

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

(51) . Int. Cl. 7 (11) 2002 - 0071457
G02F 1/133 (43) 2002 09 12

(21) 10 - 2002 - 0011276
(22) 2002 03 04

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

(71)	가	가	가	4	6
	가	가	가		
	3681				

(72) 1 5 - 1 가 가

1 5 - 1 가 가

1 5 - 1 가 가

3681 가 가

(74)

1

(54)

N

N

2

5

, , , , ,

1

2

가

3

4

5

6

7a 7b 2

가

2

8a 8c 2

3가

9a
, 9b 9a IXB - IXB

2

10

11

12

,

13

14a 14d

4

15a

, 15b XVB - XVB

16

2

17

18

19a 19b

20

21

20 XXI - XXI

22

23

24

25

26

<

>

10 :

11 :

12 :

13 :

25 :

26 :

27 :

28 :

30 :

34 :

35 :

36 :

38 :

39 :

61, 62, 65, 66 :

100 :

102 :

103 :

104 :

107 :

108 :

109 :

110 :

111 :

112 :

120 :

121 :

122 :

123 :

130 :

131 :

132 :

133 :

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 :

2

4

가

5 - 35200

가

D/A

가

가 가 ,

가

2000 - 1

94330

4330 , 가 64 256 가 , , 2000 - 19

, 64

가

가 가 , ,

가

, 1 , 2 , 1 2 , , 1

N

N

2

2^N, 2^N

0 N ,

가

$$, \quad 1 \quad , \quad 2 \quad , \quad 1 \quad \quad \quad 2 \quad \quad \quad , \quad 1$$

, 2^N 가 가 , .

$$1, \quad , \quad (\quad) (100), \quad (111), \quad (112)$$

(100) , (110), (110), (120) (130) . , (111) (120), (130) (100) (100) 가 .

$$\begin{aligned}
 & \quad \quad \quad (103), \quad \quad \quad (120) \quad \quad \quad (1) \\
 & \quad \quad \quad (110) \quad \quad \quad (110) \quad \quad \quad (1 \quad X \quad) \\
 & \quad \quad \quad (103) \quad \quad \quad (110) \quad \quad \quad (1 \quad X \quad) \\
 & \quad \quad \quad (102) \quad \quad \quad (130) \quad \quad \quad (102) \quad \quad \quad (110) \\
 & \quad \quad \quad (1 \quad Y \quad) \quad \quad \quad (102) \quad \quad \quad (110) \quad \quad \quad (110)
 \end{aligned}$$

$$(120) \quad (121) \quad (123) \quad . \quad (111) \\ (131) \quad (121) \quad (130) \quad , \quad ($$

, , 가 ,
 , 3 2 (103) (123) 3 (123) ,
 2 (325) (103) (326) (325) (123) (3
 26) , ,
 (120) , (111) () (321 323) ,
 (321 323) , 1 2 (321~323) 1 2 (132)
 1 , (111) (134) (123)
 , 3

 (321 323) 가 , (121) (121) 가
 (123) , (329) (329) (329)
 HSR1 HSRn HSR1 HSRn (123) HSR1
 HSRn (121) (131) (131)
)

 (103) (321 323) , , (325)
 , , HSR0 HSRn+1

 3 , (100) (112) 가 , (1
 12) (133) (326) (103) (110) , (103)
 (109) (n) (110) , , (110) , , (110)
 , , (110) , , , , 2
 (103) (X) n , , (110) , , (110) , , (110)
 , , (103) , , , , W/n , , , , W/n
 , , (325) , , (326) , , (326) , , W/n

 (103) , , (103) , , (103)
 (325) , , (326) 가 , , (325) , , (326)
 (103) , , (325) , , (326)

(325) 가 . , 가 . ,
 (321 323) , (325) , (326) , (325) .
 (325) 3 , (321 323) 8 , (103) (111) , (321 323) 3
 . , 가 3 . ,
 (325) , (321 323) , (326) , (326) .
 (325) ,
 2 (103) , (321 323) , , (110) , (109) .
 25) , 3 (103) , (325) , (325) , (325) 3 (321 323) , (321~323) (103)
 . , , ,
 , , (321 323) , , , ,
 (325) , , , , , ,
 4 (123) , , , , 4 , , (123) .
 (123) , , , , , ,
 25) 가 , , (123) , , (321 323) , , (161 163) , (3) .
 (161 163) , 1 2 , , (134) , , (111) (4) .
 4 , 122 , , (321 323) , , (121) , , (329) .
 33 , , , , (122) , , (331 332, 3) , (16) .
 1 163) , , , , (152) , , (152) , , (331 333) , , (326) .
 33) , , , , (152) , , (152) , , (326) .
 52) , , , , (331 333) , , (151) , , (326) .
 (331 333) 가 , , , , (151) 1 3 , , (133) .
 103) , , , , (151) 4 , , 1

가

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

$$3) \quad , \quad 4 \quad (152) \quad , \quad (331 \quad 333) \quad (326) \quad , \quad (326) \text{가} \quad (15)$$

$$, 3 \quad (331 \quad 333) \quad (152) \quad (331 \quad 333) \quad 2$$

() (331~333)가 , (153) (326)

() (331 333) 가 , (326) (153)

(326) 가 2

(331 333) . , 2^m , m (331 333) 가 . (325) , m (3)

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)
(331 333)가 . 3 (331 333)가 ON , 가 ,

가 OFF 가 ON (1)
3) 가, m , 2^m

가) 2^m, 2^m, 2^m, (161~163)
 (161 163), (331~333), 2^m, (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) .

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

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

5)

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

7a , 232 p , (231) , p (232)
 / n (233) 234
 , p (232) (230) LOCOS (Local Oxidation of Silicon)
 (235) (235) (235)
 , 7a , L1 , n (230)
 (235) (235)

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

$$8a \quad 8c \quad , \quad . \quad . \quad . \quad . \quad 8a \quad 8c \quad 3$$

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

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

8c 2 , 2
 가 . (235) L1 , 8b
 가 L2 . L1 L2 , μm ,
 3 (325) , ,
 가 3 .
 가 8 16 가 , ,
 .

