1 , 1

(DA),

(1)
/ (D/A) () (STB)

(1) (DA) (CLK)

(STB)

가

(V1, V2 V383, V384 V2, V1 V384, V383) (4 - 1 4 - 192)
(D1, D2 D383, D384) (; 2A - 1, 2B - 1 2A - 192 2
B - 192)

(2A - 1 2A - 192) (2B - 1 2B - 192)
(2A

- 1 2A - 192)가 (2B - 1 2B - 192)

(4-1, V1, V2, V383, V384) (1) (2A-1, 2B-1) (1)가 (D1, D2)
 ; ...; (2A-192, 2B-192) (D383, D384) (1)
 가 (V2, V1, V384, V383) (2A-1, 2B-1) (D2, D
 1) ; ...; (2A-192, 2B-192) (D384, D383)
 (5) (2A-1, 2A-192, 2B-1, 2B-192) (V_{biasA}, V_{biasB})
 (BIC) (BIC)

1 (2A-1(2A-192)) 2 A (V_{DD}) (V_{SS})
 P- MOS (Q1, Q2), N- MOS (Q3, Q4), N-
 MOS (Q5) (V_{DD}) (V_{SS})
 P- MOS (Q6) N- MOS (Q7) P- MO
 S (Q1, Q2) (V_{biasA}) N- MOS (Q
 Q5, Q7) 가 , N- MOS (Q5, Q7)
 가 가 , (V_{biasA}) (V_{out})
 out) 가 (V_{biasA}) (V

1 (2B-192) 2 B (V_{DD}) (V_{SS})
 N- MOS (Q11, Q12), P- MOS (Q13, Q14), P-
 MOS (Q15) (V_{DD}) (V_{SS}) N
 - MOS (Q16) P- MOS (Q17) N- M
 OS (Q11, Q12) (V_{biasB}) P- MOS
 (Q15, Q17) 가 , P- MOS (Q15, Q17)
 가 , (V_{biasB}) (V_{out})
 (V_{out}) 가 (V_{biasB})

1 (5) 3 (5) (I_B)
 (51) (I_B) (V_{biasA}, V_{biasB})
 (52)

(51) (V_{DD}) (R1, R2(R1 < R2)) P- MOS
 (Q21, Q22) (BIC) P- MOS (Q21, Q22)
 (INV) P- MOS (Q21, Q22)
 (51)

(52) (51) (V_{SS}) N- MOS
 (Q23, Q24) (V_{DD}) P- MOS (Q25, Q26)
 , N- MOS (Q27) , N- MOS (Q23)
 , N- MOS (Q24) (51)
 (I_B) , P- MOS (Q25) , P- MOS (Q
 26) N- MOS (Q24) , N- MO
 S (Q27) P- MOS (Q26)

, N- MOS (Q27) 가 (I_B) , (V_{bi}
 asA) (I_B) , P- MOS (Q25) 가
 (I_B) , (V_{biasB}) (I_B)

LCD (6)가 1 (6)가 1
 가 . (6) (CLK) (STB)
 (BIC) . , (BIC) . , (6)
 (SEL) / LCD (SEL)가 (SEL)가
) . (SEL)가

6 (6) 7 , (6) (CLK)
 8 - (61), (CLK) 9 - (62), (61)
 3 ($2^5, 2^6, 2^7$) (62) 3 ($2^6, 2^7, 2^8$) ,
 (SEL) (63 64) (65), (STB)
 (65) - (66)

, 8 - (61)가 (STB) (rising edge)
 , 8 - (61) (STB) (falling edge) . , 9 -
 (62)가 (STB)

, (SEL)가 , (65) (63) . , (SEL)
 (65) (64) , (63 64) , (62) 3 (61)
 3 , 가 .

