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(B1)

(51) 。 Int. Cl.⁷
H04N 5/335

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(24)

2003 08 14
10-0394570
2003 07 31

(21)	10-2001-7008171	(65)	2001-0099966
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(86)	PCT/JP2000/07279	(87)	WO 2001/35638
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(81) : , , , , , 가 , , ,
EA : , , , , , , , , , , , , ,
EP : , , , , , , , , , , , , ,

(30) 11-316650 1999 11 08 (JP)
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(73) 가 가 가
1 6 2

(72) 가 9-7-1-5-402

가 1448-1-221

(74)

:

(54)

가

,
,

(i +15V)(Ti) i) , 33 (a) (Treset) (, i , Vtg = (10) (Vtg = -15V) (Ti) i (101) (Ta) (Ta) , (Treset) , (pg) (Ta) , (103) , (Vpg) 33 (c) (pg) (Ta) , 33 (b) (, Vbg = +10V) (Tread) Bi) i (102) (TG) , n- (, Vtg = -15V) (BG) (Vbg) , (103) (VD)) (103) (Vpg) (VD) (Ta) , 33 (d) (VD) , 가 , 가 (103) (VD) , (VD) (Tread) (VD) (100) , 가

(1) (reading sensitivity,)가 가 가 ()

(2) 가

가 가 RAM (dynamic range)가 ()가 가 1 , 2 가

(row)

1					
2	1				
3	1				
4	1		가		
5a	5e	1			
6(a, b)		1			
7		1	가		
8a	8e			1	
9(a, b)					1
10	2				
11	2		가		
12a	12b			2	
13(a, b)		2			
14	3				
15	3		가		
16	3				
17(a, b)					3
18	3				
19(a, b)		3			1
20	3				
21	3				
22	3				
23	4				
24	5				
25	5				
26	5				
27a	5				가
27b	5				
28(a	j)				1
29(a	j)				2
30(a	h)				가

31a
31b
32
33

가 , ,
가 , ,

1 , 32 31a 32 가

1 (10) 31a (10)
(TG) (100), (111), (112),
(10) (BG) (116), (114)
(115) / (10) (113), (100)
(117), (200) (120),
(100), (111), (112), RAM(130)
32 (113)
가 A/D (117), (120), RAM(130)
(120) (111, 112) (tg, bg)
(BG) (100) (10) (TG)
(115) (pg) (120) (114) (116) (100)
A/D (117)
(120) RAM(130) RAM(130)
(120)
(200)
(120) (111, 112)
(10)

< 1 >

1 가

2 1 (111), (112) 2 (120)
(121), RAM(130)
122) (122) (121),
(120) A/D (123) (117) (100)
(124),
가 (125), A/D (117), (124) 가 (125)
, RAM / (122) / (124) 가 (1
(121) (111, 112) (126),
(122) (1
27) 1 3
3 1 2
3 S11() , (123) (122) (127)

:
 RAM(130) ()
 3 S12() , (116) A/D (124)
 (117) 256가
 3 S13() , (124) (124) (124)
 (가) ,가 (125) (가)
 3 S14() ,가 (125) RAM(130) .가 (125)
 (126)
 3 S15() , RAM(130)
 (126) (124)
 3 S16(/) , RAM(130)
 3 S17() , (122) (127)
 (127)
 3 S18() , (127)
 4 6 1 가
 4 가 () 가
 5a 5e
 6
 256 X 196 가
 (4) () 가 (4) (4
) / () 가 가 (4
 , 가 (4) , /
 256
 0 255
 5a 5e , 176 , 152 , 128 , 104 , 80 가 ,
 , 176 , 5b
 , 152 , / () , 5c
 128 ,
 5d , 104 , ,
 / 가 5e , 80 , ,
 5a 5e
 6 a , 176 152 ,
 255 , 10
 4 80 , , 128 , 0 , ,
 0 , 128 176 , 152 , 104 , 8
 , 128 /
 가
 RAM(130) 6 (b)
 (T₁ T₂₅₆)

128

, 128

() 가 (T₁₂₈) (T₁₂₈) ,

1 176 , 152 , 128 , 104 , 80 가 256 가

1 7, 8a 8e, 9 () 가 7 가
8a 8e 9

, 1

,) 가 / , 가 (7 가 가 /

7) , 176 , 152 , 128 , 104 , 80 (가 112
5e) 8a 8e 128 (85 5a

9 (a)

. 128

가 가 ,

/ 가

6 (b) , RAM(130) (T₁₂₈ T₂₅₆) 9 (b) (T₁₂₈)

< 2 >
1 가 2 가

10

2

10 S21() , (123) (12)
2) (127) 가

RAM(130)

1

10 S22() , (116) A/D (124)
(117)

10 S23() , 256가 (124)
가 (125)

10 S24() , 가 (125) (RAM(130))

10 S25() , RAM(130)
 (126) (124) ,

10 S26(/) , RAM(130)

10 S27() (122) (127)
) (127) 10 S28(
)

11 가 11 13
 가 () 가
 12a 12b () 13

256 X 196 가
 (11) (가
) , 98 (11 256) (가)
 12a) (1

28) () , 12b
 125 126 13 (a) /

6 (b) 가 , RAM(130)
 (T₁ T₂₅₆) 125 126
 (T₁₂₅ T₁₂₆) (T₁₂₅ T₁₂₆), (T₁₂₅ T₁₂₆)

1 (가) (/ 가) , 2
) () (,

< 3 > 3 가
 3 , 가 (125) 2 1 2
 () (124) 가 (125)

14 3
 1 2

14 S31() , (123) (12
 2) (127) 가 RAM(130)
) 1 (

14 S32() , (116) A/D (124)
 (117) , , 256가
 14 S33() , (124)
 , 가 (125) , (124) (가)
)
 14 S34() , 가 (125)
 , (126) RAM(130) . 가 (125)
 ,
 14 S35() , RAM(130) (126)
 , 가 (125) , 가 (125) ()
 (126) RAM(130)
 14 S36() , RAM(130)
 , (1226) (0 0 가 (124)
 , 가)
 14 S37(/) , RAM(130)
 ,
 14 S38() , (127)
 (122) (127) . 14 S39(
) , (127)
 .
 3 가 15 18
 15 가 () 가
 . 16
 . 17
 . 18
 , , 256 X 196 가 .
 , , (15) () 가
) , , 가 가 (15) / () 가 .
 15 , , 가 (15) , 가 (15) ,
 / , ,
 256 0 255 .
 , , . 64 191 / 67
 130 / , , 가
 , 15 , 64 , 96 , 160 , 191
 16 가) , . 191 (16) 160 () 160 ()
 16 , , . 96 (16 (220 225)) ,
 , , . 64 (16) , ,
 (35) , , .
 17 (a) , , (MA) ,
 , , 17b , , (MB) (MA) 가 0
 , , /
 , 가
 16 , ,
 18 (a) ,

18 (a) , L_{k-1} , L_k 가 18 (a) R_k , 가 18 (a) D_{k-1}
6 (b) , RAM(130) , (T₆₄ T₁₉₁) , (T_{k-}
1, T_k) , (L_{k-1} L_k) , (127)
(T_{k-1}, T_k), (T_{k-1}, T_k)
17 , 가 (MA) 0
0 (0 가 가)
3
19 1 19 가 22
(17 (a))
가 (MA)
19 (a) R_k 19 (a) (19 (a) L_k) (L
k) (, 19 (a) , T_k) 3 가 () 가
20 가 21
22
20 4 191 67 130 / 15 / 6
(L) (IL1) (IL1)
(IL1) (L) 가 1 (MA1) (IL1)
) (L) (MA2) (L) 가 가
)가 (, 가 가
3 (MA1) 가 (MB1) 가
(MA2)가 3 (MB2) (IL1) , 22 (a)
, 22 (b) (IL1) (IL1)
가 /
3 , 가
()
3 64 191 67 130 /
< 4 > 가 4 3 4
3

가

4

23 S41() , (123) (12
2) (127) ,

가

RAM(130)