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

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

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

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

(325) 가 . , (201 203)
(211 213) , , 가

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

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

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

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

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) .

, (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) . , (201 203)
 가 1 가 , (191 193) (201 203) 1
 , DD1 DD3가 (1, 0, 1) , (201 203) ,
 (202) .

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

2) (152) 가 , (142) 가 , (151) (103) (151) RMP 가 . , 12 RMP (103) 12 RMP .

		(62)	, p	(72)	1	RL1	, n	(73)
2		RL2			(62)	2	RL2↑ H	
	, 1			RL1	H		.	
14c		(65)		.		(65)	,	CLK1 H
	CLK2↑ L			,		CLK1	L	CLK
2↑ H			
14d		(66)		.		(66)	,	CLK2↑ H
1 H	CLK1	L		,		CLK2↑ L	,	CLK
LK2			.	13	,		.	CLK1, C
	,			(65, 66)		CLK1, CLK2	.	
15a	15b	(120)					15a	
(120))		,		,	15a	15b	4
AW	,		(120)		.	(103)		(103)(120)
				.	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 p 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 ((15a 15b ,) , (121)
, (329) (325(1) 325(6)) , ,).
325(6)) , , 가 가 , (325(1), 325(2), ...)

가 가 , (329)

(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
(3, ...)	,	(235)	,	(325)
				AL1

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

, 18 , . 18

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

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

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 .

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

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

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

, 19a 19b , (Single - Polarized Twisted Nematic, SPTN)

9 () L1 , L2

19a 19b (9) P (100)
· (9) S (100)

$$(2) \quad (3) \quad , \quad (7, 8) \quad 90^\circ \quad (1)$$

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

)

가 (暗) ()

가

$$(2) \quad \begin{matrix} n \cdot d \\ (1) \end{matrix} \quad \begin{matrix} \cdot \\ (1) \end{matrix} \quad , \quad n \quad , \quad d \quad (4)$$

$\pm 0.05\mu\text{m}$

2 μ m . . . , n , d 5 6 μ m , d

(1)

20 (1) (5) (4) (4)가 (picture element) 20
 (5) (picture element) 5A
 , 5 × 4 , / 5A
 / 5B

$$20, 5 \times 4 \quad \text{가} \quad (10)\text{가} \quad , \quad (10) \quad (4) \quad \text{가} \\ (11) \quad , \quad (1) \quad (11) \quad (12)\text{가} \\ 13 \quad (100) \quad .$$

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

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

$$\begin{aligned}
& , \quad (11) \quad (1) \quad , \quad (11) \\
(7) \quad , \quad (11) \quad & , \quad (3) \\
& , \quad (11) \quad , \\
(10) \quad & .
\end{aligned}$$

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

1 , 42 1 . 1 (42)
1 . 1 , (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) (42CH) (42CH) (39)
(39) (42CH) , (42CH) 가 .

2 (43) , 1 (42) 2 (44)
 (43A) (43B) 2 (43B) 2
 (43A) SOG (Spin On Glass) , (43B) 가 TEOS (Tetraethylorthosilicate)
 CVD SiO₂ 2 (43) (31) , CM
 P() 2 (43) 1 (44)
 1 (44) 1 (42) (TiW)

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

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

$$23 \quad (1) \quad (2) \quad . \quad (1) \quad (2)$$

$$(11) \quad , \quad (3) \quad (11), \quad (1) \quad (2)$$

		(1)	(2)	(11)		(12)
가	.	(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)	,
		(2)	,	(1)	.	
	(80)	(5)	(82)		.	
25	26	(200)	.	25	(200)	
	,	26	(200)	.	.	
25	,	.	(80)	.	(100)	,
	(462)	.	(461)	,	(462)	(461)
	,	(100)	(462)	.	.	(100)
(462)	.	.		.	463	,
26	,		(80)	(463)	(462)	,
	.	465			(200)	(463)
	,		466			
	,			가	가	,
	,			.	.	,
	,			.	.	,

(57)

1.

1 ,

2 ,

1

2

,

1

,

,

,

N

,

N

,

,

p

,

,

,

N

N

,

N

,

2

,

2^N

,

0 N

,

,

2^N

,

,

,

2.

1

,

.

3.

1

,

1

.

4.

1

,

5.

1 , N
2

6.

2 N

1 ,

2 ,

1 2 ,

1 , ,

,

,

N

,

N

,

,

,

,

,

,

,

N

,

,

,

N

N

,

,
0 N ,
2^N
,

7.

6 ,

8.

6 , 1

9.

6 ,

10.

6 , N 2 N
가 .

11.

,
1 ,

2 ,

1 2 ,

1 ,

,
N ,

N

가

,

,

,

,

N

N

,

2

,

OR

,

0 N

,

 2^N

,

 2^N

,

가

가

12.

11

,

13.

11

,

1

14.

11

,

15.

11

,

N

2

N

16.

1

,

2

17.

6

,

2

18.

11

,

2

19.

1 ,

2 ,

1 2 ,

1 ,

,

N

,

N

,

,

,

,

,

, N

, N

N

N

,

0 N

,

2

2^N

,

20.

,

1 ,

2 ,

1 2 ,

1 , ,

,

,

N

,

,

N

,

,

,

,

,

,

N

2

,

,

,

N

N

,

,

0 N

N

2

2^N

21.

