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(43)2002 - 0071457  
2002 09 12(21) 10 - 2002 - 0011276  
(22) 2002 03 04

(30) JP - P - 2001 - 00059394 2001 03 05 (JP)

(71) 가 가  
가 가 4 6  
가 가  
3681

(72) 1 5 - 1 가 가

1 5 - 1 가 가

1 5 - 1 가 가

가  
3681 가 가

(74)

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(54)

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5

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가

3

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7a

7b

2

가

2

8a

8c

2

3가

9a

2

, 9b

9a

IXB - IXB

10

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13

14a 14d

4

15a

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15b

XVB - XVB

16

2

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19a 19b

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20 XXI - XXI

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61, 62, 65, 66 :

100 :

102 :

103 :

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107 :

108 :

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110 :

111 :

112 :

120 :

121 :

122 :

123 :

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132 :

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134 :

141 :

142 :

151 :

152 :

153 157 :

161 163 :

165 :

166 :

167 169 :

171 173 :

181 183 :

191 193 :

201 203 :

211 213 :

221, 223 :

222 :

230 : n

231 :

232, 242 : p

233 : n

234, 244 :

235, 245 :

236, 246, 271 273 :

240 : p

243 : p

249 :

321 323 :

325 :

326 :

328 :

329 :

331 333 :

,  
 .  
 ( , ) ,  
 ,  
 , TFT (Thin Film Transistor)  
 (TFT) ( )  
 . TFT  
 가 , 가 ,  
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 ,  
 D/A , 가 가 , 가 가 , 가  
 가 , 가  
 ,  
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 가 ,  
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 ,  
 가 , 5 - 35200 ( 5,337,070 }  
 .  
 5 - 35200 , 1 (1  $2^m$  )  $2^K$  ,  $2^m$   
 n  $2^m$  , n  
 $k (k = n - m)$  ,  
 , 가 .  
 , 가 3 (n = 3) , m = 1, k = 2 가 . 2  
 , 1 4 2 . 3  
 1 2 , 3

2

4

가 .

5 - 35200

가

D/A

가 가 ,

가 ,

가 .

2000 - 1

94330

가 64

256

가 .

2000 - 19

4330

, 64

가

가 가

가

1

2

1

2

1

N

N

, N

N

, N

2

0

N

$2^N$

,  $2^N$

가 .







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 , 2<sup>N</sup>  
 , 2<sup>N</sup>  
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 가 가 ,  
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 1 ,  
 , ( ) (100), (111), (112) .  
 (100) , (110), ( (120) ( (130) , (110), (120), (130)  
 ) (130) , (111) (112) , (100)  
 , (100) 가 .  
 (111)  
 (100) , (120) , (130) , (111) (112)  
 (100) (120) (130)  
 (112) (110) , (110) (130)  
 ( ) .  
 ( (103) , (120) ( 1  
 Y ) (110) , ( 1 X ) .  
 (103) (110) ( )  
 (102) (130) ( 1 X ) (110) ,  
 ( 1 Y ) . (102) (110) .  
 (120) (121) (123) . (111)  
 (131) (121) (130) , ( )

111) (132) (134) (123) . , ,  
 (112) (133) (123) , . ,  
 1 , .

(111) , , (131) (130)  
 . , (111) , , 1  
 (102) (130) (130) ,  
 (102) , (102) .

, (111) , 가 , ,  
 (120) . (111) , ,  
 (121) (111) , ,  
 (103) (123) .  
 (123) , (112)가  
 (103) . (123)

2 (100) 가 . 2 ,  
 (110) , (101) 2  
 (101) (104) (109) 가 , 2  
 (102) 2 (103) .

, (130) 1 (102) ,  
 (104) .

(103) , (104)가 , (103) (109)  
 . (109) ( ) (107) , (10  
 9) (107) ( ) . 2 ,  
 가 (108) (109) (107) .

(109) (107) 가 , 가 .  
 , (109) (109) ,  
 가 , (109) 가 .

(110) , (109) (110) 가  
 , (101) (109) 가 . , (109)  
 가 .

, (109) (123) . (1  
 00) 가 가 , (123) (123)  
 (103) , (111) (123)  
 (132) 가 . , (100) 가  
 가 , (132) 가 가 , (123) 가  
 가 . ,

[illegible]

(325) 가 , (326) 가 ,  
가 ,  
가 .

, (325) (326)  
, (325) , (325)  
(321 323) , (103) .  
3 , (321 323) (111) ,  
(325) . 8 3 가 , (321 323) 3  
가 3  
가 .

(325) (321 323) ,  
, (326) . (326)  
(325) .

(103) , (110) (109) ,  
2 (321 323) , (325)가  
가 . 3 (103) 3 (3  
25) , (103) ( 3 Y ) (321 323)  
, 3 (325) (321~323)  
 , (325) 2 (103) .

, , (321 323) , 가 가  
, (325) .

4 (123) . 4 , (123)  
, 4 , 1 (103)  
(123) .

, (123) , (321 323) (3  
25)가 . (325) , (161 163) .  
(161 163) 1 2 (134) , (111)( 4  
) .

4 , 122 , (121) (329)  
, (321 323) . 331, 332, 3  
33 (122) (16  
1 163) , (152) . (331 3  
33) , (326) (1  
52) (331 333) (326)  
(331 333)가 , (151) ( (1  
103) . 가 (151) 1 3 (133)  
, 가 . 4 1

, 가 .

, (331 333) (326) ,  
 (152) , , 3  
 (321 323) 3 (331 333) , 1  
 (152) , , 3  
 (331 333) , (103)  
 .

, (326) (103)  
 . (326) , (151) (151)  
 , (326) (151) (103) (151)  
 (151) , (103)  
 , .

, (123) . , (122) ,  
 (121)가 가 (122)  
 가 (331 333) (161 163)  
 (331 333) (122)  
 (161 163) (331 333)  
 (326) (151) 가  
 (331 333) 가 (326) (151)  
 (103) .

, 4 , (331 333) , (15  
 3) (152) , (326) , (326)가

, 3 (331 333) (152) ,  
 (331 333) , (331 333) 2

( ) (331~333)가 , (153) (326)  
 ;

( ) (331 333) 가 , (326) (153)

(326) 가 2 , .

(325) , m ( 3 )  
 (331 333) , m (331 333)가 (152)  
 , 2<sup>m</sup> 가 .  
 1 , 3 (331 333) 가 .

[ 1 ]

	1	2	3	4	5	6	7	8
333	-	-	-	-	SW	SW	SW	SW
332	-	-	SW	SW	-	-	SW	SW
331	-	SW	-	SW	-	SW	-	SW

1 , " - " (331 333)가 ON( ) , " SW"  
 (331 333)가 . 3 (331 333)  
 , (331 333)가 ON , 가  
 .

가 OFF , 가 가 ON , m ( 1  
 3 )가, m  
 , 2<sup>m</sup> .

가 2<sup>m</sup> , 2<sup>m</sup> (161~163)  
 2<sup>m</sup> ,  
 (161 163) , 2<sup>m</sup> ,  
 (331~333) , (153)  
 (326) .

5 6 , (123) 1 2  
 , 5 A 6 A . 5 6 , ,  
 가 3 . 5 , ,  
 , .