1

23 S42() , (116) A/D
(117) , (124)

256가

23 S43() , (124)
(124) , (가

23 S44() , 가 (125)
(126) RAM(130) . 가 (125)

23 S45() , RAM(130) (126)
, 가 (125) , 가 (125) ()

23 S46() , RAM(130)
(1226) , (124)

가

23 S47() , 가 S46 ,
, 가 , 가

S48

20

가

(IL1)

(IL1)

21, 22

(IL1)

가

(MA2)

4

(MB2)

(L)가

가

가

4

< 5 >

5 가

5

24

2

24 (120a) (111), (112) (
113) (121), RAM(130) ,
(122) (121, 122) (123)

(120a)

(100) A/D (117)
(Fourier)

(117)

(128a),
(128b),

(128c)

(128);

(128)
 , 가 (125)() ()
 (124);

가 (125);
 A/D (117), (128), (124), 가 (125)
 RAM(130) / / (122) (200) (124) 가 (125)
 (121) (122) (111, 112) (126);
 (127);

25 5 25
 25 5
 25 S51() , (123) (12
 2) (127) 가
 RAM(130)
) 1 ()
 25 S52() , (116) A/D
 (117) (128)
 25 S53() , 256가
 (128) (128a)
 25 S54() , (128a)
 (128b)
 25 S55() ,
 (128c)
 (128) 가 (124)

25 S56() , (124)
 (가) , 가 (125) (124)
 (가))

25 S57() , 가 (125)
 (126) RAM(125)

가 (125)
 25 S58() , RAM(130) (126)
 , 가 (125) , 가 (125) ()
 (126) RAM(130)

25 S59() , RAM(130)
 (1226) (124)
 , 가 (0 0 가)

25 S60(/) , RAM(130)

25 S61() , (127)
 (122) (127) (127)
) , 25 S62(
) (127)

5 가 26 27b
 가 5

가

5 가 15 67 130 / 64 , 96 , 160 , 191 5 가 , 64 191
16

17 (a)

17b

3

3

가

가

26

27a

가

가

()

가

가

27b

5

26

, 64

191

67

130

/

(IL2)

(LA (IL2)

LB)

가

가

(

MC)가

27a

3

(LA

LB)

가
IL2)가

0 가

(IL2)

(LA

LB

(

가

)가

5

27b

(MD)

, 27b

(MA3)

(MD)

가

가

(IL2)

/

5

5

가 64

191

67

130

/

가

()

()

가

()

28(a j) 1, 2, 31a 1

(10), 28(a d) (TG), (T₁, T₂,..., T_n) (101) 가

(T_{reset})가 (10)가

(T₁, T₂,..., T_n) (10) (T₁, T₂,..., T_{n-1}, T_n) ()

28(e i) (pg) (B₁, B₂,..., B_n)

가 (T_{delay}) (T₁, T₂,..., T_{n-1}, T_n) (T_{delay}), (T_{prch}), (T_{re}

ad)

29(a j) () 2

1, 2, 31a (10), 29(a d) (TG), (T₁, T₂,..., T_n) (101)

(T_{delay}) (10)가 (T_{reset})가

(T₁, T₂,..., T_n) (T_{reset}) (TA₁, TA₂,..., (10)

, TAn-1, TAn) ()

29(e i) (pg) (B_n, B_{n-1},..., B₂, B₁)

(T_n)가 (T_{delay}) (TA₁, TA₂,

..., TAn-1, TAn) 가 (T_{delay}) (T_{re}

reset), (T_{prch}), (T_{read}) (TA₁, TA₂,..., TAn-1, TAn)

(T_{delay}) 가 ()

()

28(a h), 29(a h), 33(a c) (TG, BG) (TG) (V_{tgh}) (TG)

(T_{reset}) (V_{tgl}) (TG) 가

(BG) (T_{reset}) (V_{bgl}) (BG)

(V_{bgh}) (BG) (BG)

가 (TG, BG) 가 가

(V_{te}) (TG) 가

(V_{be})

(BG) 가

가

30

30

29(a) h)

(T1, T2,..., Tn)
(B1, B2,..., Bn) , 28 (a) h)
V_{bgh}, V_{bgl}, V_{tgh}, V_{tgl}

33

30(a) c)

(T1, T2,..., Tn)가

(10) (TG) (101)
(T_{reset}) (10)
(T1, T2,..., Tn) (V_{tgh}) (T1, T2,..., Tn)가 V_{tgh}, V_{tgl}
(V_{tgl}) (T1, T2,..., Tn) (T_{reset}) (T_a)가 ()가
(10) (T_{prch}) (pg) 가 30 (g)

(10)

n) 2)

(T_a) 30(d) f) (T_{prch}) (V_{prch}) 가 (B1, B2,..., Bn) (10) (10)
(T_a) (T_{prch}) (T_{read})가 (10) (10)
(VD)가 30 (h) (103) (113)

V_{bgh}, V_{bgl}, (V_{bgl}) 가 (B1, B2,..., Bn) (V_{bgh}) (B1, B2,..., Bn)가 가

01) h) te)

30(a) c) (101) (1) (T_{tp}) (V)
(T_{tpl}) (10) (TG) (10)

(102) (102) (T_{bph}) (T_{bpla}, T_{bplb})

(10)

(BG)

(10)

(V_{be})

가

(TG, BG) 가

(57)

1.

(10) (100),

(100) (100) 가

;

;

- 1 2. , (100)
- 1 3. ,
- 1 4. , (100)
- 1 5. , (100) , (10)
- 1 6. , ;
- 6 7. ,
- 1 8. , ;
- 8 9. , ;
- 1 10. , ;
- 1 11. , ; 가 ; 가
- 11 12. ,
- 1 13. , ;

가 ; 가 ;

1 14. (10) (21) (22) 가 (12) (13), (22) ;

15. (10)가 (100) 가 (100) ; ; ;

15 16. (100)

15 17.

15 18. (100) (10)

15 19. ; ; ;

15 20. ; ;

15 21. ; ; ;

15 22. 가 가 ; ; ;

가

가

;

;

23.

15

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24.

23

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25.

15

(10)

,

(12)

(13),

(21)

(22)

