

(19)
(12)(KR)
(A)(51) 。 Int. Cl. ⁷
G02F 1/1343(11)
(43)2001 - 0094942
2001 11 03(21) 10 - 2001 - 0008192
(22) 2001 02 19

(30) 2000 - 097820 2000 03 30 (JP)

(71) 가 가
가
가 4 6

(72) 3 - 17 - 1 - 304

6 - 20 - 3

3 - 17 - 1 - 504

1 - 19 - 2 - 103

가

1 - 6 - 13 - 101

(74)

(54)

IPS

, , , ,

, 60%

1

, ISP , , , ,

1 1

2 1

3 2

4 2

5 2

6 3

7 3

8 1

9 1

10 IPS

11

12 (a)

12 (b) 12 (a)

<

>

1, 15, 101, 115, 201, 215 :

2, 102, 202 : ()

3 : ()

4, 104, 204 :

5, 105, 205 : ()

6, 106, 206 : ()

7, 8, 107, 108, 207, 208 :

9, 11, 109, 111, 209, 211 :

10, 110, 210 : ()

12, 112, 212 :

13, 113, 213 :

14, 114, 214 :

16, 116, 216 :

17, 117, 217 :

18, 118, 218 : ()

19, 119, 219 :

20, 120, 226 :

21 :

22 :

23 :

24 :

26, 126, 225 :

30 :

50, 150, 250 :

51, 151, 251 : TFT

52, 152, 252 :

TN

IPS

(1)

가

(2) IPS

,

, , , ,

가 , ,

,

, IPS

,

TN

IPS

,

IPS

,

IPS

,

가

,

, , , ,

IPS

, , , ,

, , , ,

60%

,

70%

가

, , , ,

가 , , ,

,

, , , ,

가

1

,

,

T가

L 1/4

T가

L 1/2

PAS

가

LC

$$LC = (\quad + 2 \quad) / 3$$

, , , ,

,
L < 2D 가

L

D가

, / 가
가 50nm

가

,

가) 50nm

1

가

2

60%

70%

가,

가

1GPa

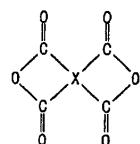
, Ta가

T(N - 1)

Tg가 220

$$\text{H}_2\text{N}-\text{R}-\text{NH}_2$$

2



R X , 가 , - O - , - S - , - CH₂ - , - C(CH₃)₂ - , - C(CF₃)₂ - ,
- SO₂ - , 3 .

,

,

5

,

(ZnO)

,

,

가 IPS

10

10 (a), (b) IPS 1 , 10 (c), (d)

가
(2, 5)
(10)

10 (a) ,

10 (c)

(9, 11)

가
가
가

IPS

0 (c) (10) (9, 11) (2, 5) (1)
, (30) , ,
(26) 가 ,
10 (b), (d) (16) (5) (2)

(視感度) 가 가

가

,

ITO

TN

가

,

가

가

가

, TN

가

, IPS

가

가 가

가 가

가

가

()

()

가

()가

L

가

,

2가

(1) /

(2)

, 가

가 가

,

가

가

11

 1380cm^{-1}

C - N

 1500cm^{-1}

300 , 1

C=C

 $R = I(C=C)/I(C-N)$

I(C=C)

 $\alpha(C-N) \quad 100$ $R_0 = I_0(C=C)/I$

1

$$(\%) = (R/R_0) \times 100 = \{I(C=C)/I(C-N)\}$$

$$/\{I_0(C=C)/I_0(C-N)\} \times 100$$

FT - IR - ATR

IR

300 , 1

11

60%

가

60%

1

70%

가 , /

W,

$$W = K_2 \cdot \frac{1}{dm}$$

, K₂ , , , dm

가 가

$$W^{\prime },\quad (1)$$

가 3 . , - O - , - S - , - CH₂- , - C(CH₃)₂ - , - SO₂ - , 가

(Tg(h))

TN

IPS

() 5

71

IPS

가

,	p -	, m -	, 2, 4 -	, 2, 5 -	
, 2, 6 -	, 2, 7 -	, 4, 4' -	, 4, 4' -	, 4, 4" -	,
1, 5 -	, 3, 3' -	, 4, 4' -	, 2, 5 -	, 4, 4' -	(p -)
, 2, 2 -	{4 - (p -)}		, 2, 2 -	{4 - (p -)}	
4, 4' -	(m -)		,	.	