5 , 4 (331 333) (201 203)  
 (211 213) 2 n .

4 (325) (201 203) (211 213) ,  
 (171 173), (191 193) (181 183)  
 (325) DD1 DD3 (321 323), DA1 DA3  
 (161 163), (181 183) TG  
 (167 169) .

(191 193) 가, TG (181 183)  
 (201 203) . 153, 156 VDD .  
 154 GND . 165 ,

166 - - 6 , 141 , 14  
2 , 151 .

5 , (325) (321 323) ,  
(123)가 ,  
가 .

5) , 5 , 7a, 7b, 8a 8c, 9a 9b (32  
5) .

7a 7b , 2 . 7a 7b  
7a 2 , 2  
n (230)가 . 7b 2  
, n (230)가 , p (240)가 .

7a , 232 p , (231) , p (232)  
/ n (233) . 234  
, p (232) . 2 (230) LOCOS(Local Oxid  
ation of Silicon) (235)  
(235) , n (230)  
(235) 7a , L1 (235)

7b 2 , 240 p  
, 242 n , 243 P , 244 ,  
n (242) , 가 , p (232)  
(235) L1 가 , (245) L2

2  
, 가 가 .  
8a 8c , 8a 8c 3  
2 .

8a 2 가 , 2 (n  
p ) 가 . 8a W1  
8a n (242) , W1 (245) L2  
, p (232) , (249)  
.

8b 2 가 , 2



(n p) 가 . 2  
W2 . W2 W1 ,  
, 8b , L2 (245) , P n .

8c 2 , 2  
가 가 (235) L1 , 8b  
L2 . L1 L2  $\mu\text{m}$  ,  
가 3 (325) , 가 3 , 가  
L1 L2 3 가 . 가 가 ,  
가 8 16 가 ,  
.

, 5 , (171 173), (181 183),  
(201 203), (211 213) , 5 , n  
, n 가 P  
가 .

9a 9b , (203) (213) , 9a  
, 9b 9a IXB - IXB . 9a ,  
(235) LOCOS (231) 236  
( (235) (236) ,  
(203) (213)가 234 . 9a  
9b , 9a , 9b .

5 , (203) (213) , (152)  
, / (201 203) (211 213) 가  
, / 가 / 9b  
, 2 (233A) (203) (213)  
(201~203) (203 213) (211~213) / (233A) ,  
(201 203) (211 213) , (235)  
가 .

9a 9b , (333) (203)  
(213) 2 , 2  
(235) 가 ,  
가 2 . ,

(325) 가 . , (201 203) 가 .  
(211 213) ,

3) , 5, 9a 9b , (331 333) , (201 20  
1 (211 213) 1  
(331 333) ,  
2 . , 5 (331 333) (331 333)  
(331 333) 2

10 (325) . 10 (329)  
9a 9b ,  
(203) (213) (333)  
(173) (183) , (193) 2  
/ (173) (183) (183)가  
가 ,  
가 .

10 , (329) (173)  
(329) (333) (193)  
(173) (329) 가 .

(173) (183) (271)  
가 가 가  
가 / 가 10 가  
(271) 2 가 ,  
2 .

(173) , (193) , (193)  
(323) 가 (193) (173))가  
가 , (193)  
(271) 10 ,  
(323) (183) 가 ,

11 12 , 5 6  
.

11 , (321 323) DD1 DD3 , (121)  
 HSR1 HSR3 . 5 , (321 323) DD1 DD3  
 , (121) HSR1 HSR3 . 11 ,  
 3 HSR1~HSR3 , 가

DD1 DD3 DD1 3 HSR1  
 , DD1 , DD2 DD3 .  
 DD1 DD3 , " 1" " 0"  
 HSR1 (1, 0, 1) .

11 , DD1 DD3 (1, 0, 1) , (329) HSR1 ,  
 (171 173)가 , DD1 DD3 (191 193) .  
 DD1 DD3 (1, 0, 1) , (191) , (192)  
 , (193) .

, (191 193) 가 , 12 , 12 ,  
 RMP , (112)( ) 6 (151)  
 RMP 12 ,  
 (1, 1, 1) V0가 , (0, 0, 0) V7

12 , TG가 , (181 183) , (1  
 91 193) (201 203) ,  
 가 (201 203) , (201 203)  
 1 가 , (191 193) 1  
 , 가 11  
 , DD1 DD3가 (1, 0, 1) , (201 203) ,  
 (202) .

, DA1 DA3가 , DST ,  
 (222) , DRST ,  
 2 (221, 223) , (152(1) 152(4))  
 (153, 156) .

(152) , (326) (141) (14  
 2) 가 , (142)가 (151) (103)  
 , (152) , (103) (151)  
 RMP가 , 12 RMP .  
 (152) , (103) 12 RMP .

, DA1 DA3 (161 163) ,  
 DRST , DST  
 DST가 (222)가 (152(1))  
 GND (154) .  
 12 , t0 , DA1 DA3가 (21  
 1 213) . , (201 203) 가 (201 2  
 03)가 (1, 1, 1) , (152(4)) VDD , (142)  
 .  
 , 5, 6, 11, 12 , HSR1 가 (1, 0, 1)  
 .  
 t0 , (202) , (152(4)) VDD .  
 , t2 DA1 DA3가 (0, 1, 0) , (212)  
 . , 가 (1, 0, 1) , (203, 201) ,  
 ((152)(1) (4)) 가 GND (154) , ((152)(4))  
 , (142) (151) (103)  
 (103) , (151) (151) V2 ,  
 DRST가 , (152)  
 (103) (151) .  
 , 13 , (121) . HSR  
 1, 62, 65, 66) . HSR (clocked) (6  
 .  
 25 , 26  
 (61) , 13 (121)  
 (62) 13 (121)  
 . 27 .  
 , 14a 14b HSR (61, 62)  
 RL1 RL2 1 2 . 1 RL1 13  
 H H , 2 RL2 13  
 1 RL1 2 13  
 61, 62) RL2 HSR ( )  
 .  
 (61) 14a p (71, 72) n (73, 74)  
 (72) 2 RL2 , n (73) 1 RL  
 1 . 1 RL1 H , 2 RL2 L ,  
 (61) , 2 RL2가 H 1 RL1 L  
 , (62) .

, (62) , p (72) 1 RL1 , n (73)  
 2 RL2 (62) , 2 RL2가 H  
 , 1 RL1 H .

14c (65) (65) , CLK1 H  
 CLK2가 L , CLK1 L CLK  
 2가 H .

14d (66) (66) , CLK2가 H  
 CLK1 L , CLK2가 L CLK  
 1 H 13 , CLK1, C  
 LK2 (65, 66) CLK1, CLK2 .

15a 15b (120) 15a 15b 4 (103)(  
 (120) , (120) (103) (120)  
 ) AW , 15b 15a XVB - XVB  
 .

121 , 14a 14d , n p 가  
 . 246 236 p n .  
 (246(1)) 13, 14a 14b (61) (62) p 가  
 AW (236(1)) (61) (62)  
 n 가 , (246(2)) (65) (66) p  
 가 , (236(2)) (65) (66) n 가  
 15b , 242 n 232 p , 245 n p  
 . AL2 (121)가 .  
 325 15a 15b , 6 (523(1) (6))  
 . (325(1) (6)) (103) ,  
 가 가 ,  
 , (325) 5 n .