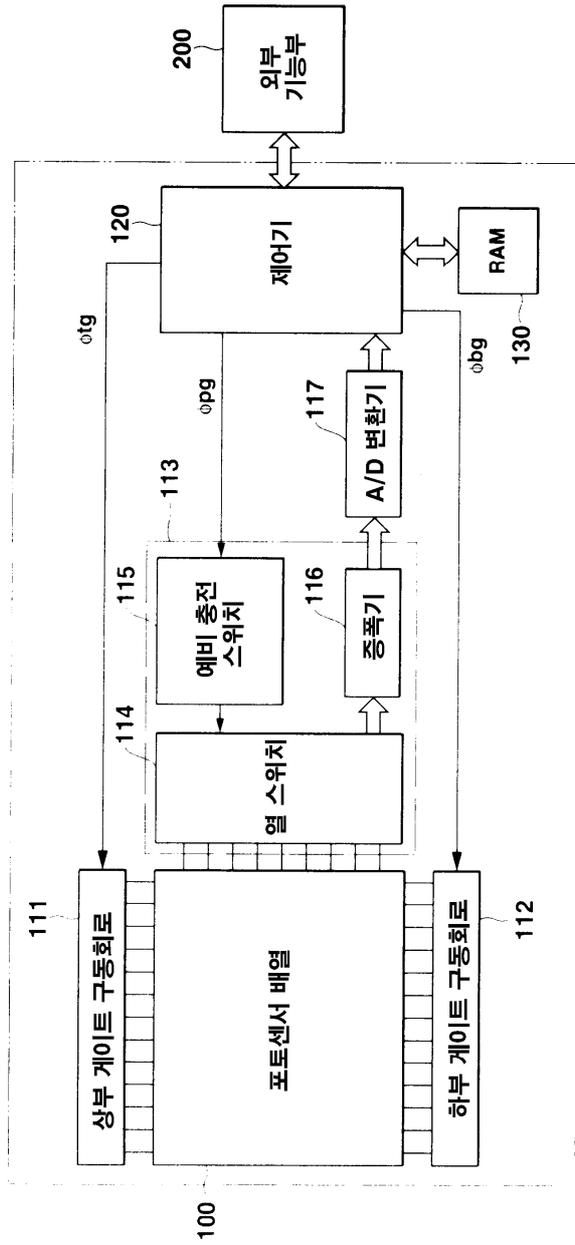
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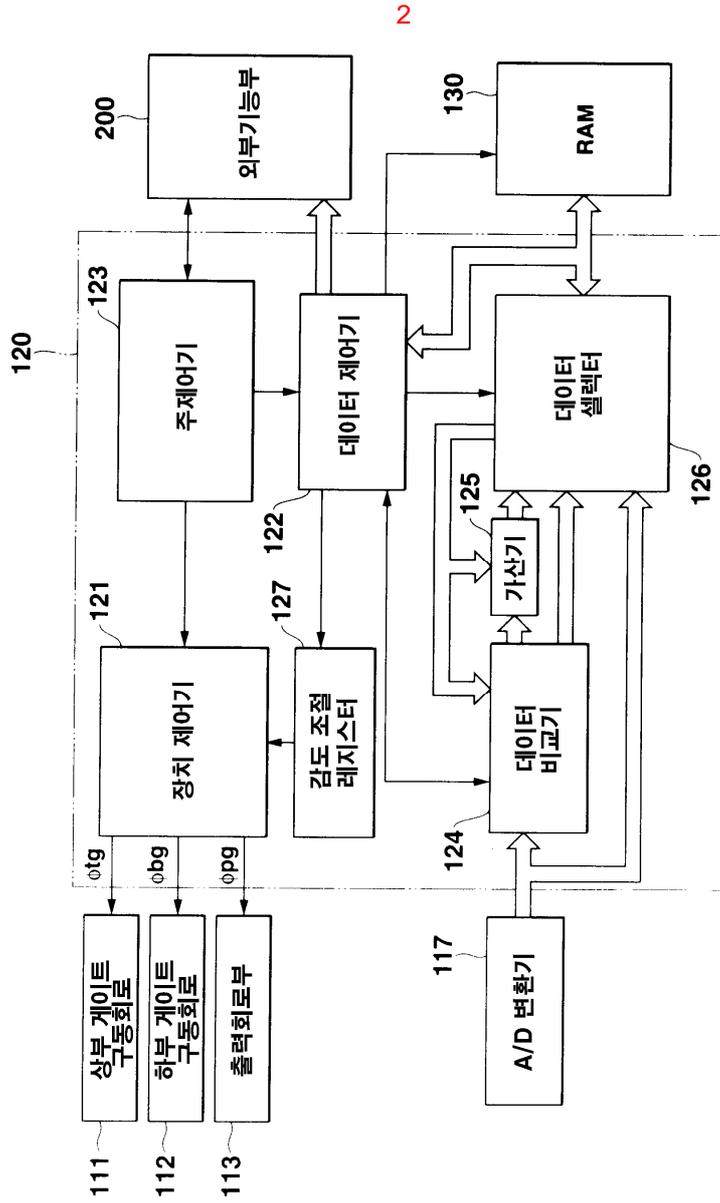
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(22)

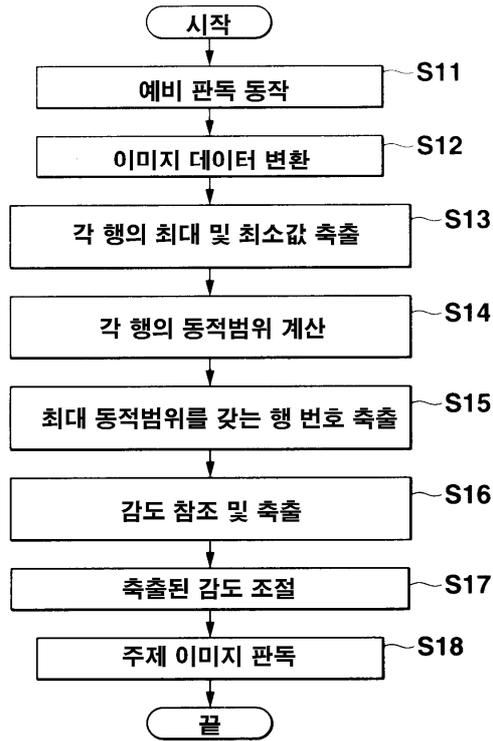
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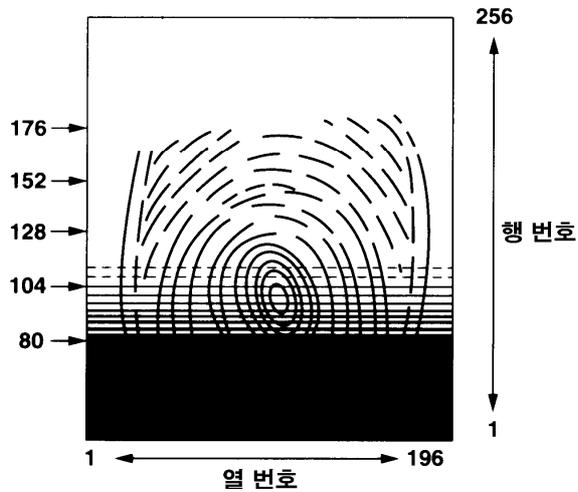




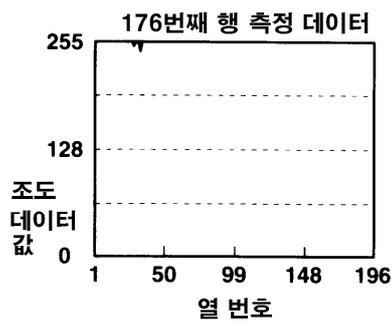
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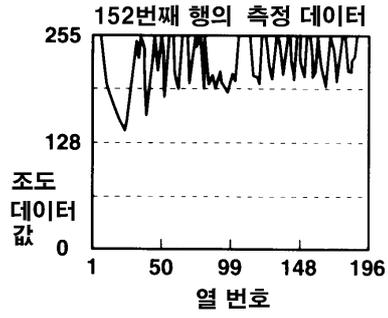
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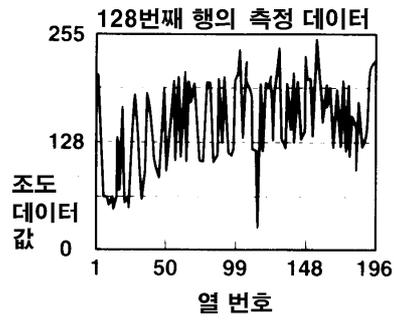
5a



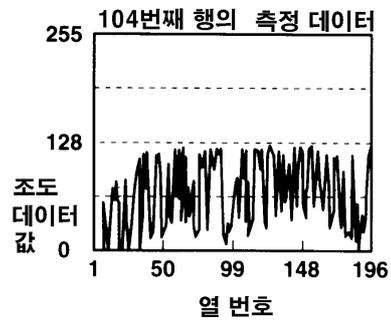
5b



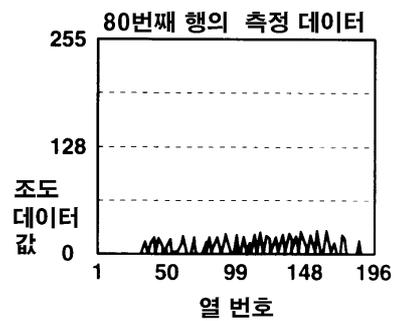
5c



5d



5e



6

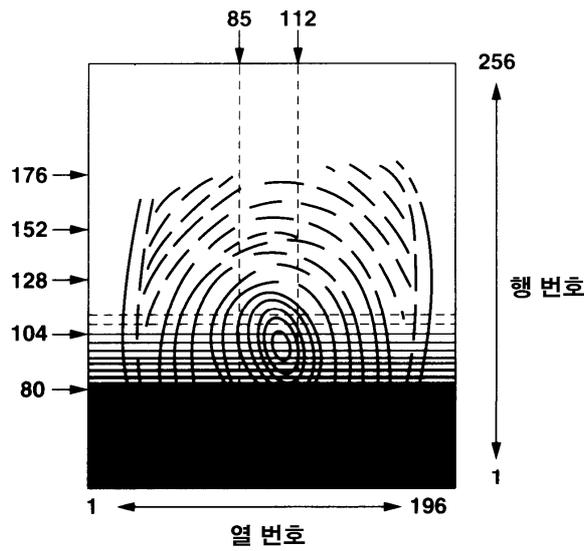
행 번호	80번째 행	104번째 행	128번째 행	152번째 행	176번째 행
최대값	25	127	251	255	255
최소값	0	0	27	153	249
동작 범위	25	127	224	102	6