, ,
가 , ,

, 3, 3', 4, 4' - , 3, 3', 4, 4' - ,
, 2, 3, 6, 7 - , 3, 3', 4, 4' - ,
, 3, 3', 4, 4' - , 3, 3', 4, 4' - ,
1, 2, 3, 4 - , 1, 2, 3, 4 - ,
, 1, 2, 3, 4 - ,

4 - - 4' - , 4 - - 4' - , 4 - - 4" - , 4 -

- 4' - , 2 - (4 -) - 5 - , 2 - (4 -) - 5 - , 4 - - 4' -
 , 4 - - 4' - , 4 - (4 -) - 4' - , 4 - (4 -) - 4' -
 , 4 - (4 -) - 4' - , 4 - (4 -) - 4' -
 ,
 ,

, () 가
 , IPS TN

가 IPS

가
 가

가

1

가

가

4

가

2

가

1

IPS

2

1

1

$$, \quad \quad \quad 1 \quad \quad \quad (50) \quad \quad \quad (17) \quad \quad \quad (2) \\ (5) \quad \quad (26) \quad \quad , \quad (10) \quad \quad (26) \quad \quad (1)$$

7), $\frac{1}{(8)}$, $\frac{1}{(8)}$, $\frac{1}{(7, 8)}$ 가

가 , W 가 dm 가

12 (a) w , $L = 2$. 12 (b) 12 (a) , E

W가 12 (a) E 가
 . 12 (a) (d=0) (d=D)
 L 2D , L > 2D , L < 2D
 , L < 2D 가 1 . , L < 2D
 dm 2 /
 W .

$$11 \quad (b) \quad \begin{array}{c} \text{가} \\ , 2d/L \quad 1/2 \\ \text{가} \end{array} \quad \begin{array}{c} \text{가} \\ , \\ \text{dm} \end{array} \quad \begin{array}{c} \text{가} \\ , \\ \cdot \end{array} \quad \begin{array}{c} \text{T} \\ , \\ \text{T} \end{array} \quad \begin{array}{c} 2d/L \quad 1/2 \\ \text{L} \quad 1/4 \\ \text{L} \quad 1/2 \end{array}$$

, 2 가
 ,
 가 , ,
 IPS .
 3 2 . 4 2

3 4 2 (150) (101, 115)
 115) , (101, 115) (110) , 가 3 (126) (101,
 (106) (TFT : 117) , (101, 115) (102) (105)
 (109, 111) ,

, 2 (150) (105) (102)
 , , 가 (104) ,
 (117) (126) (102) ,
 (126) , (110) (101) (105)

, 2 가
 ,
 가 , ,
 IPS .
 3

6 3 . 7 2
 6 7 (201, 215) 3 (250) (201, 215) (205)
 215) (201, 215) (210) 가 6 (226) (202)
 (206) (209, 211) (201) (209) (201, 215) (210) (205)
 (209) (202 205) (216) (208)

, 3 (250) (205) (202),
 , (217) (204, 207) (202) (205) ,
 (202) (205) (226)

, (210) (226) (201)

2 3 가 L
 D (2D/L > 1) . . 2, 3 D 2
 (2D/L > 1) , 가 ,
 () 가

2 (105), (109) (107, 108)
 T 가 . T가 (105) (102)
 L 가 . , (105) (109)
 T
 ,
 가 50nm

, (105) (102) (104),
L 가 , 11 2 D/L . 2D/L
dm 가 ,
T

, 3 (205) (209) (208)
 , (208) 가
 가 2 (205) (202)
 (207, 204) 2 가

[]

(1)

, 1
8 9 .
1 (1) (50)
(2, 5, 6, 18) , (1) 1 2,
(5, 6) (7) TFT (51) .
2 , 2 (c) (17) (2, 5, 6) , 2 (a) 2 (b) A - A'
B - B' .
(2) (17) (5), (6), (18) (19)
(5) (18) , (6) (2) L 7μm .
, (2) (5) , ITO
가 .