7 (6)

, (SEL)가 (STB) 1 31CLK 가 . CLK (CL
 K) . , (65) (63) , 9 - (62) (6
 3) 3 8 - 8 A , (t1) ,
 (STB)가 , (BIC)가 (66) , (t2) ,
 (STB)가 , 8 B , (61) 3 ($2^5, 2^6, 2^7$)가 " 000"
 , (62) 3 ($2^5, 2^6, 2^7$)가 " 100" (= $2^5 = 32$) , (63) 가 (t3)
 - (66) , (BIC) (STB)
 (STB) (T=32CLK)

, (SEL)가 (STB) 32 63CLK 가 . ,
 (65) (63) , 9 - (62) 3 (63) 8 -
 , (STB)가 , (BIC)가 - (66)
 (STB)가 , 8 B (61) 3 ($2^5, 2^6, 2^7$)
 7)가 " 100" , (62) (CLK) , (63) 가 ,
 (62) 3 ($2^5, 2^6, 2^7$)가 " 010" (= $2^6 = 64$) , (63) 가
 - (66) , (BIC) (STB)
 (STB) (T = 64CLK)

(SEL)가 (63) , 9- (STB)가 (62) 64 95CLK 가 (63) 8- (66)
 (65) (63) (STB)가 (62) 3 (BIC)가 (61) 3 (2⁵, 2⁶, 2⁷)가 " 010" (62) 3 (2⁵, 2⁶, 2⁷)가 " 110" (=2⁵ + 2⁶ = 96) (63) 가
 (66) (STB) (T = 96CLK) (BIC) (STB)

(SEL)가 (63) , 9- (STB)가 (62) 96 127CLK 가 (63) 8- (66)
 (65) (63) (STB)가 (62) 3 (BIC)가 (61) 3 (2⁵, 2⁶, 2⁷)가 " 110" (62) 3 (2⁵, 2⁶, 2⁷)가 " 001" (=2⁷ = 128) (63) 가
 (66) (STB) (T = 128CLK) (BIC) (STB)

(SEL)가 (63) , 9- (STB)가 (62) 128 159CLK 가 (63) 8- (66)
 (65) (63) (STB)가 (62) 3 (BIC)가 (61) 3 (2⁵, 2⁶, 2⁷)가 " 001" (62) 3 (2⁵, 2⁶, 2⁷)가 " 101" (=2⁵ + 2⁷ = 160) (63) 가
 (66) (STB) (T = 160CLK) (BIC) (STB)

(SEL)가 (63) , 9- (STB)가 (62) 160 191CLK 가 (63) 8- (66)
 (65) (63) (STB)가 (62) 3 (BIC)가 (61) 3 (2⁵, 2⁶, 2⁷)가 " 101" (62) 3 (2⁵, 2⁶, 2⁷)가 " 011" (=2⁶ + 2⁷ = 192) (63) 가
 (66) (STB) (T = 192CLK) (BIC) (STB)

(SEL)가 (63) , 9- (STB)가 (62) 192 223CLK 가 (63) 8- (66)
 (65) (63) (STB)가 (62) 3 (BIC)가 (61) 3 (2⁵, 2⁶, 2⁷)가 " 011" (62) 3 (2⁵, 2⁶, 2⁷)가 " 111" (=2⁵ + 2⁶ + 2⁷ = 224) (63) 가
 (66) (STB) (T = 224CLK) (BIC) (STB)

(SEL) (65) (64) 9 A (66) (62) 3 (64) 9- (STB)가 1 31 CLK 가 . (t1) (STB)가 (BIC)가 (62) (66) (62) (66) (62) (66) (62) 3 (2⁵, 2⁶, 2⁷)가 " 100" (=2⁶=64) (BIC) (STB) (STB) (T =64CLK)

(SEL) (65) (64) 9 A (66) (62) 3 (64) 9- (STB)가 32 63 CLK 가 . (t1) (STB)가 (BIC)가 (62) (66) (62) (66) (62) (66) (62) 3 (2⁵, 2⁶, 2⁷)가 " 100" (=2⁷=128) (BIC) (STB) (STB) (T =128 CLK)

(SEL) (65) (64) 9 A (66) (62) 3 (64) 9- (STB)가 64 95 CLK 가 . (t1) (STB)가 (BIC)가 (62) (66) (62) (66) (62) (66) (62) 3 (2⁵, 2⁶, 2⁷)가 " 110" (=2⁶+2⁷=192) (BIC) (STB) (STB) (T =192CLK)