행 번호	1번째 행	...	128번째 행	...	256번째 행
진하 측정 주기	T ₁	...	T ₁₂₈	...	T ₂₅₆

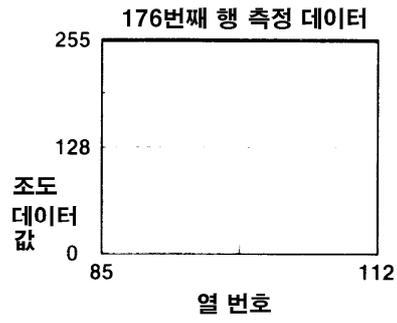
(a)

(b)

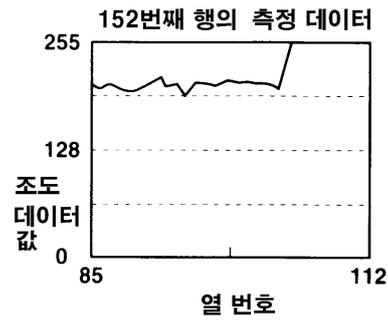
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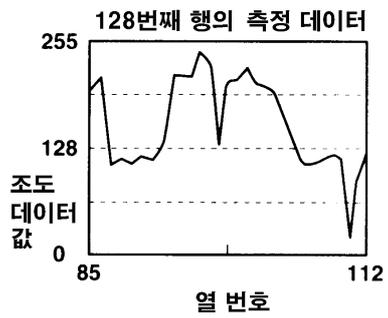
8a



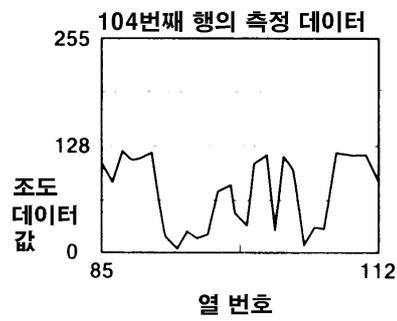
8b



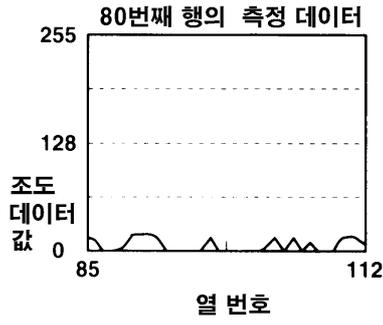
8c



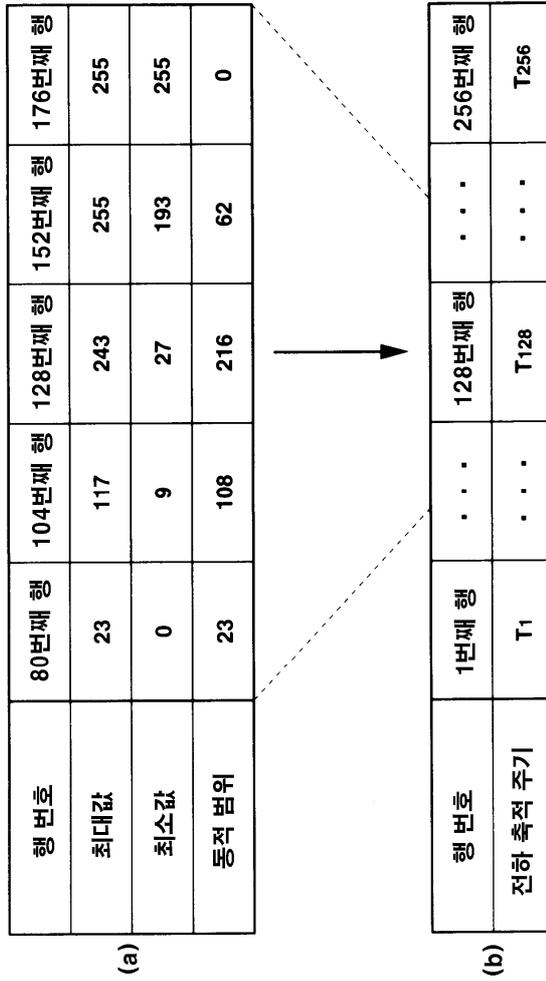
8d



8e



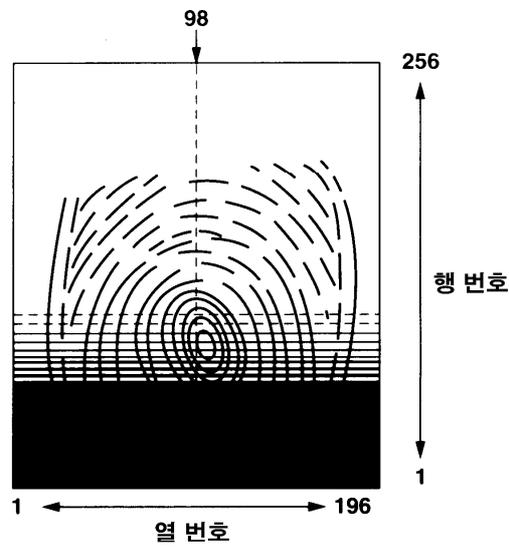
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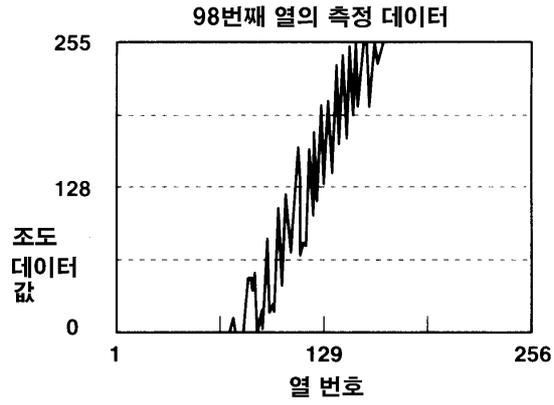
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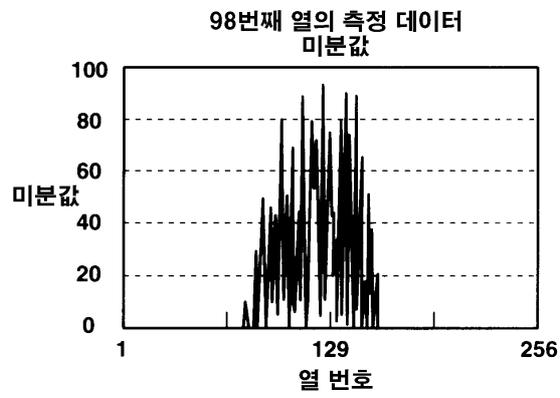
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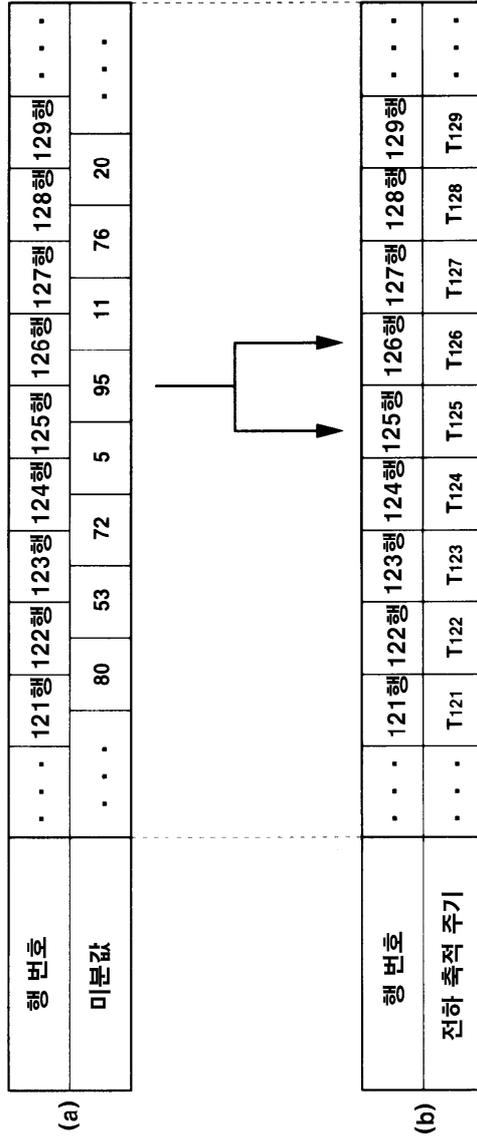