15a, 15b 236 , 5 ( 5 201 203) ( 5  
 211 213)가 (203) (213)  
 9a 9b (236) 가 . 15b , 232 n  
 , 235 2 n AL1  
 (325(1) 325(6)) 15a 15b , 261 5  
 (191 193) , 271 5 ( 5 171 173)  
 ( 5 181 183)가 ,  
 가 , (271) 가 .

15a 329 ( ) , (121)  
 , ( 15a 15b , ) .  
 (329) (325(1) 325(6)) , (325(1)  
 325(6)) , 가 가 , (325(1), 325(2), ...)

가 가 , (329) .

(329) , , (171 173)  
 , 가 , (325(1))  
 , (325(6)) ,

(329) , (325) AL1 가  
 (121) AL2가 (325(1), 325(2), 325(3), ...)  
 AL1 , (325(1), 325(2), 325(3), ...) AL1  
 , 가 , (325(1), 325(2), 325(3), ...)  
 AL1 (329)  
 (325(1), 325(2), 325(3), ...) , n (325(1), 325(2), 325  
 (3), ...) , (235) , (325) AL1

15a , 326 , 272 273 (141) p  
 n (273) / 가 ,

(120) ,  
 , , 가 가 ,  
 , 가 가 가  
 , 가

16 2 (120) (120) (110) 가 17 2 16 , 2 (120) (120)  
 (120) (123) (123)가 16 , 2 (120) , 2 (123)  
 , 17 가 .

18 , 18 .

18 , 100 , 1 , 1 , 2  
 2 , 3 , 4 . (4)

(1) (1) (2) (3) d 5  
 (1) , 6 (5) (3) 가 30  
 , 7, 8 (3) ,  
 (5) .

34 , 35 , 36 , 38 ,  
 39 , 40 (38)  
 (1) , 41 1 , 42  
 1 , 43 2 , 44 1 , 45 3 ,  
 46 2 , 47 4 , 48 (5) 2 .

· (100) , (2) ( 18 )  
 , (3) (5) , (3), (2)  
 (100) .

· (1) (3) (5) ,  
 (1) , 가 (5) , (30) (5)  
 (100) (1) .

· (electrically controlled birefringence mode)  
 (100) (5)  
 (6) 가 , (3) ,

· 19a 19b (Single - Polari  
 zer Twisted Nematic, SPTN) .

9 ( ) L1 , L2

19a 19b (9) P (100)  
 , (9) S (100) .  
 (3) . (1)  
 (2) , (7, 8) 90 ° .

19a (3) 가 (100) L2  
 (3) , (5) (5)  
 (3) , (100)  
 . L3 L2 90 ° S , (9)  
 , (9) , L4 ,  
 . (3) 가 (





20 , 5 × 4 가 , 가 .  
 (11) (10)가 , (10) (4) (12)가 .  
 13 (100) .

(4) (11) , , JSR( , )  
 가 " BPR - 113" ( ) (5)  
 (1) , (4) (11)  
 , (4) (11)

(4) (11) , (4)  
 (11) 가 , (4)  
 (4) 가 .

가 , (4) 가 , (4)  
 , (4) .

1) , (4) (11) , (3)  
 (1) , (2) (1) (2) , (2)  
 (1) , (3) (1) (2) .

(1) (2) (3) , (100) ,  
 (11) (3) .

1) , (11) (12)가 , (3) (100) .  
 (11) (12) .

(12) (1) (2) , (3)  
 (12) (12) , (11) (12)  
 (12) , (100) (3)

(11) , (5B) , (5B)  
 (5A) (5A) , (5A) (10)가 가 , ,  
 (5A) 가 .

, (10)가 , (5B) , (5A) 가 (5B)  
 가 , (5B) (5A) , (10) , (5A,  
 5B) , (5B) (5A) .

, (11) , (3)  
 , (1) (rubbing treatment) , (11)  
 가 , (1) (4) (11)  
 (7)( 18 ) , (3)  
 , (7) 가 .

, (11) (1) , (11)  
 (7) , (11) (11)  
 (3)  
 (10) , (11) ,

, (10) (5A, 5B) 가 , (10) (2)  
 (3) , (10)  
 , (3) 가 , (10)가 ,  
 가 , (10)  
 $\mu\text{m}$  , ,  
 (10) .

, 21 22 (1) (30)  
 21 22 , 18 . 22 (30)  
 , 21 22 XXI - XXI , 21 22  
 , 22 (51), (36), (52),  
 (35), (34), (40), 1 (42), (35CH, 34CH, 40CH, 42CH)  
 , 21 , 31 ,  
 32 (31) (n ), 33 ,  
 34 n (32) , 35 n (32)  
 , ,  
 , , 2  
 , .

21 , 36 , 37 ,  
 38 , 39 (38)  
 (31) (36)  
 (40) , (38) (30) 2

1, 2, 42, 1, 1, (42)  
(TiW)

22, 51, (51), 22, X, Y  
(30), 가, (51), (36), 2  
(52), Y, X, (5), 가  
(52), 1, (42), (TiW)  
(52)

(38), 1, (41), (35CH), 1, (42)  
(35), (51), 가, (30)가, 가  
(n), (32), (34), (34CH), 1, (42)  
(40CH), (40), 21  
(42CH), (5), (42CH), (39)  
(39), (39), (39)  
(39), (42CH), (42CH), 가  
(42CH), 가

2, (43), 1, (42), 2, (44), 2, (43),  
(43A), (43A), (43B), 2  
(43A) SOG(Spin On Glass), (43B) 가 TEOS (Tetraethylorthos  
ilicate) CVD SiO<sub>2</sub>, 2, (43), (31), CM  
P( )  
1, (44), 1, (42), (TiW), (43), 1, (44)

1, (44), (1), 21, (42CH)  
(44), 3, (45), 가, TEOS(Tetraethylorthosilicate)  
CVD, 3, (45), 2, (46), 2, (46)  
1, (42), (TiW), (42CH), 2, (46)  
(42CH), 1, (42), (42CH), 1, (4  
4), 2, (46)

1, (44), 2, (46), ( ) 3, (45)  
(44), 1, (44), 2, (46)  
(45), 3, (45), 가, 3  
(45), 150nm, 450nm가, 300nm

23, (1), (2), (1)  
(11), (3), (11), (1), (2)

가 . (12) (1) (2) (11) , (12)  
(1) (2) (100)

, 24 , (100) (80)  
(13) (80)  
(2) (5) , (81) . ,  
(80) , (1) (2)

, (1)  
(5) (1)  
(2) (80) (82)가 ,  
(80) (5) , (100) (2) (1)  
(2) , 가 (1)  
(80) (5) (82)

25 26 (200) 25 (200)  
, 26 (200)

25 , (80) (100) , (461)  
(462) (461) , (462) (100)  
, (100) (462) 463 ,  
(462)

26 , (80) (463) (462) , (463)  
, 465 (200)  
, 466 (200)

, , 가 가 .

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 6 , 1 .  
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 10.  
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OR

0      N

 $2^N$  $2^N$ 

가

가

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16.