1 ,

2 ,

1 2 ,

1 ,

,

N

N

N

,

, N

N

2 ,

N

, OR

0 N

N

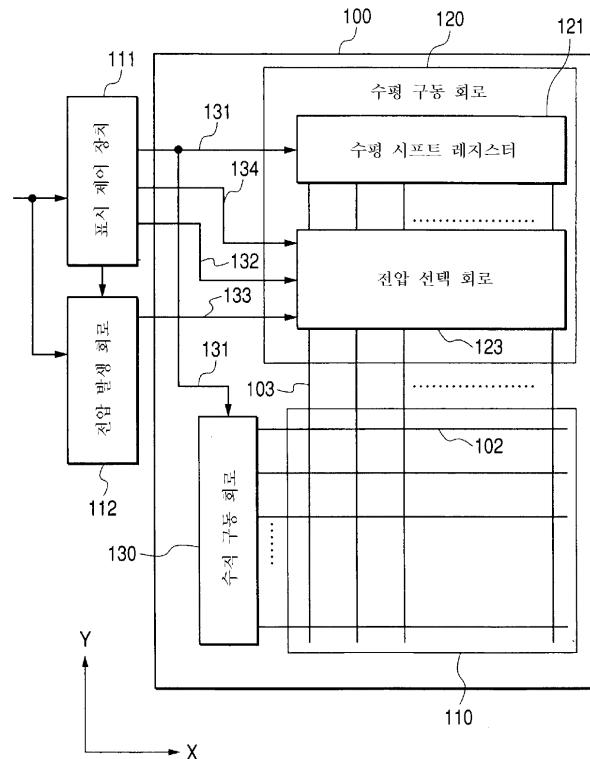
2

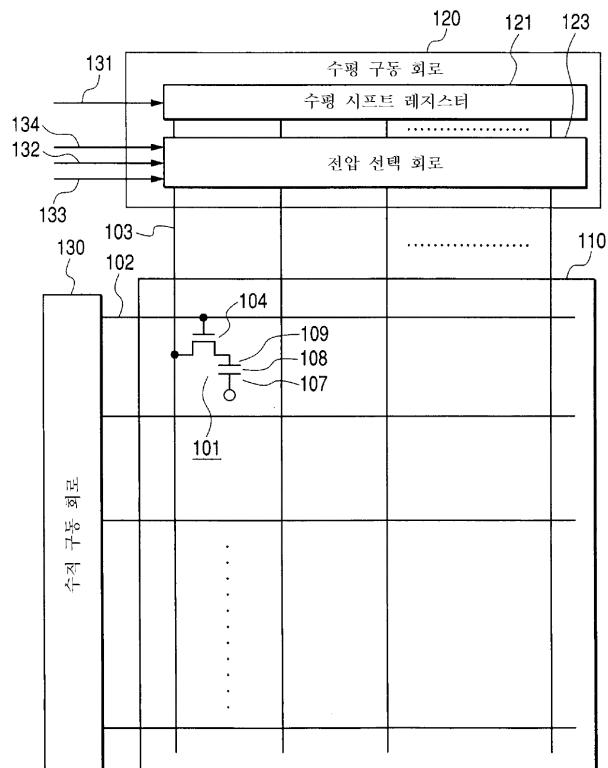
2^N

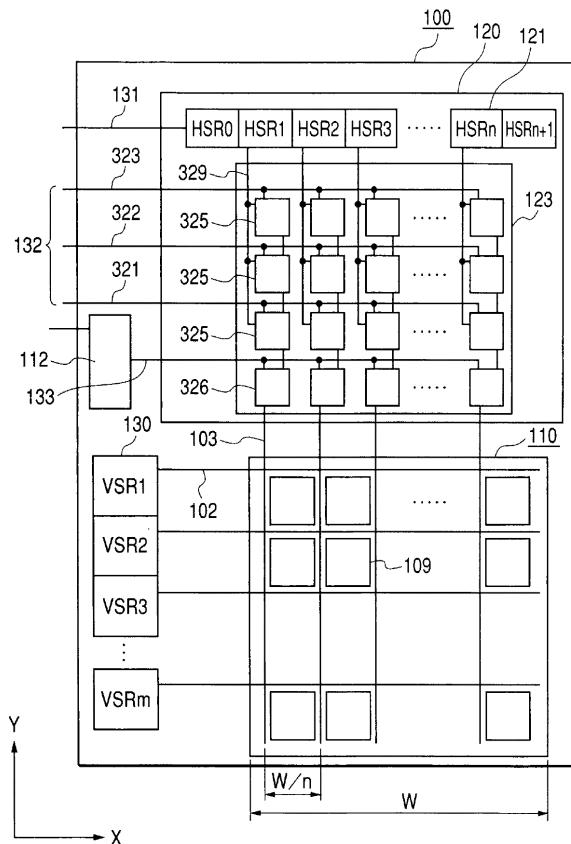
가

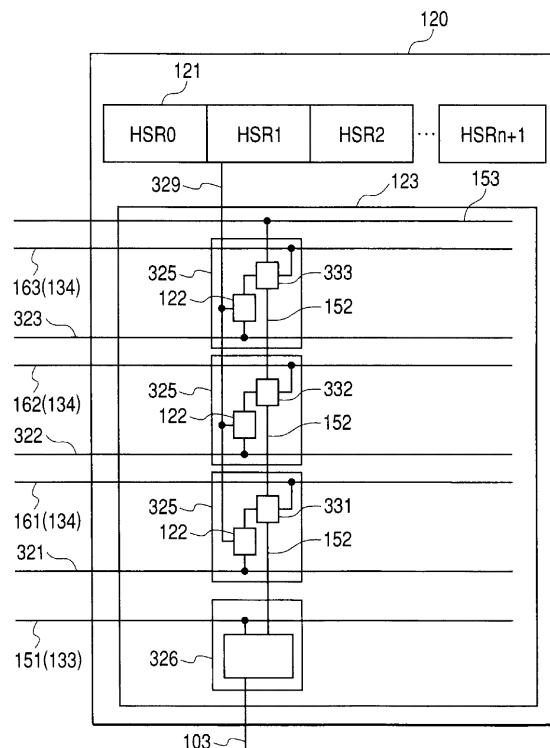
가

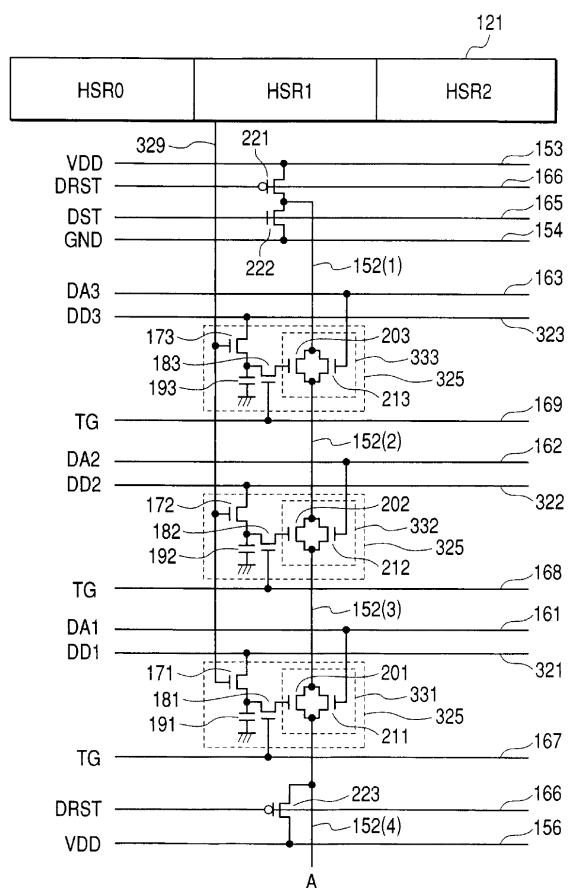