12a

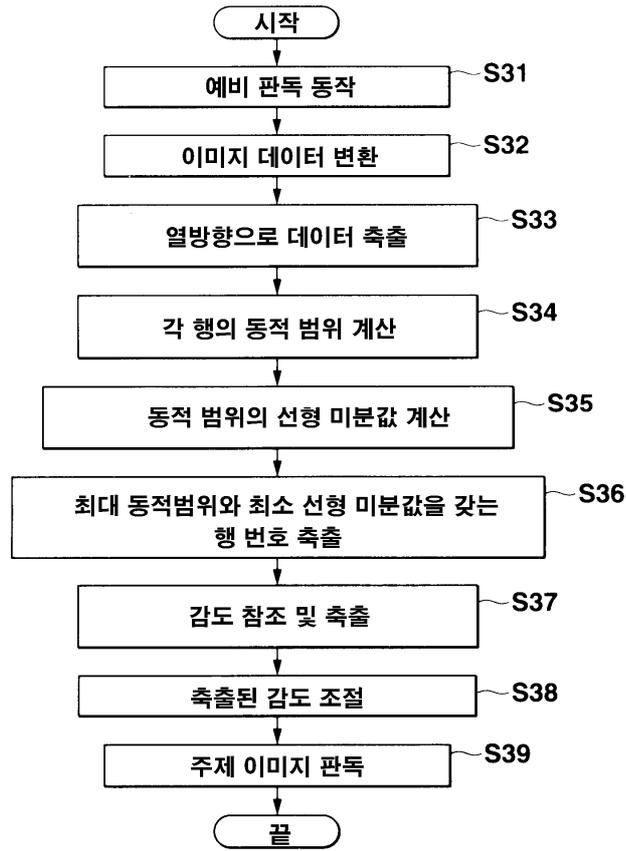


12b

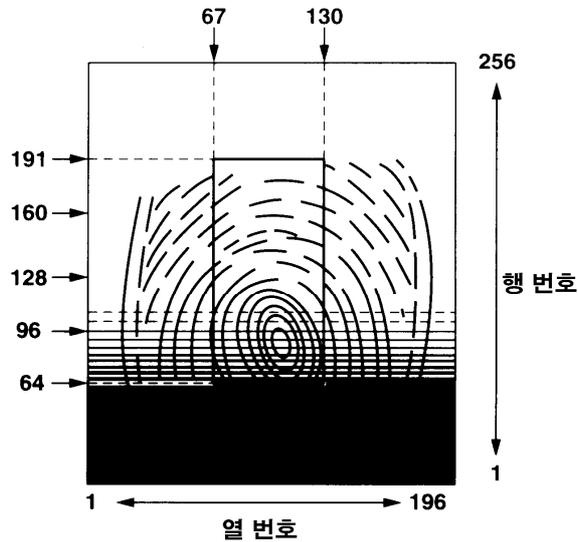




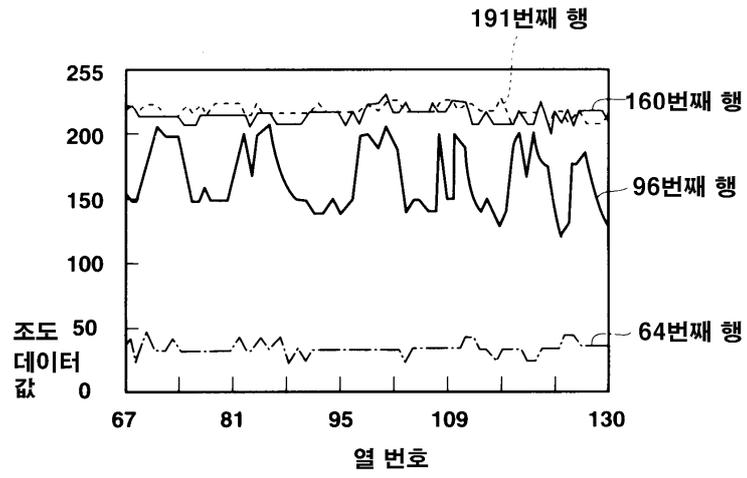
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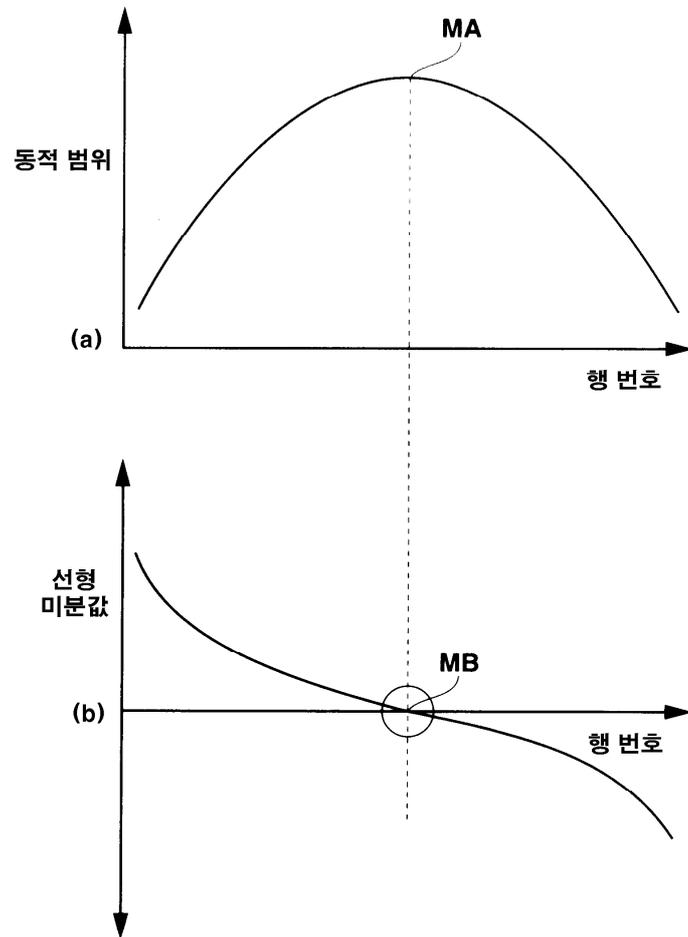
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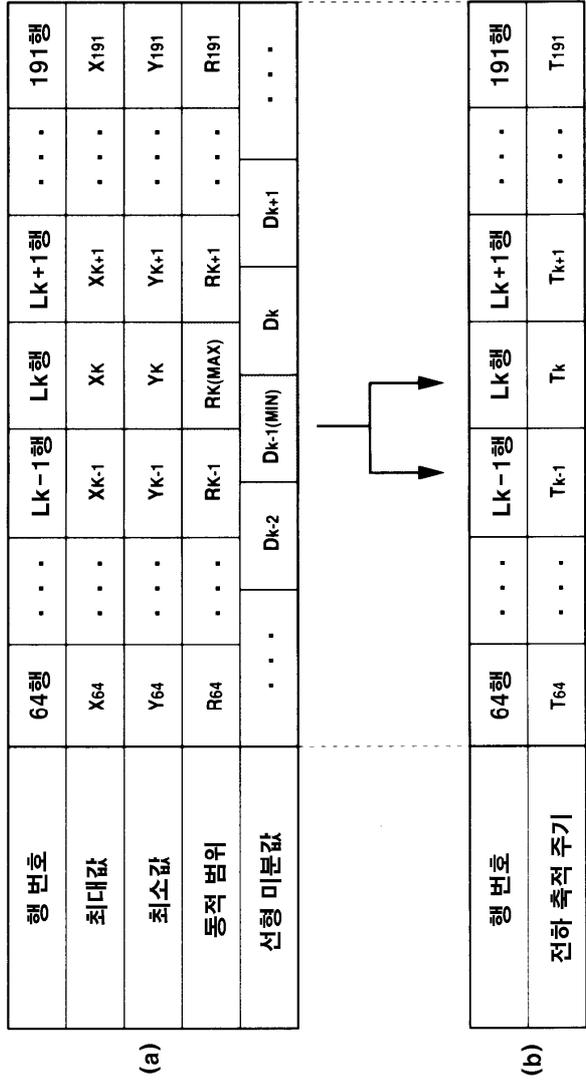