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19.

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0      N

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 $2^N$ 

21.

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2 ,

1 2

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N

가

N

N

N

2

OR

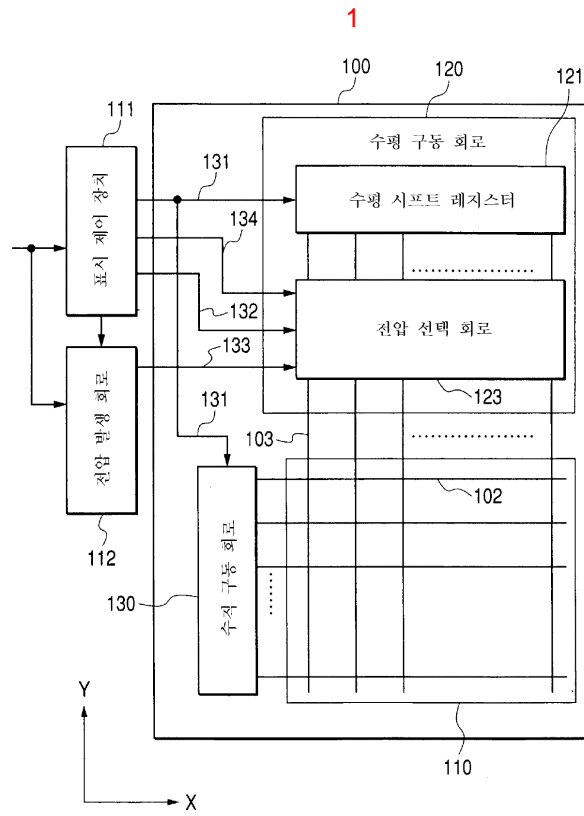
0      N

2

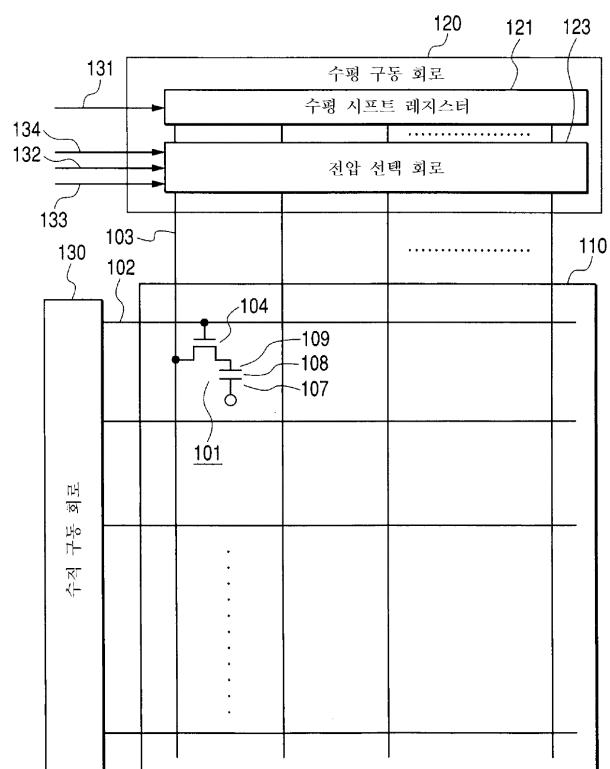
N

2<sup>N</sup>

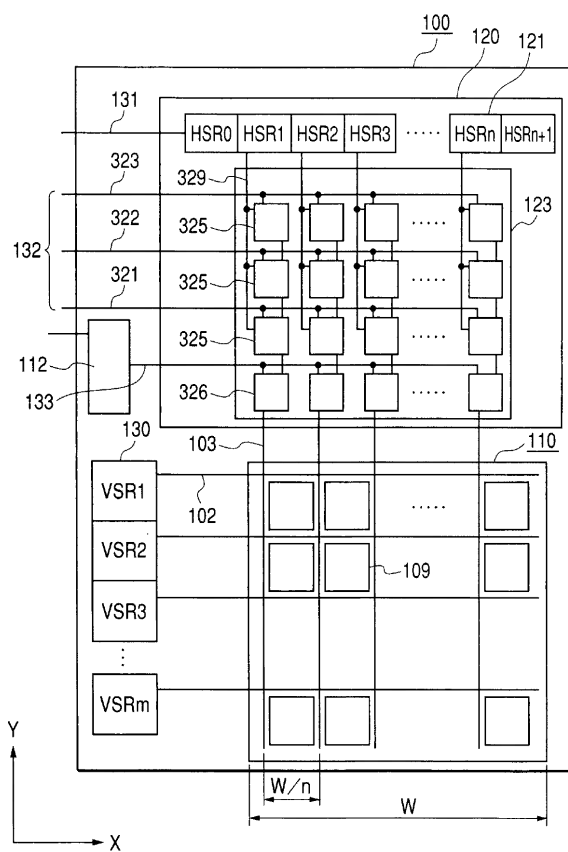
가  
가



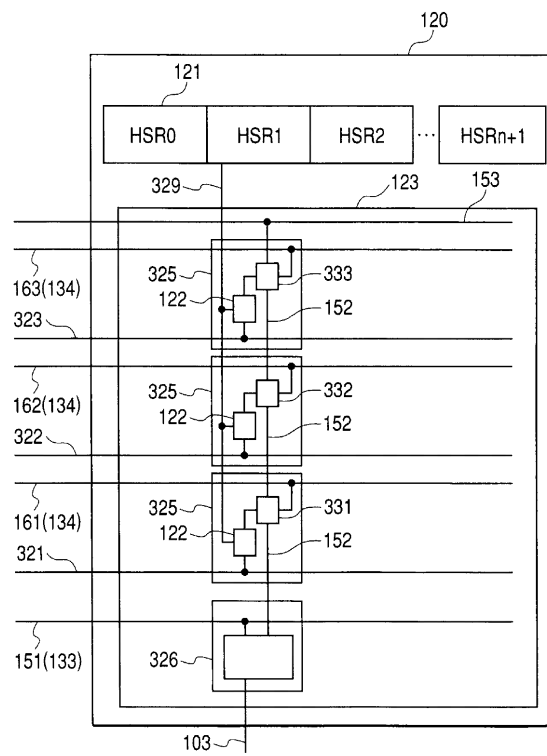
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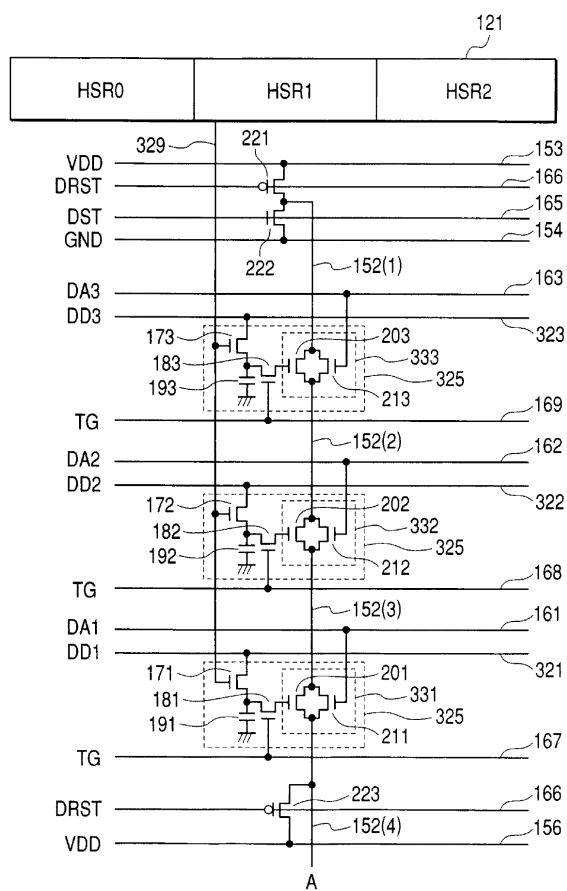
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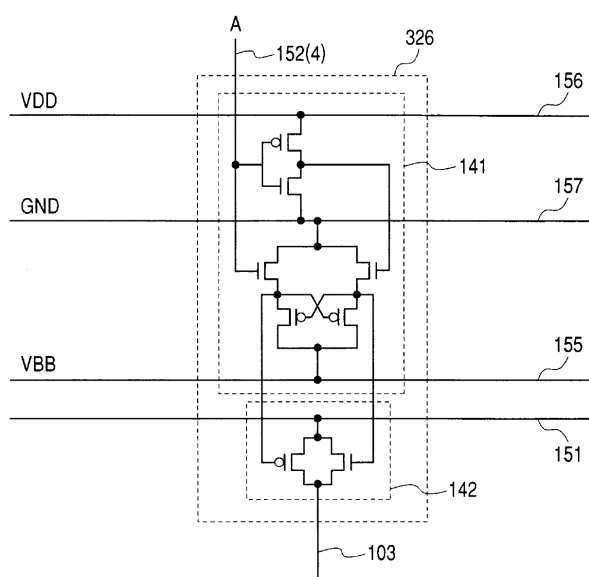