(SEL) (65) (64) 9 A (66) (62) 3 (64) 9- (STB)가 96 127 CLK 가 . (t1) (STB)가 (BIC)가 (62) (66) (62) (66) (62) (66) (62) 3 (2⁵, 2⁶, 2⁷)가 " 001" (=2⁸=256) (BIC) (STB) (STB) (T =256 CLK)

(SEL) (65) (64) 9 A (66) (62) 3 (64) 9- (STB)가 128 159 CLK 가 . (t1) (STB)가 (BIC)가 (62) (66) (62) (66) (62) (66) (62) 3 (2⁵, 2⁶, 2⁷)가 " 101" (=2⁶+2⁸=320) (BIC) (STB) (STB) (T =320CLK)

(SEL) (65) (64) (STB)가 160 191 CLK 가 .
 , 9- (62) 3 (64) 9-
 (BIC)가 (66) (t1) (STB)가
 (61) 3 (2⁵, 2⁶, 2⁷) 9 B " 101" (62)
 (CLK) (t2) (STB)가
 2⁶, 2⁷)가 " 011" (=2⁷+2⁸=384) (64) 가 (66) 3 (2⁵,
 (BIC) (STB) (STB) (T =
 384CLK)

(SEL) (65) (64) (STB)가 192 223 CLK 가 .
 , 9- (62) 3 (64) 9-
 (BIC)가 (66) (t1) (STB)가
 (61) 3 (2⁵, 2⁶, 2⁷) 9 B " 011" (62)
 (CLK) (t2) (STB)가
 2⁶, 2⁷)가 " 111" (=2⁶+2⁷+2⁸=448) (64) 가 (66) 3 (2⁵,
 (BIC) (STB) (STB)
 (T =448CLK)

7 (STB) (BIC) (SEL) (BIC) . ,
 (BIC) (SEL)
 7 (6) 10 (67)가 7 (65) (64)
 (SEL) (67) (62) (2⁵, 2⁶, 2⁷) ,
 (2⁵, 2⁶, 2⁷) (63) (63) 7 (63) (62) 8-
 (SEL) (67) (62) (2⁶, 2⁷, 2⁸) (63) 7 (64)
 (62) 9-

LCD 2 11 6 (6) (STB) (CLK) (6)
 가 4 가 11 (6) (BIC) (BIC) ,
 (6) (SEL) / LCD
 () (SEL)가
 (SEL)

(61) 8- (62) 9- (61) m-
 (m 2) 가 (62) (m+1) 가 . (62)
 , (63(64)) (62) n (62) n(n< m) , (62)
 12 13 8- (62A) 9- (62B)

10 (67) (62) 15 9- (62')
 9 - 9- 10 (67) (67') .
 (SEL)가 (62') 8- (S
 EL)가 (62') 9- 15 (67')

, 15 , (62') 10 , (SEL)가 ,
(62') 8- , (SEL)가 , (62') 10 -

, LCD

, (SEL) (6)
, 14 A B , (6) (61), (62A 62B),
(63) - (66) . (62B) 10 - 가 .

(57)

1.

(STB) (D1) (2A - 1, 2B - 1, 2 - 1);
(6); (BIC)

(5)

2.

1 ,
, 가 2 가 1 가 ,
1

3.

2 ,
, 1

4.

1 ,

1 (61);

가 2 (62A);

1 2 , 2 (63);

, (66)

5.

4 ,

1 1 $m(m - 2)$ - (61) ,

2 2 $m -$ (62A) ,

2 $m -$ $n(n < m)$ 1 $m -$ n

6.

1 ,

(SEL)

7.

6 ,

1 (61);

가 2 (62 67);

1 2 , 2 (63 65)

;

, (66)

8.

7 ,

$$1 \quad m(m-2) - \quad (61) \quad ,$$

$$2 \quad (m+1) - \quad (62) \quad ,$$

,

$$m-1 \quad n-1 \quad (m+1) - \quad n(n < m) - \quad (63);$$

$$(64); \quad m-1 \quad n-1 \quad (m+1) - \quad n-2$$

$$1 \quad 2 \quad (65) \quad , \quad 1$$

9.