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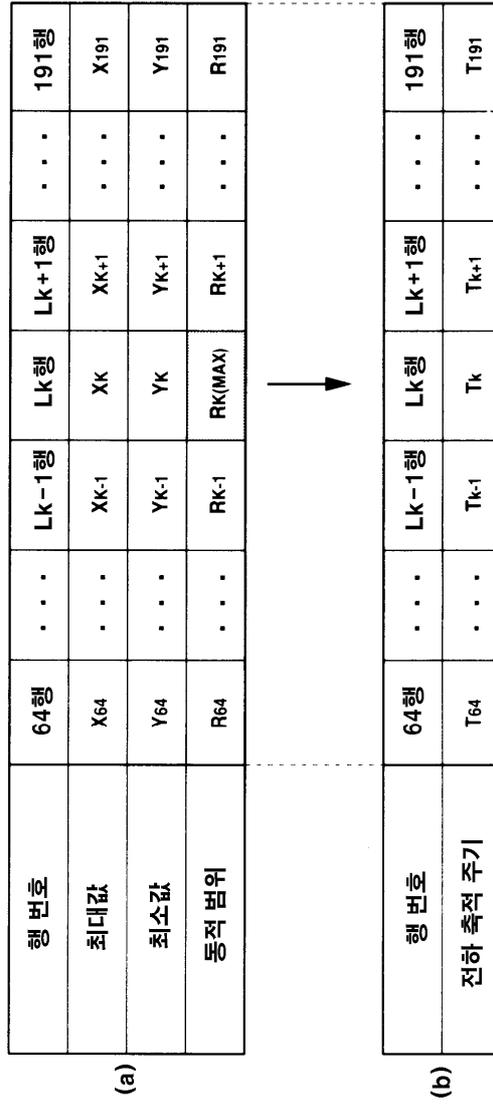


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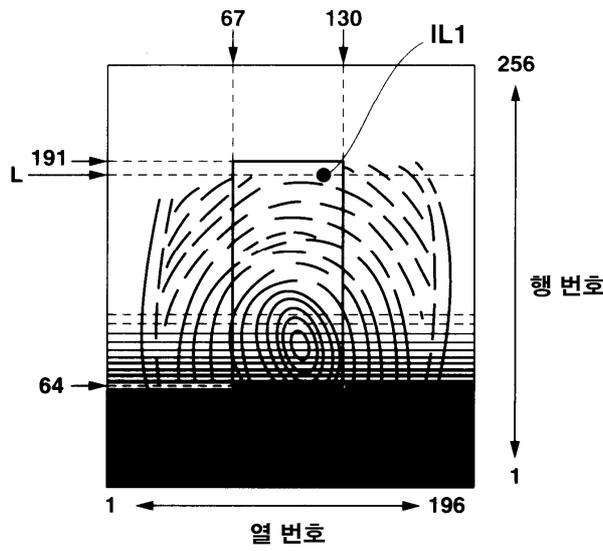




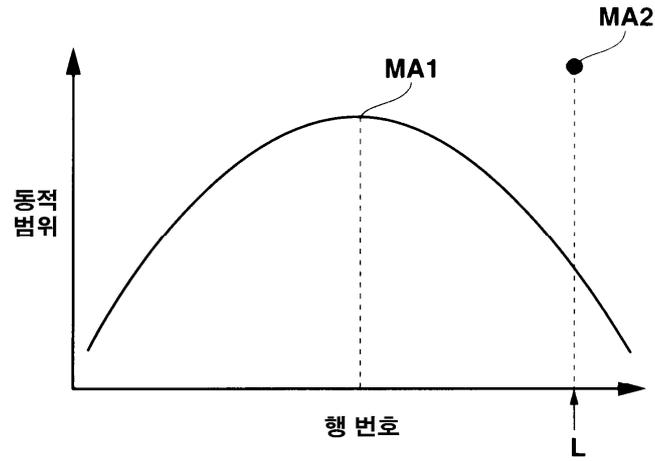
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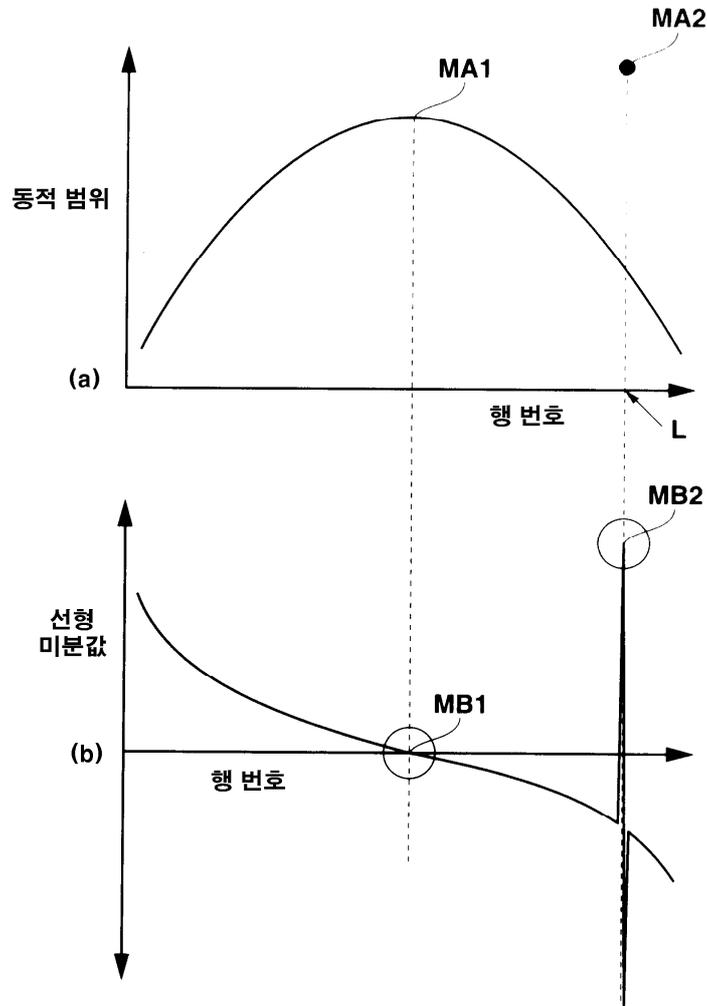
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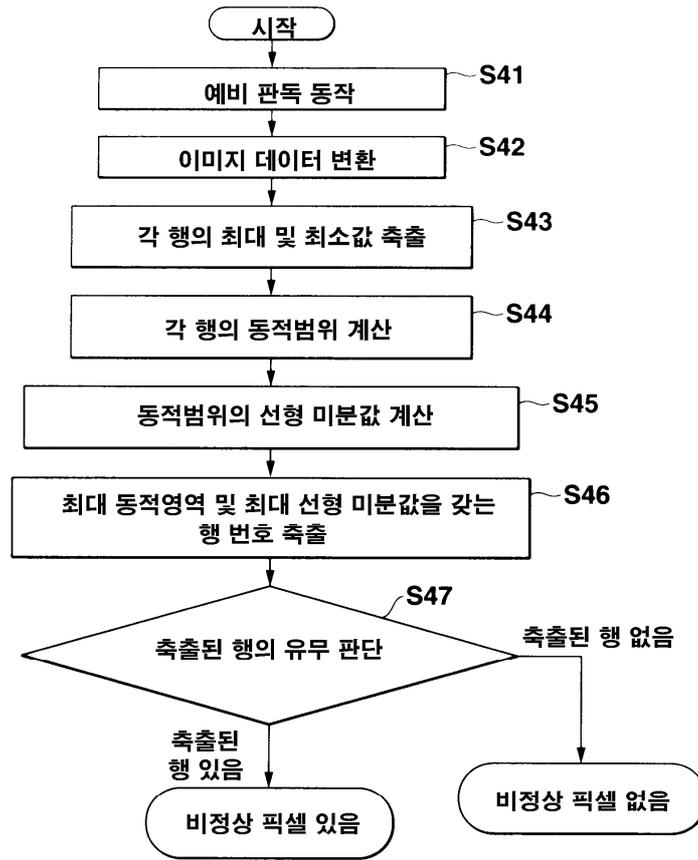
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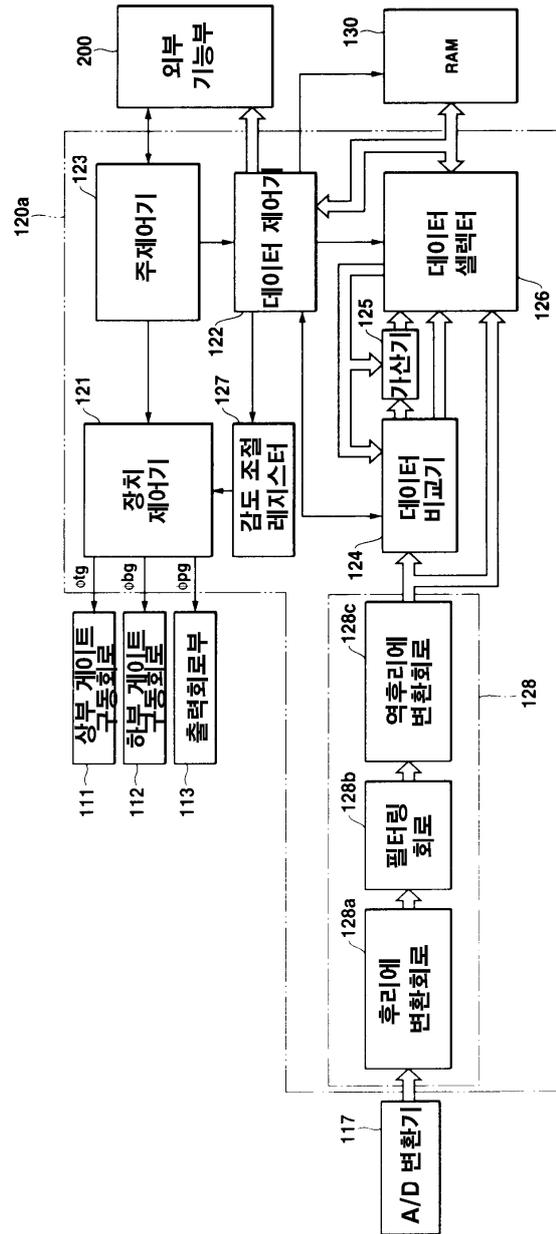
22