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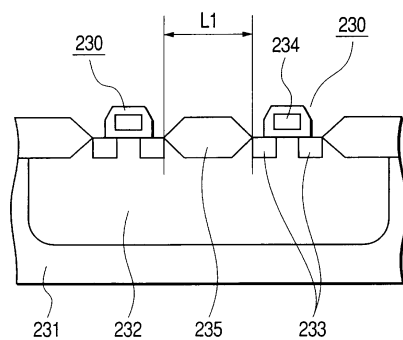


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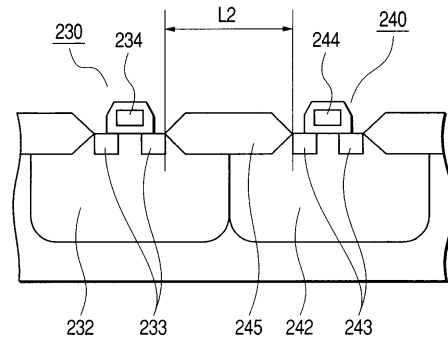
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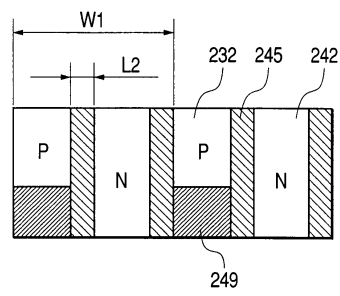