7 ,

$$1 \quad 1 \quad m(m-2) - \quad (61) \quad ,$$

$$2 \quad 2 \quad m-1 \quad (62A) \quad (m+1) - \quad (62B) \quad ,$$

,

$$1 \quad m-1 \quad n-1 \quad 2 \quad m-1 \quad n(n < m) - \quad (63);$$

$$(64); \quad 1 \quad m-1 \quad n-1 \quad (m+1) - \quad n-2$$

$$1 \quad 2 \quad (65) \quad , \quad 1$$

10.

7 ,

$$1 \quad m(m-2) - \quad (61) \quad ,$$

$$2 \quad ,$$

$$(m+1) - \quad (62);$$

$$(m+1) - \quad (m+1) - \quad n(n < m) - \quad (m+1) - \quad n \quad (67) \quad ,$$

$$m-1 \quad n-1 \quad (63)$$

11.

7 ,

$$1 \quad 1 \quad m(m^2) - \quad (61) \quad ,$$

2 ,

$$2 \quad m - \quad (62A);$$

$$(m+1) - \quad (62B);$$

$$(m+1) - \quad n \quad 2 \quad m - \quad , \quad (m+1) - \quad (67)$$

$$2 \quad m - \quad n(n < m) -$$

,

$$m - \quad n - \quad (63)$$

12.

6 ,

,

$$m(m^2) - \quad (61);$$

$$(m+1) - \quad 1 \quad m - \quad , \quad 2 \quad (62')$$

;

$$m - \quad n(n < m) - \quad (63); \quad n - \quad m -$$

,

$$(66)$$

13.

1 ,

,

,

14.

(STB) (CLK) (D1) (2A - 1, 2
 B - 1, 2 - 1);

(BIC) (6);

(5) ;

,

가 m - (61);

가 m' (m' m) - (62A 62B);

m - m' - n - 가
 m - n - m - n - n - 가
 m' - n - n - n(n < m) - (63)

;

n - , - (66)

15.

(STB) (D1) (2A - 1, 2B - 1, 2 - 1);

(BIC) (6);

(5) ;

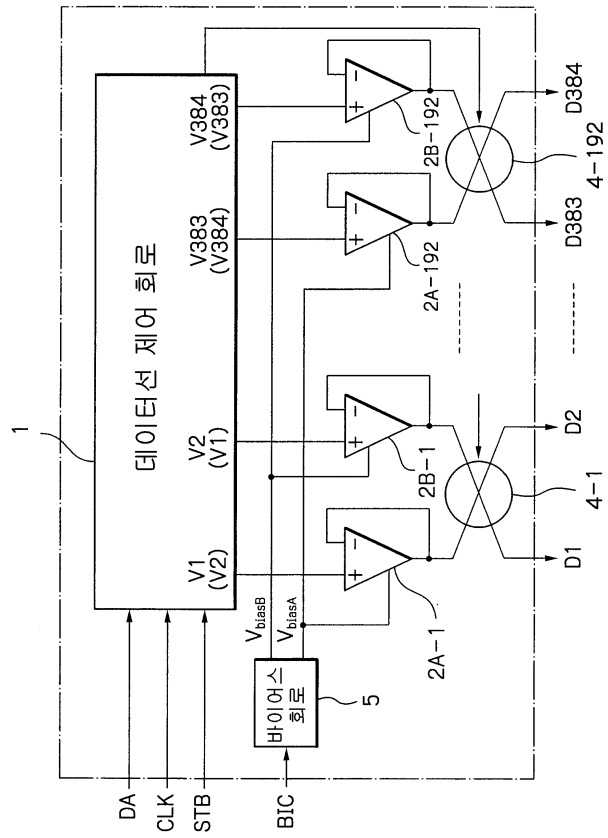
16.