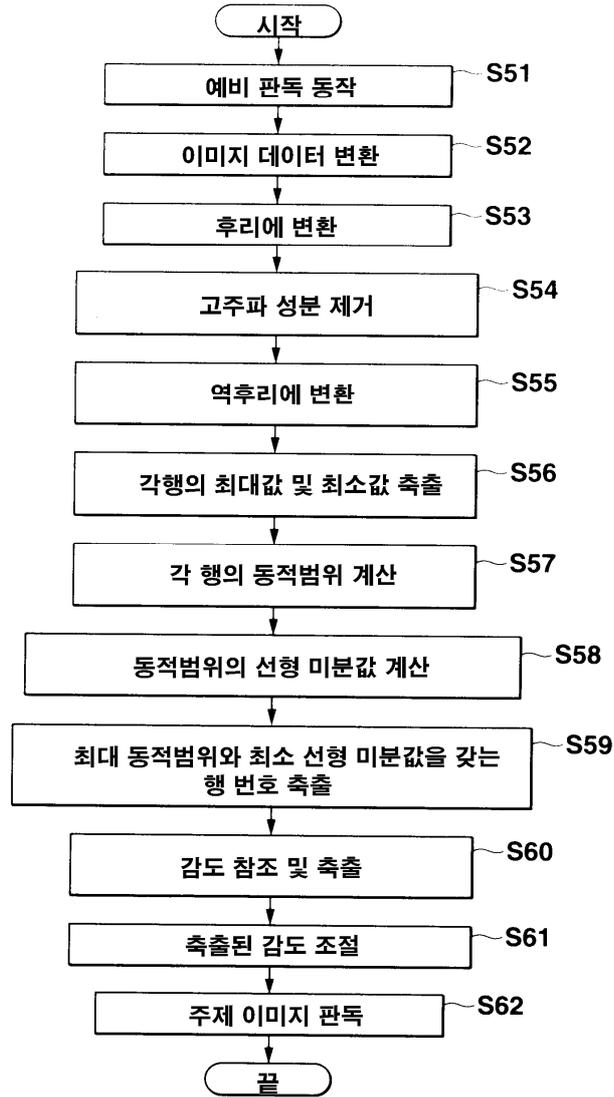
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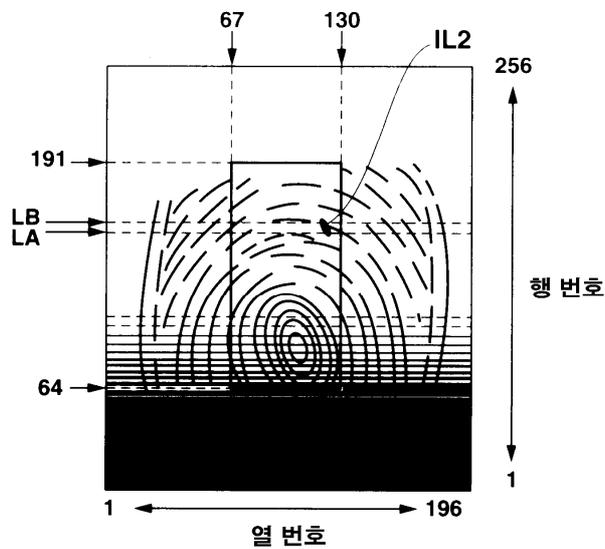
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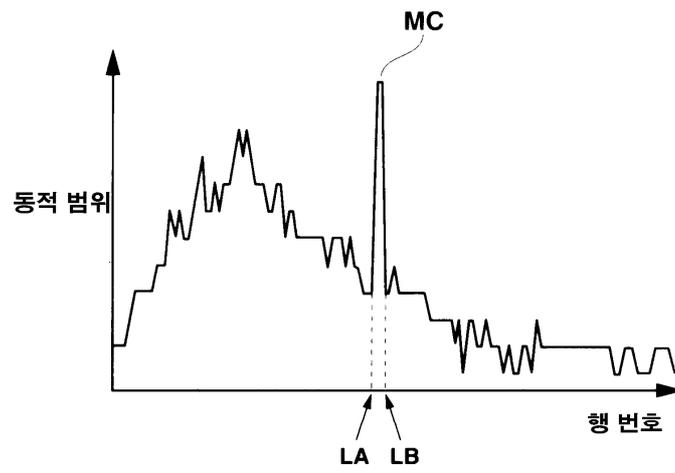
25
25/33