1



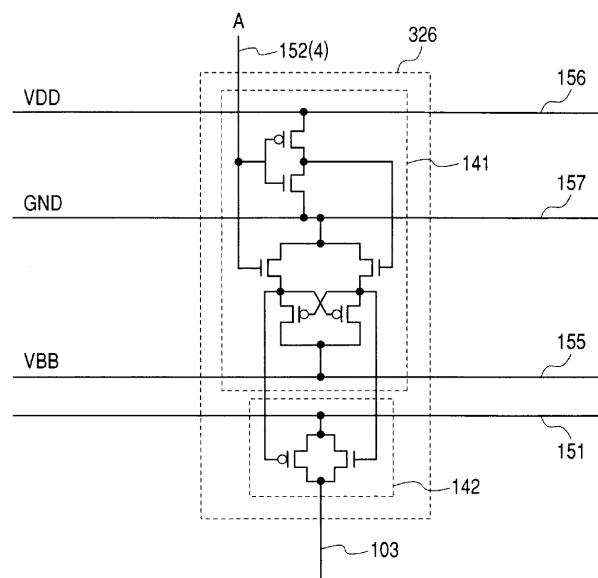






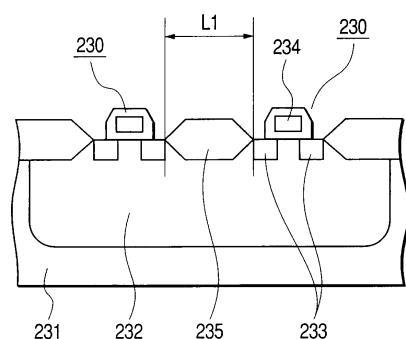


6



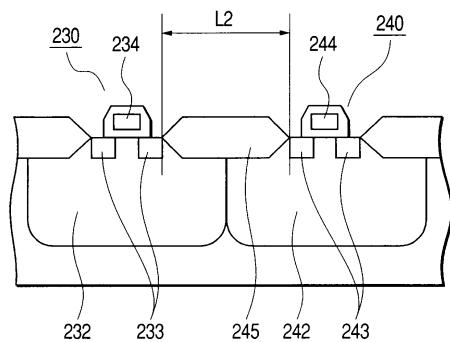
7a

(종래 기술)

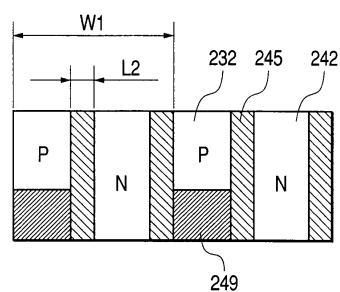


7b

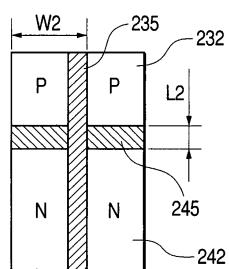
(종래 기술)