(STB) (D1) (2A - 1, 2B - 1, 2 - 1);

(SEL)
 (BIC) (6);

(5) ;

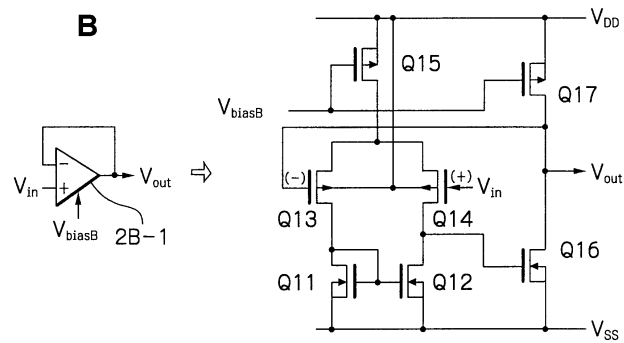
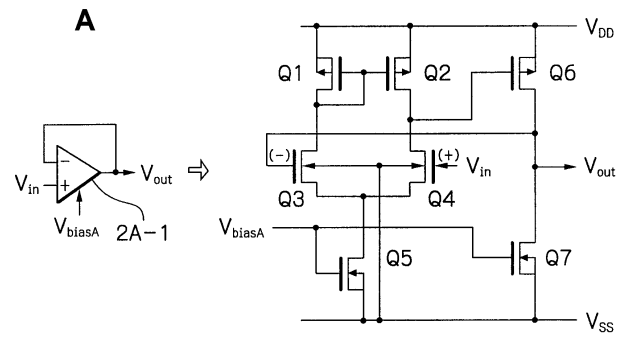
종래기술