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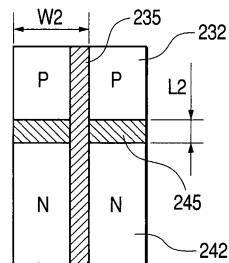
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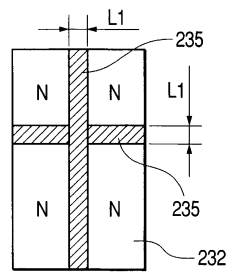
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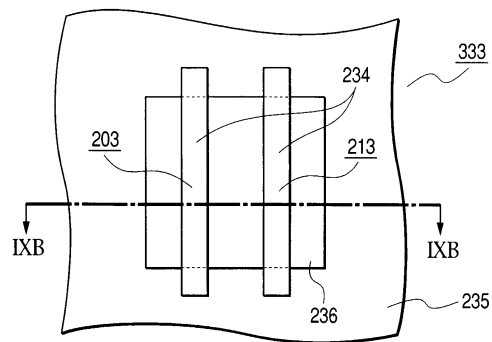
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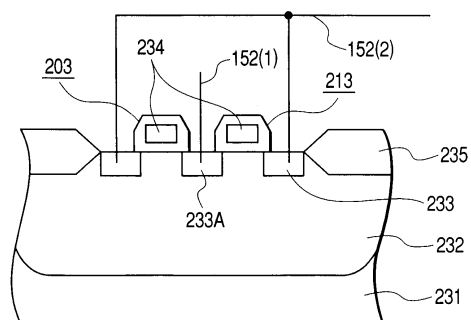
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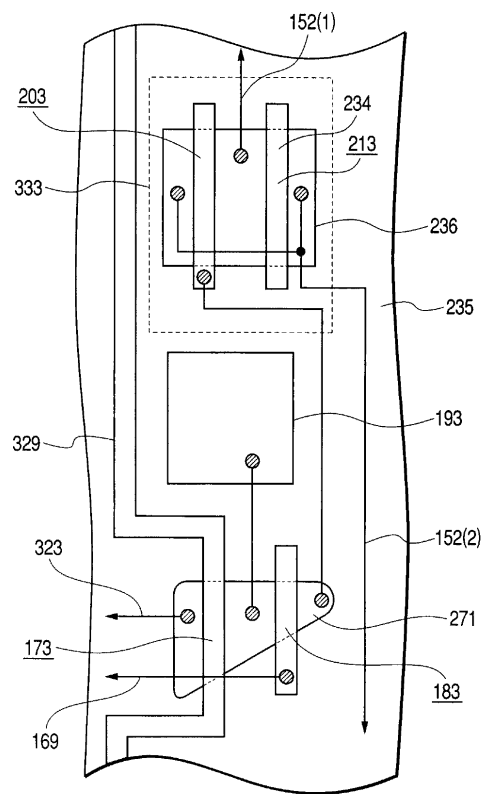
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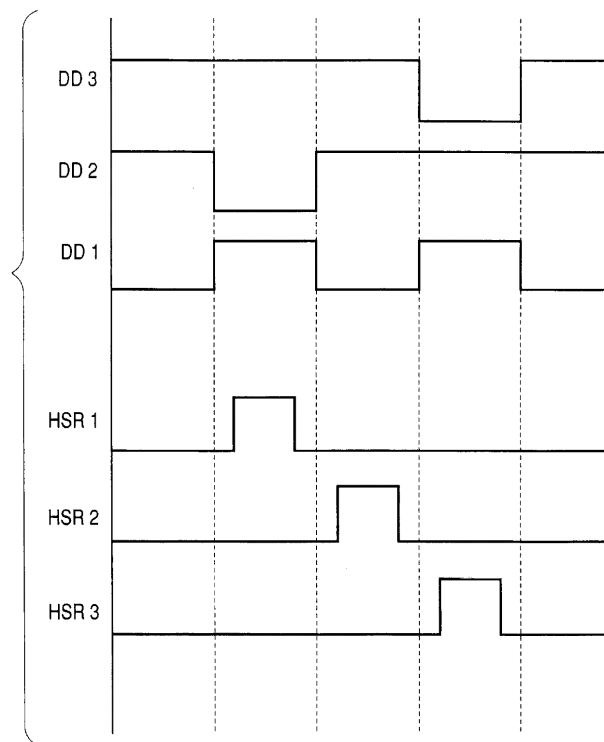
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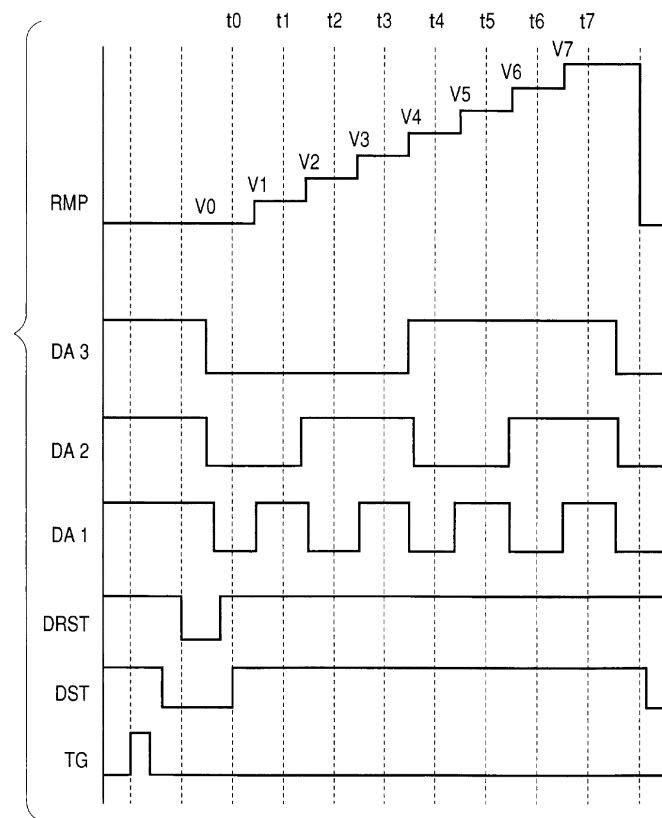
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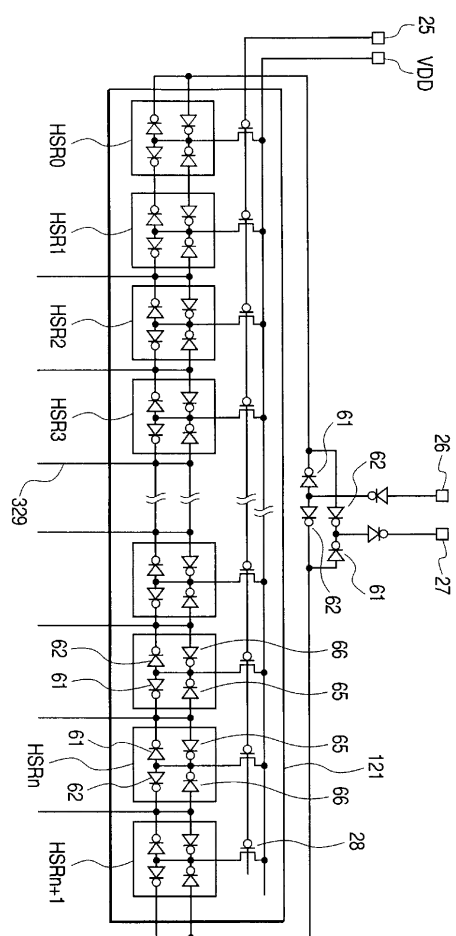
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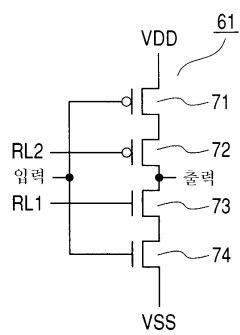
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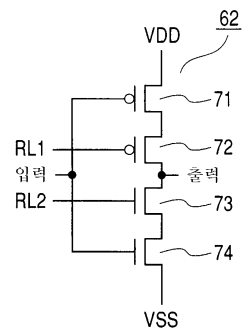
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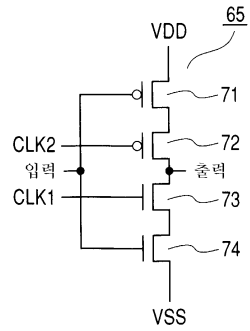
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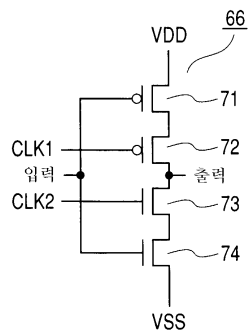
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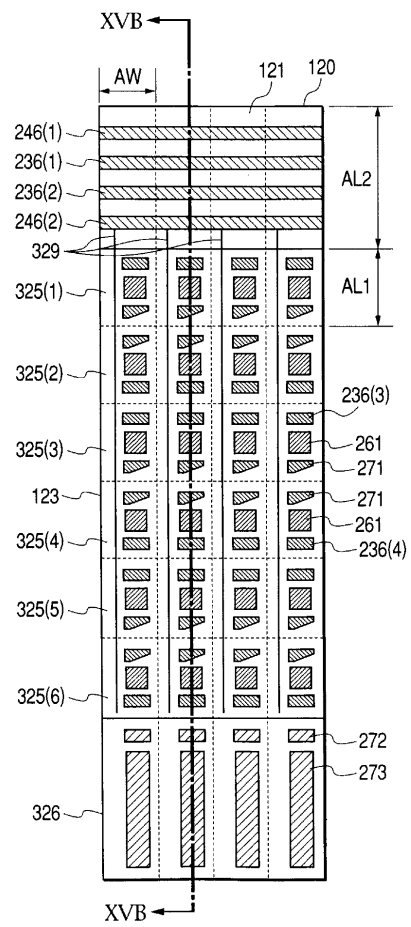


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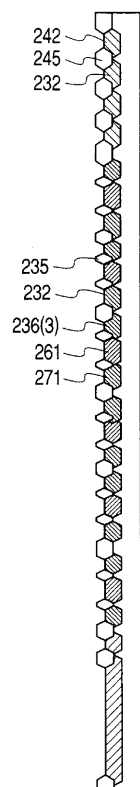