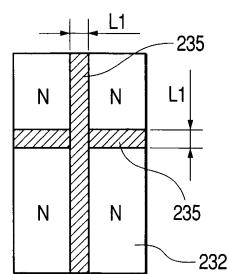
8a



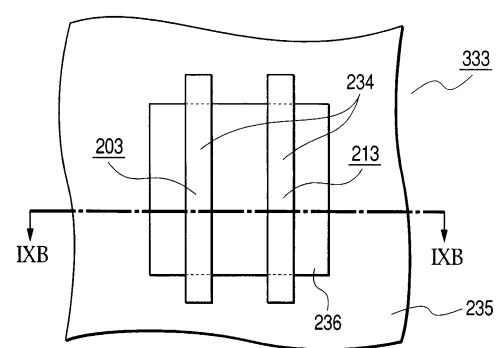
8b



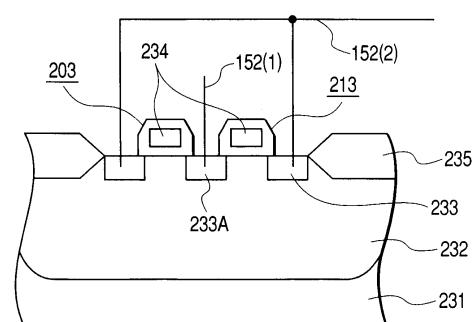
8c



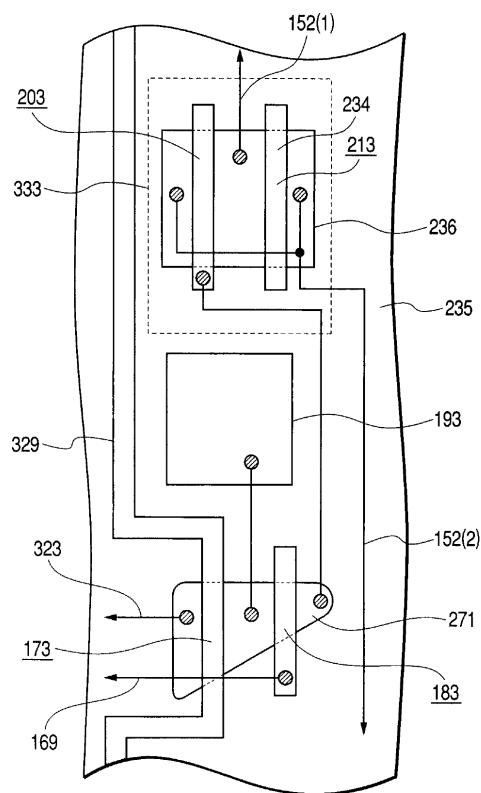
9a



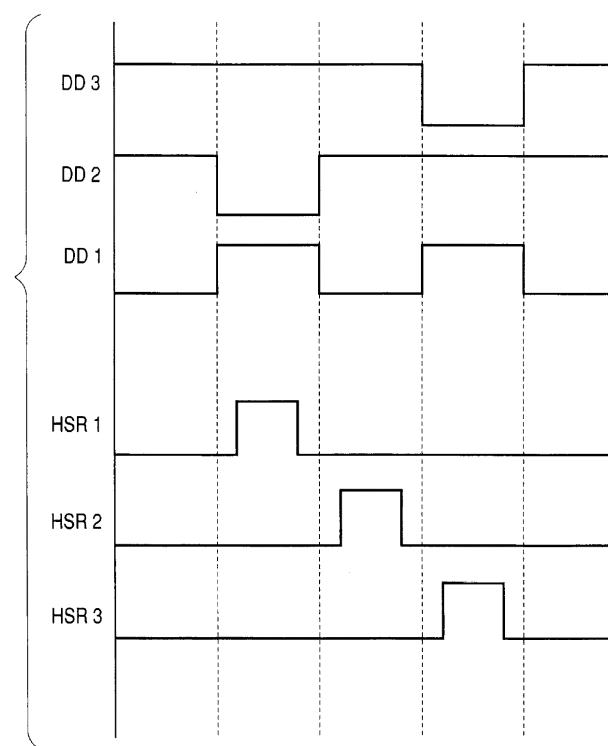
9b



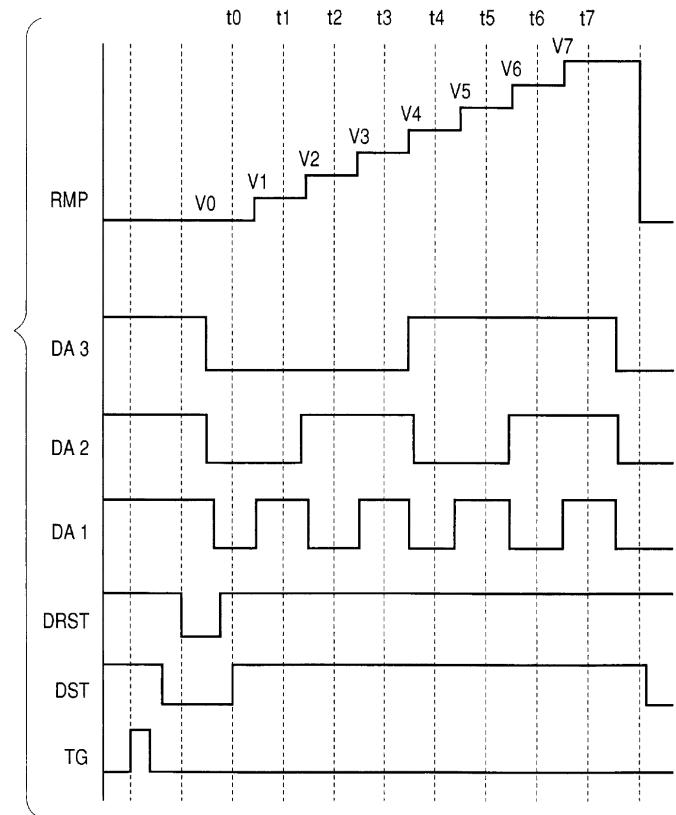
10



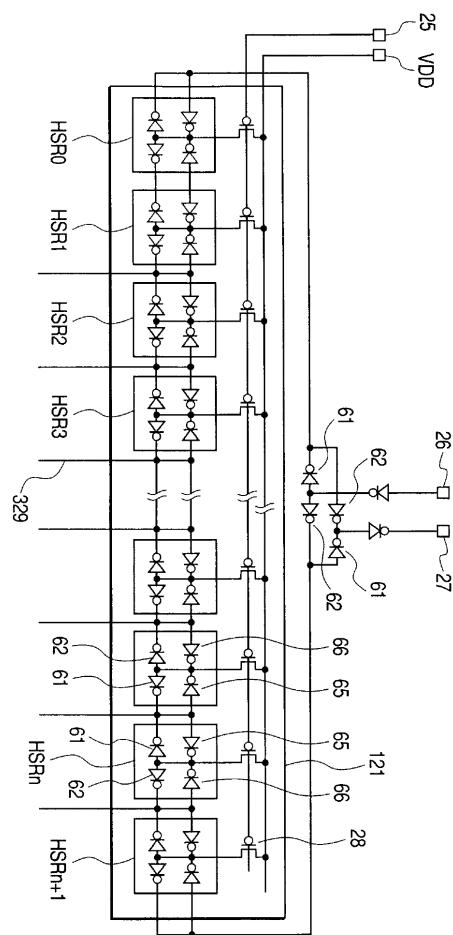
11



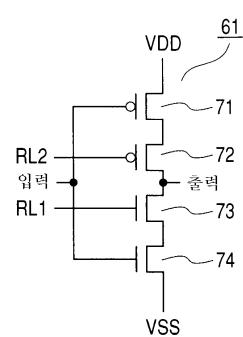
12