1

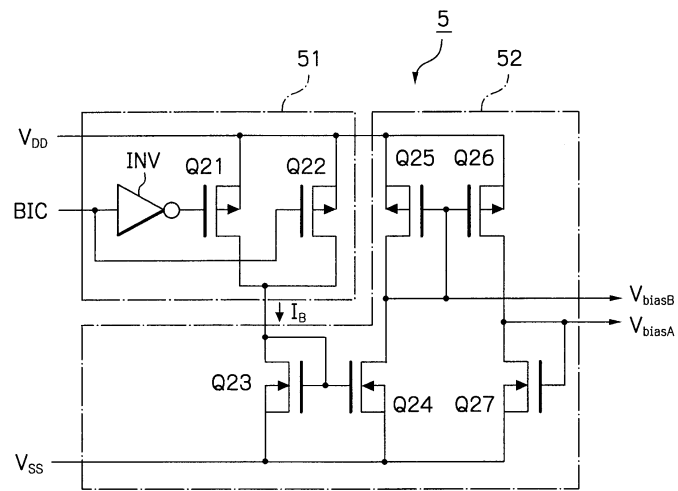
2

종래기술

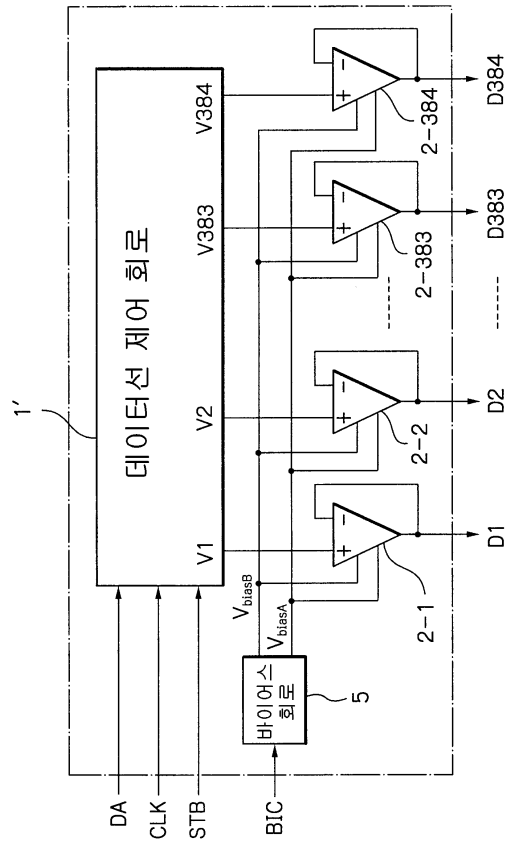


3

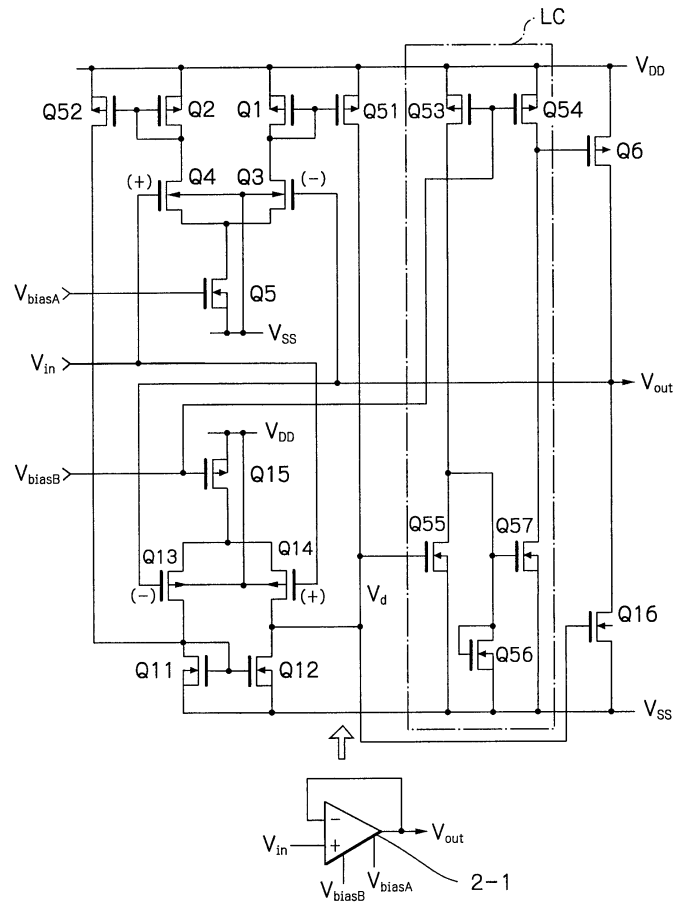
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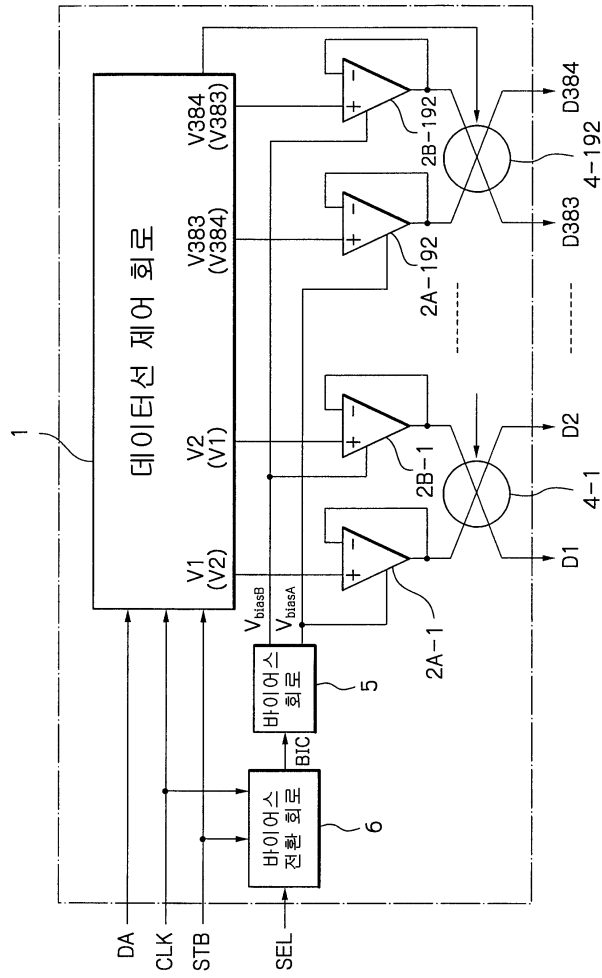