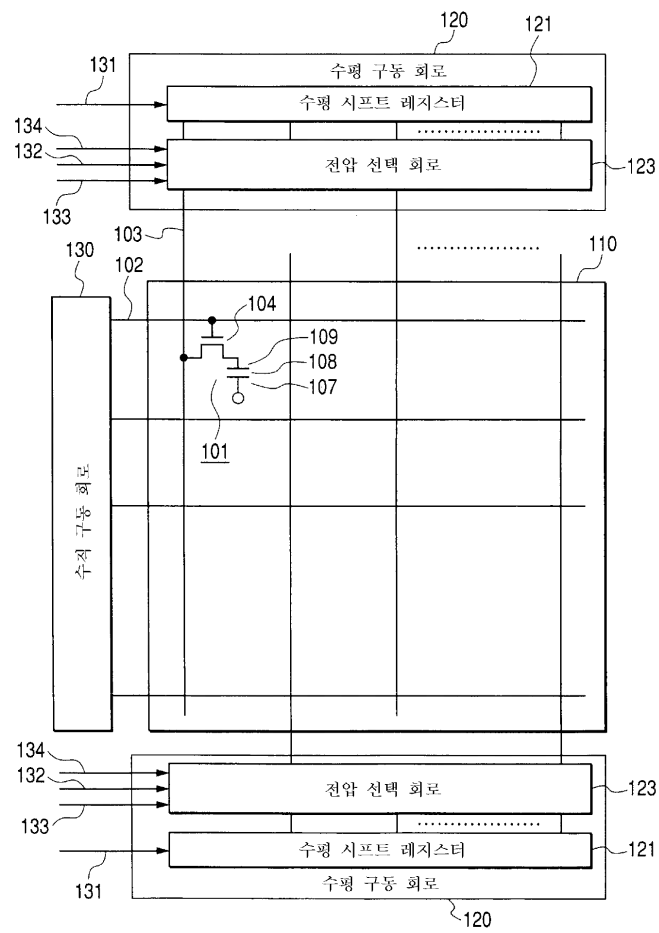
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15b

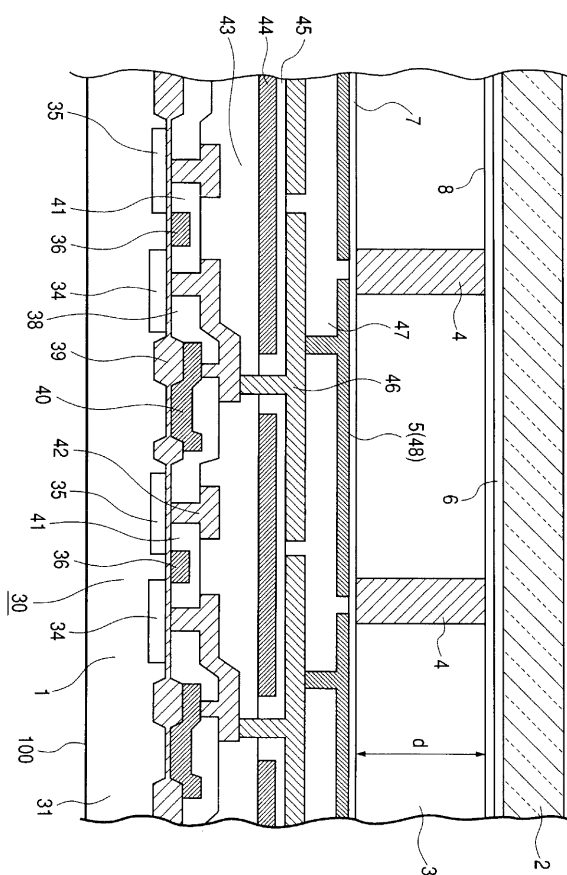


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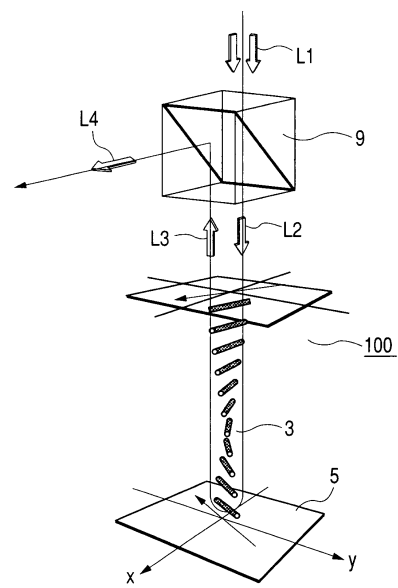




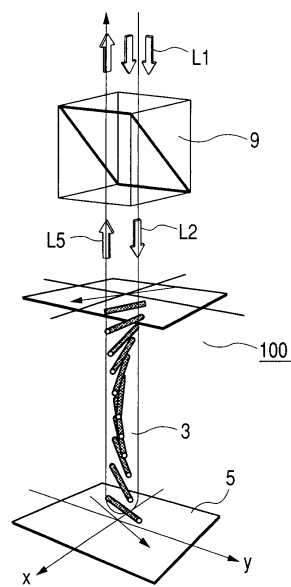
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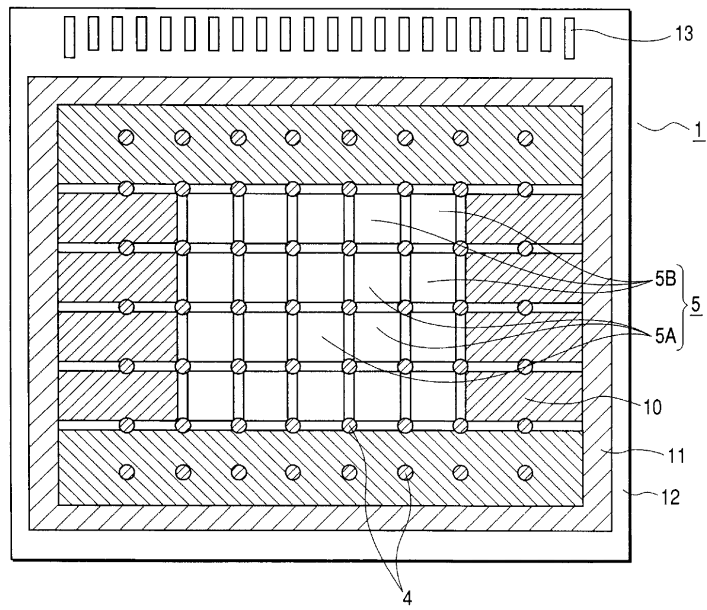
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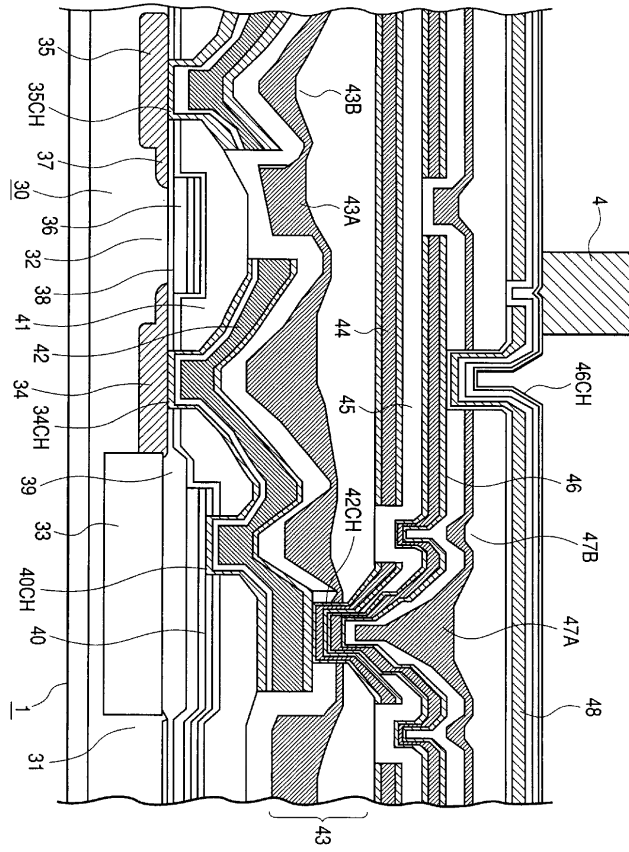
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20