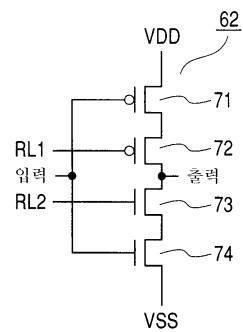
13



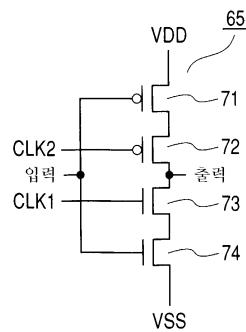
14a



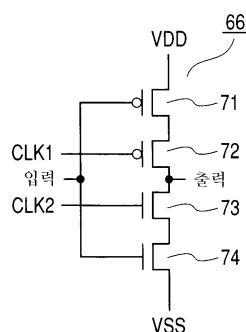
14b



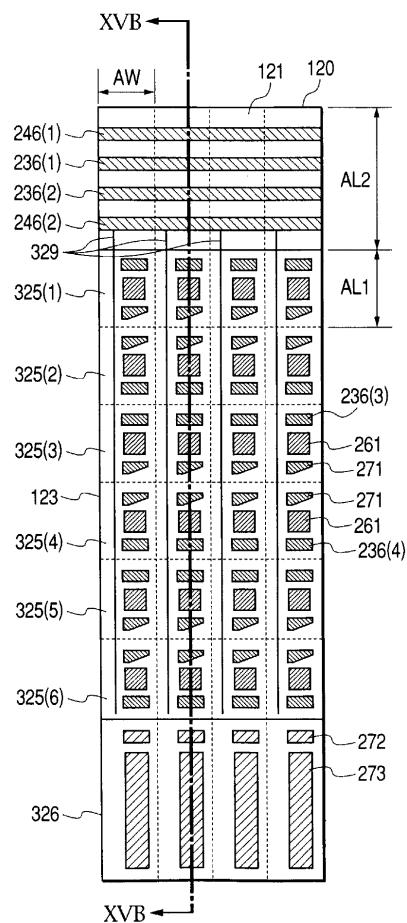
14c



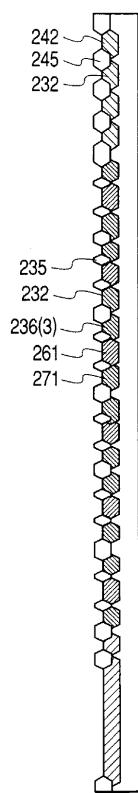
14d

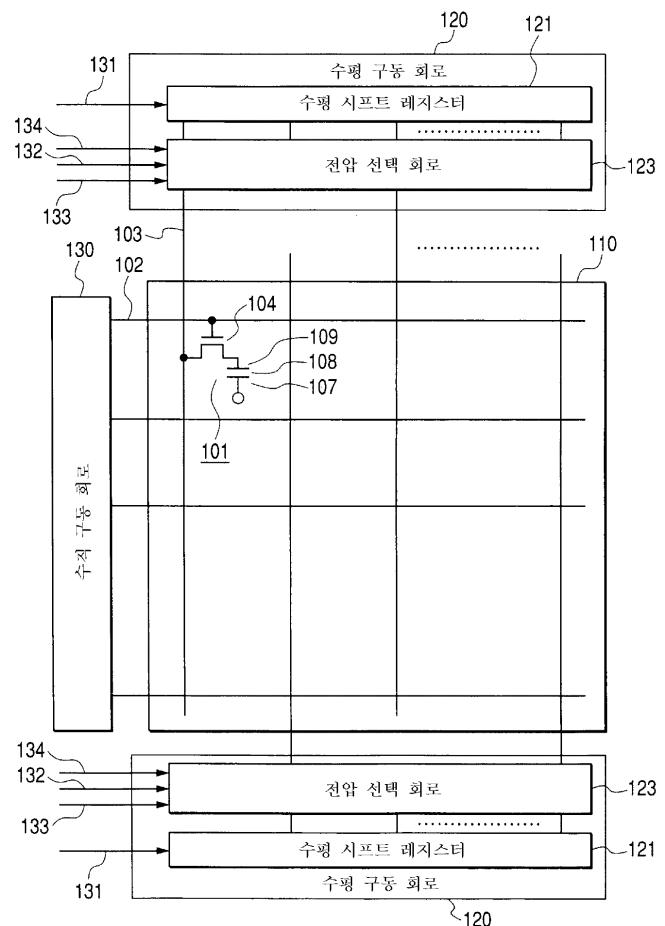


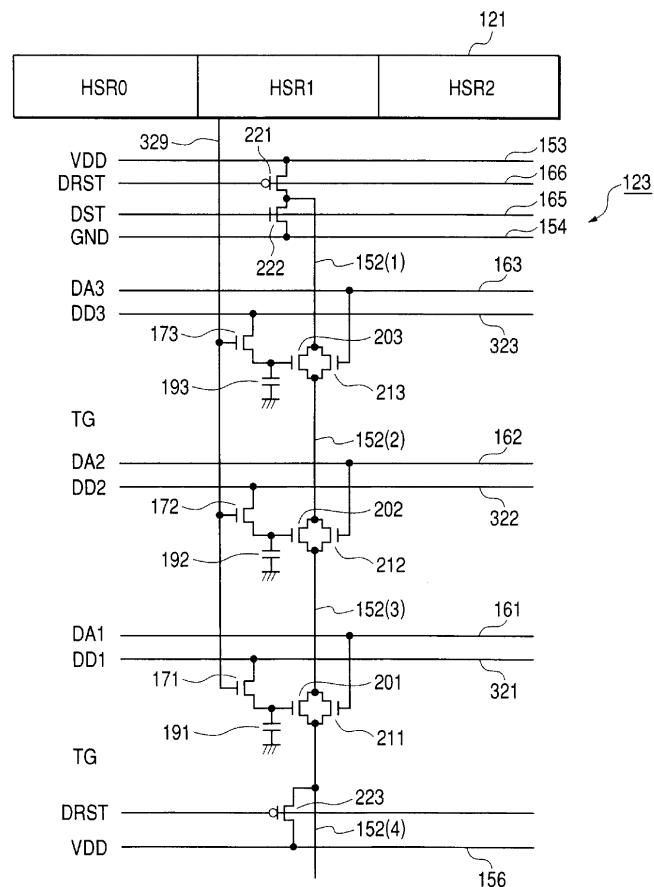
15a



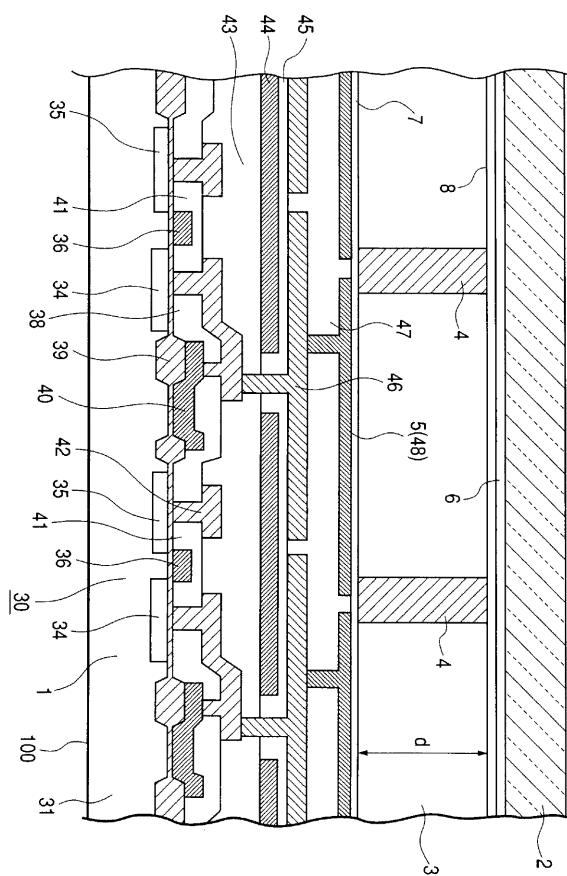
15b



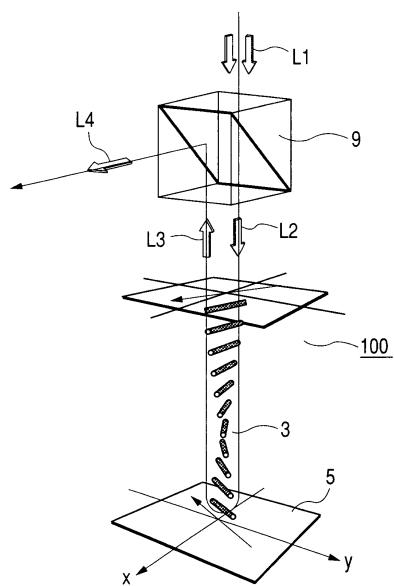