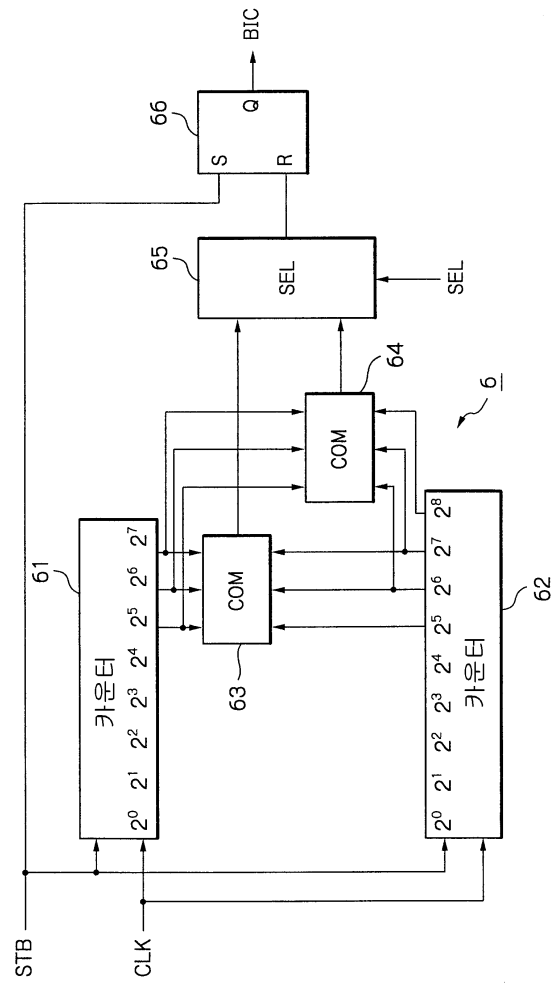
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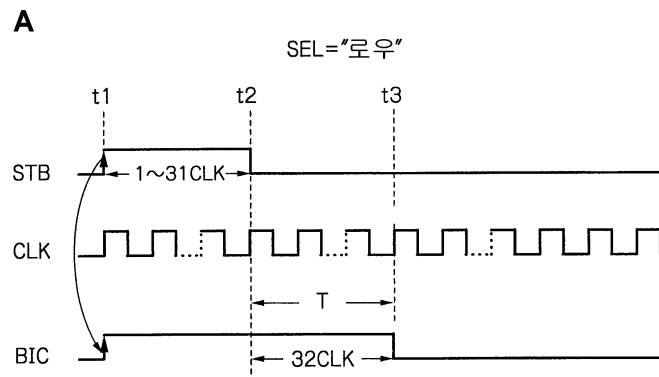


종래기술



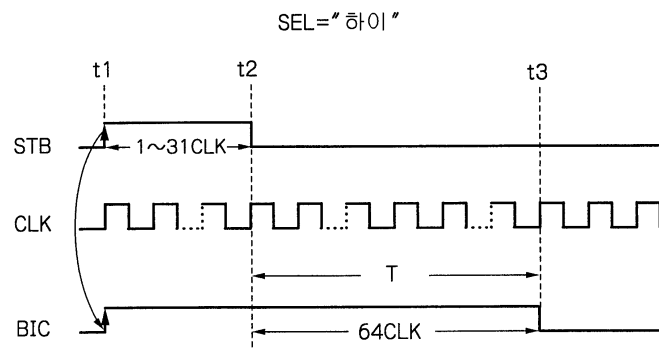




**B**

STB 폭 (CLK)	카운터(61)의 값			T (CLK)
	2^5	2^6	2^7	
1~31	0	0	0	32 ($=2^5$)
32~63	1	0	0	64 ($=2^6$)
64~95	0	1	0	96 ($=2^5+2^6$)
96~127	1	1	0	128 ($=2^7$)
128~159	0	0	1	160 ($=2^5+2^7$)
160~191	1	0	1	192 ($=2^6+2^7$)
192~223	0	1	1	224 ($=2^5+2^6+2^7$)

A



B

STB 폭 (CLK)	카운터(61)의 값			T (CLK)
	2^5	2^6	2^7	
1~31	0	0	0	64 ($=2^6$)
32~63	1	0	0	128 ($=2^7$)
64~95	0	1	0	192 ($=2^6+2^7$)
96~127	1	1	0	256 ($=2^8$)
128~159	0	0	1	320 ($=2^6+2^8$)
160~191	1	0	1	384 ($=2^7+2^8$)
192~223	0	1	1	448 ($=2^6+2^7+2^8$)

10