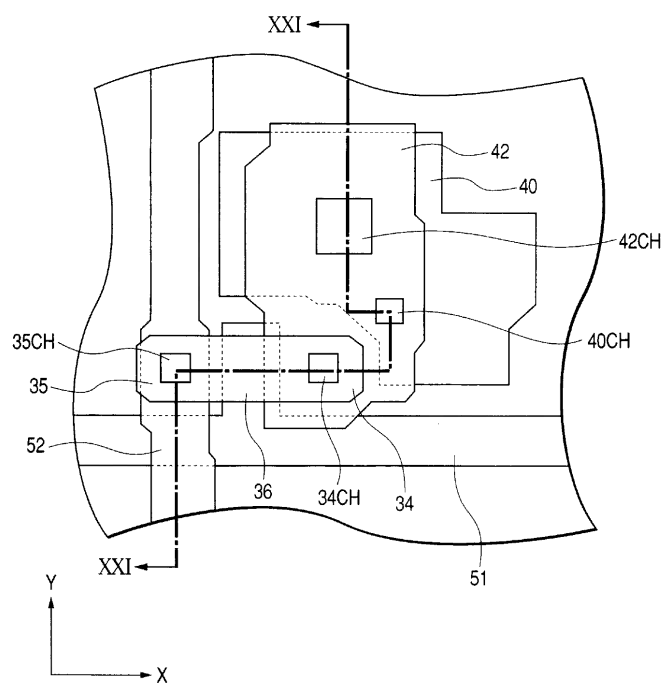


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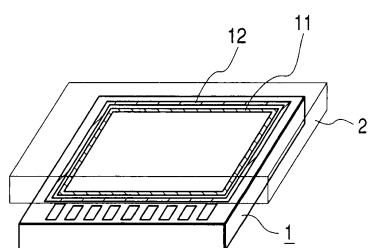




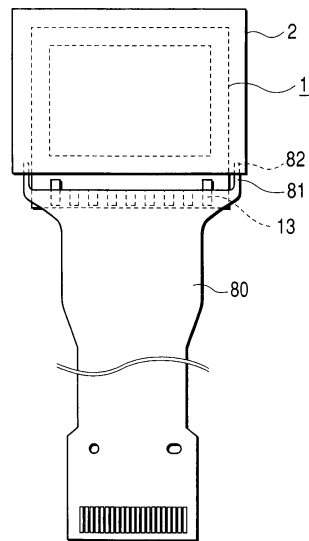
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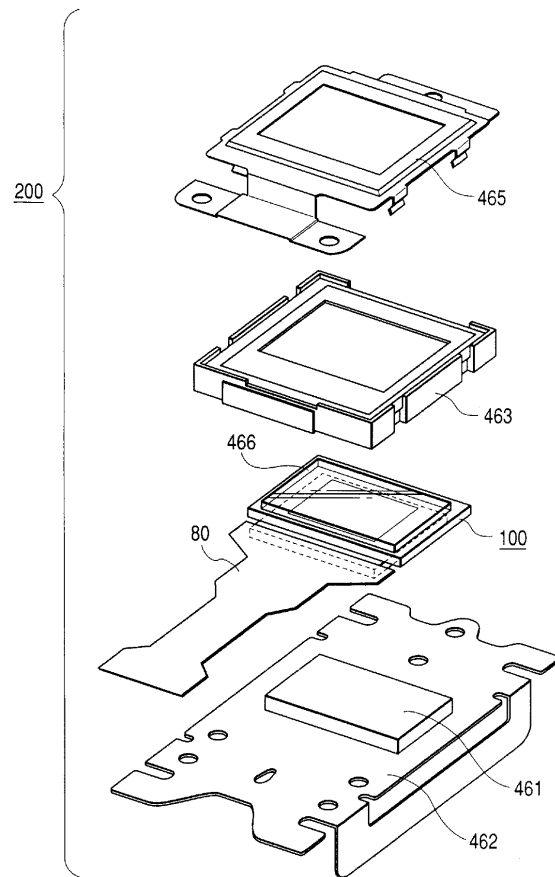
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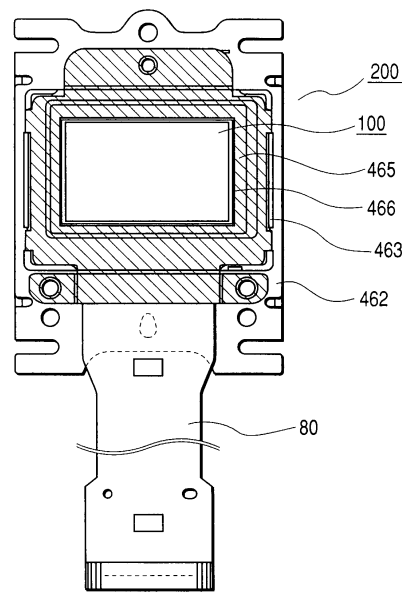
24



25



26



专利名称(译)	一种具有灰度电压选择电路的液晶显示装置		
公开(公告)号	<a href="#">KR1020020071457A</a>	公开(公告)日	2002-09-12
申请号	KR1020020011276	申请日	2002-03-04
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA 日立器件工程株式会社		
申请(专利权)人(译)	株式会社日立制作所 地伤装置工程可否让这个夏		
当前申请(专利权)人(译)	株式会社日立制作所 地伤装置工程可否让这个夏		
[标]发明人	ISAMI HIRONOBU 이사미히로노부 TAKEMOTO IWAO 다케모또이와오 MIYAZAWA TOSHIO 미야자와도시오 MATSUMOTO KATSUMI 마쯔모또가쯔미		
发明人	이사미히로노부 다케모또이와오 미야자와도시오 마쯔모또가쯔미		
IPC分类号	G09G3/36 G09G3/20 G02F1/133		
CPC分类号	G09G2310/0259 G09G2310/027 G09G3/3688 G09G2300/0408 G09G3/2011 G09G2320/0233 G09G3/3611 G09G2300/0426 G09G2310/0283 G09G2310/0232		
代理人(译)	CHANG, SOO KIL		
优先权	2001059394 2001-03-05 JP		
其他公开文献	KR100478170B1		
外部链接	<a href="#">Espacenet</a>		

#### 摘要(译)

液晶显示器具有用于来自外部灰度电压的电压电平，该电路根据选择的时间基于显示数据周期性地改变。该电路包括多个计算电路的串联组合。与串联组合的图像信号线中的一个相关的是像素。它分别与指示数据线的各个灰度电压N相关，其中多个时间控制信号线提供时间控制信号的同步和变化。多个系列组合每个计算电路提供显示数据。它安装在N的指示数据线中的计算电路相邻的指示数据线之间。时间控制信号唯一地确定灰度电压的一个电平。液晶显示器，电压选择电路，灰度电压，计算电路，时间控制信号线，指示数据线。