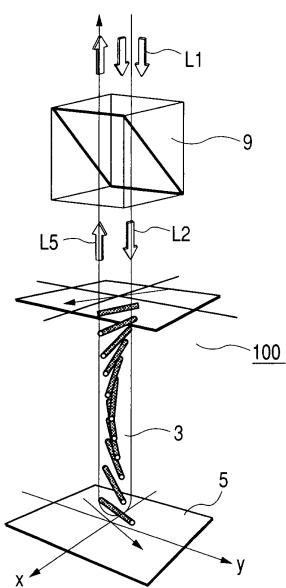
18

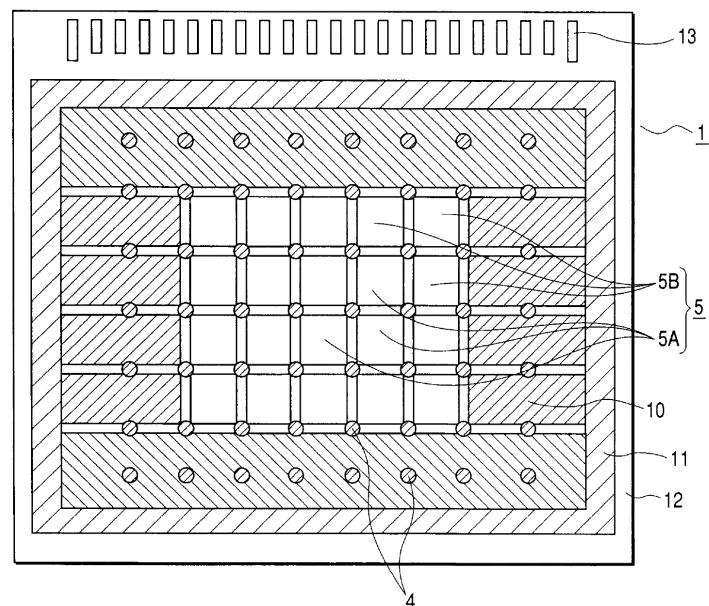


19a

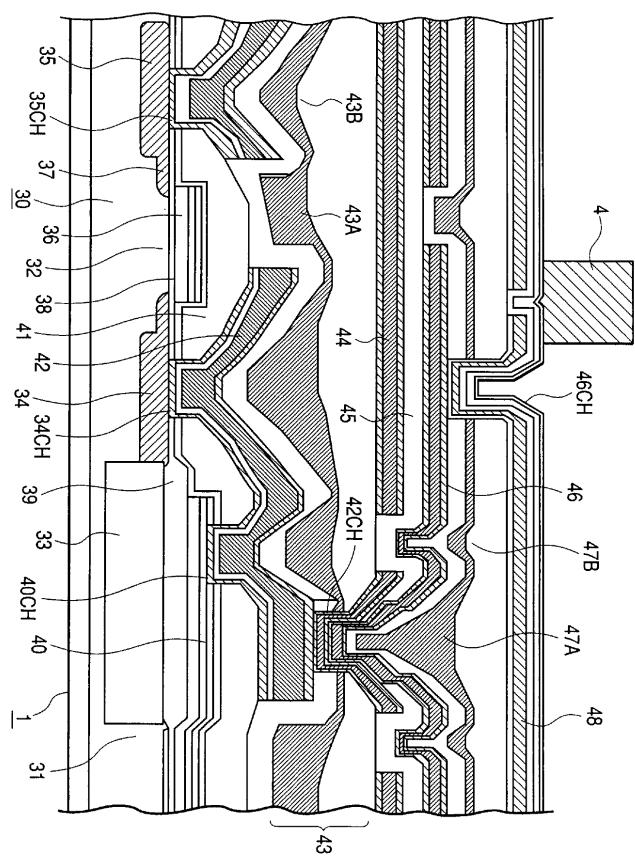


19b

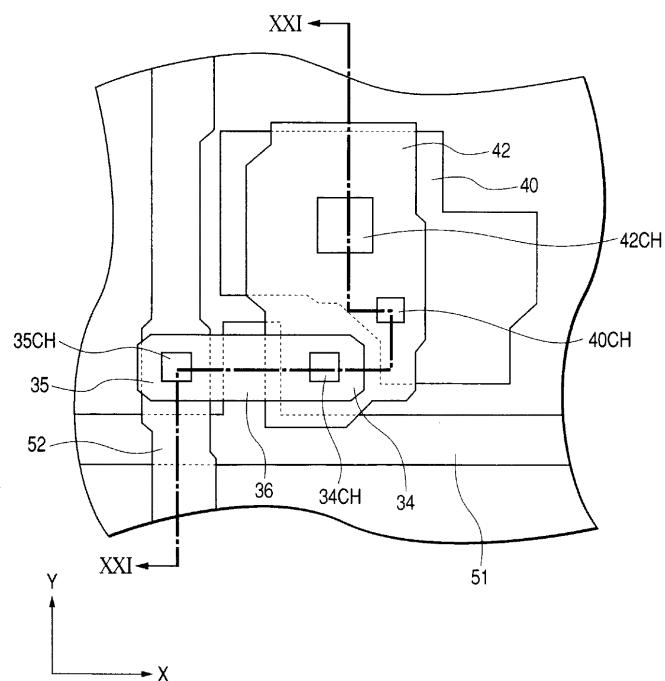




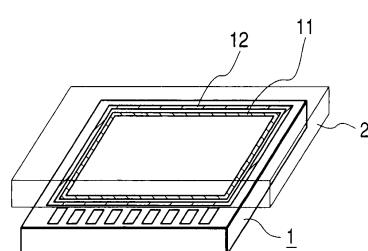
21



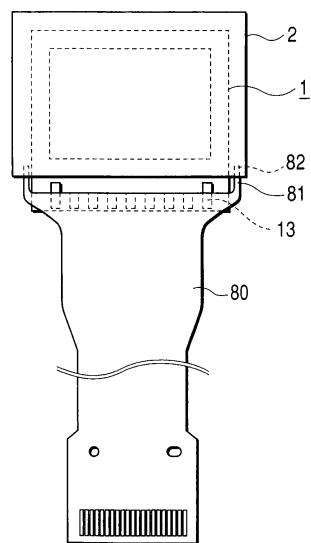
22



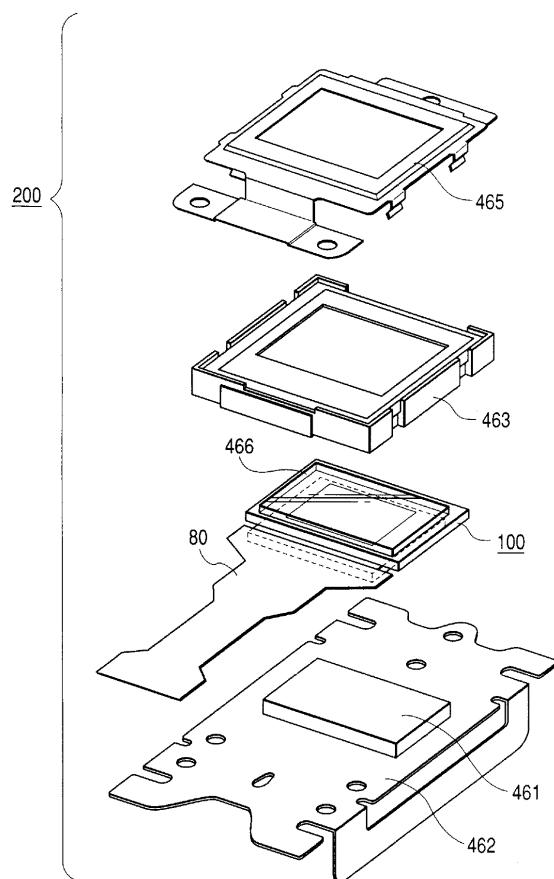
23



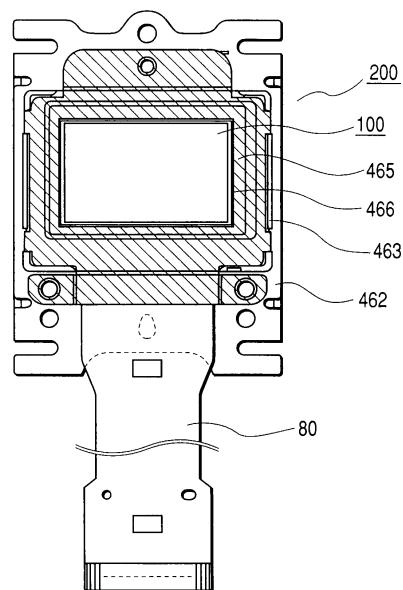
24



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	KR1020020071457A	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 다께모또이와오 MIYAZAWA TOSHIO 미야자와도시오 MATSUMOTO KATSUMI 마쓰모또가쓰미		
发明人	이사미히로노부 다께모또이와오 미야자와도시오 마쓰모또가쓰미		
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	Espacenet		

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的电路，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。