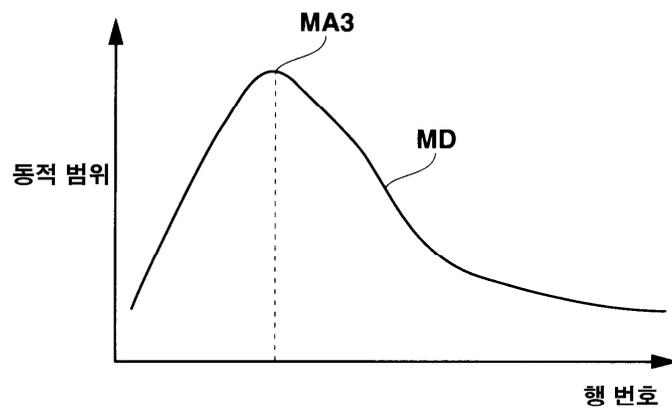
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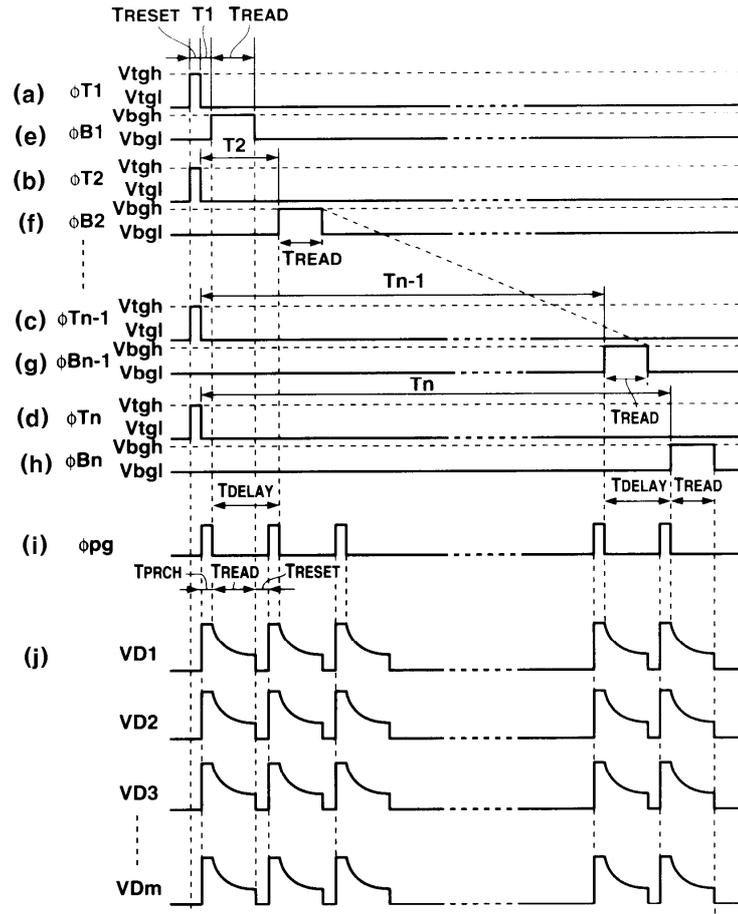


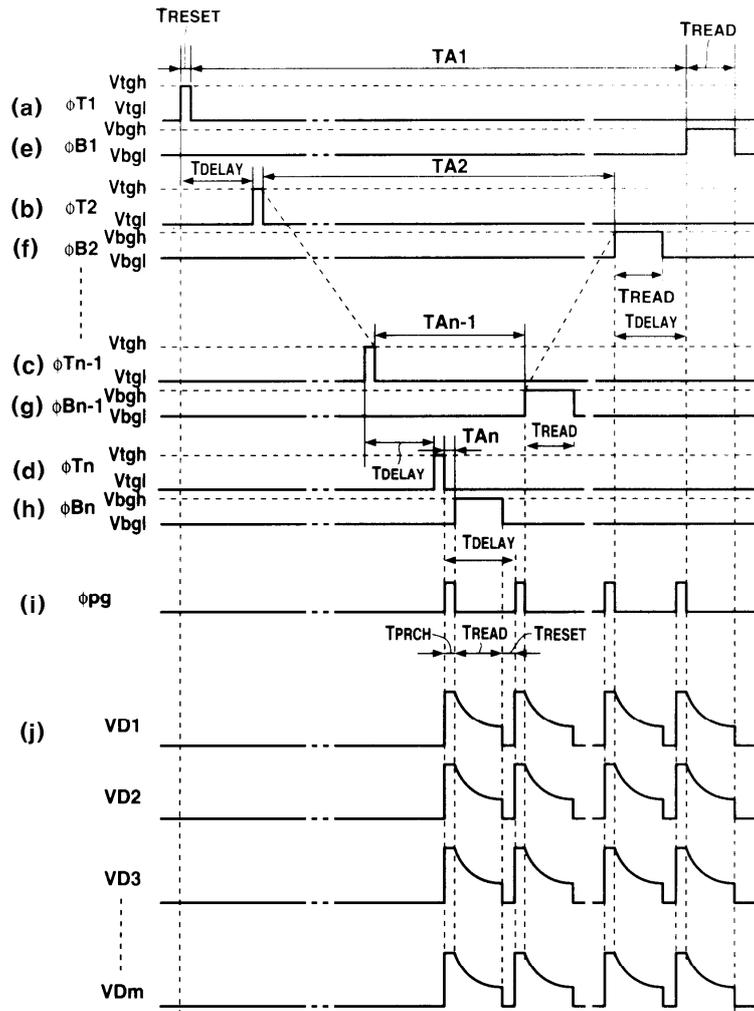
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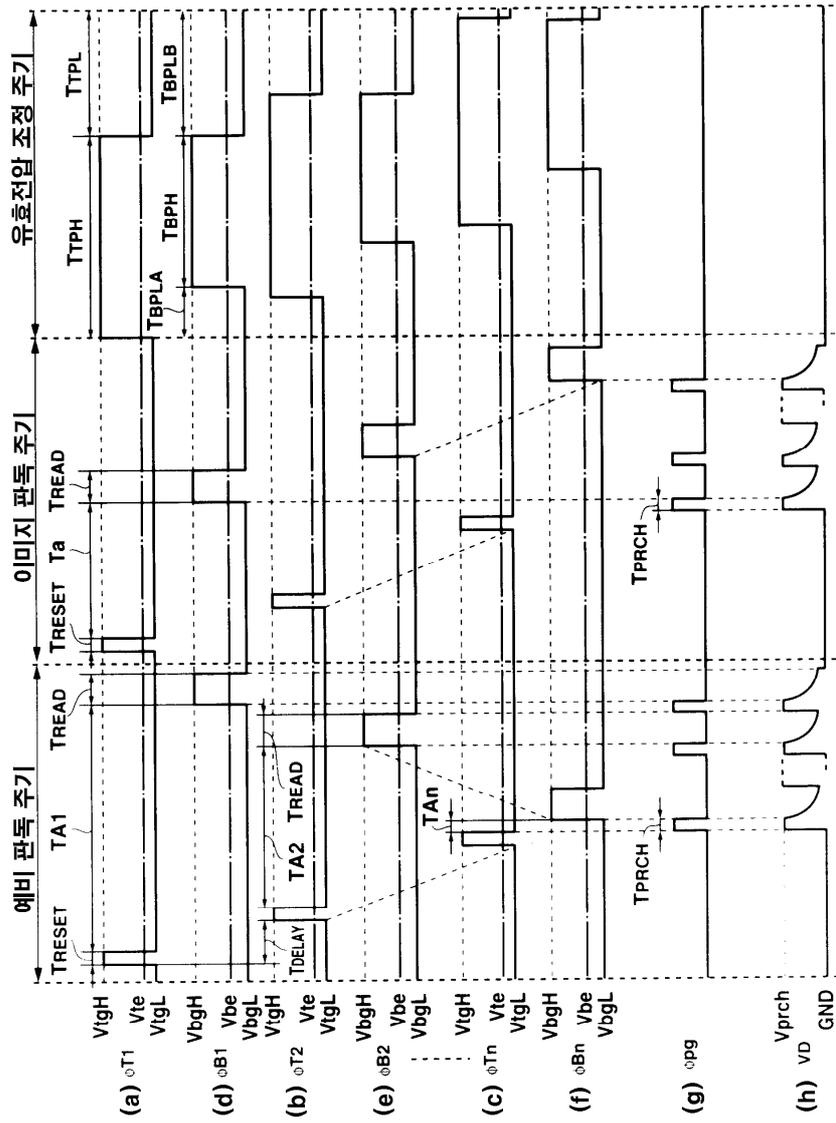
27b







30



31a