(4) (7) , 0.2μm 0.3μm
(8) (5) (2) (4) 2 (5)
(5) 2 (a) 3 (2) 1024 × 3(R, G, B)
(6) 768 (18) 1024 × 3 × 768 .

, p - 1.0 % N - 2 - , 3, 3', 4, 4' -
50,000 1 % 20 12 ,
0.3 % 가 , TFT (51) 220 /30 , 80nm
(9)
35nm .

,
(15) 1 가 (13) , (52)
8 , 8 (b) 8 (a) A - A' , 8 (c) 8 (a) B
- B' . (14), R, G, B 3 (13),
(12) (12) TFT (51) (11) 80nm
,

TN , IPS
, IPS

2
 , 2
 20) 가 (26) 75° 10.2(1kHz), K2가 7.0pN,
 T(N-1)가 76 n 0.075(590nm, 20 A),
 () 4.2μm (nd) 0.31μm
 , 2 2 (16)
 ,

9 1
 (50) 9 LSI가 , TFT (51) (21),
 (22), (23) , (24)
 , , . , 9 (17)
 (CLC) (CS)가

, 1 가 , 가

1 가 . , 30 ,
가 , 가 10%가 , , B
B/B(10%) 가 . , 3% .

$$B/B(10\%) \quad 1\% \quad ,$$

	TFT	(9, 11)	KBr
FT - IR	,	300 , 1	
, 1500cm ⁻¹	C=C	I(C=C)	1380cm ⁻¹
C - N	I(C - N)	R=I(C=C)/I(C - N)	,
300 , 1		R0=I0(C=C)/I0(C - N)	100
,	(%)=(R/R0) × 100={I(C=C)/I(C - N)}/{I0(C=C)/I0(C - N)}1 × 10		
0 . ,	TFT ,	(9, 11)	70%

B/B(10%)가	가	110	10%	100	100	100
Tg	100			A	T(N - I)	76
B		Tg				

(2)

1 , m - 1.0 % N - - 2 -
 , 3, 3', 4, 4' - 1.0 % 가 40 6
 20,000 . 6%
 - 0.3 % 가 , 225 /30 ,
 60nm

coelasticity Microscopy, SVM) 가 . ,
 . SVM (Atomic Force Microscopy, AFM
) , AFM , 가
 () ,
 () 田中 敏二 , , 53 (No.10), 1996, p582.).

1 가 , 가 . , 가 , 10%가 , 30 , B
가 , , , , ,
B/B(10%) 가 . , 3%

B/B(10%) 2% ,

, 1 TFT , 72%, Tg 95 , Tg 가 A
 $T(N-1) = 76$.
(3)

1 , TFT , 75%
· , 1 가 . , 가 10% 가
30 , 가 , ,
, B/B (10%) 가 . ,
3% .

B/B(10%) 2%, , ,
 ,
 ,
 , 1
 65% .
 AFM
 Tg 가 , 225

,	2		,	4	3	4
4		(150)		(101)	가 0.7mm	
(117)	(101)	(102, 105, 106, 118)	(107)	TFT	(151)	(104),
	(105, 106)					.

4 (117) (102, 105, 106)

(117) (105), (106), (118) (119)
 (118) (106) , (105) ITO (102)

(104) (107), 0.5μm 0.3μm .
 (108) 4 , 0.2μm ,
 (102), (105) . (120) 2
 (105) (105) 4 3 (105) (102) (102) (104)
 . , (105) 3 (102) . , ,
 3 , 가 가 . 1024×3(R, G, B) (106)
 768 (108) 1024×3×768 .

, TFT (51) 1 (109) 80nm
48nm가 150nm .

(115) 1 (50) (114)가
 (113), (152). (112) TFT (151)
 (111) 80nm ,

TFT (151) (152) (109, 111)
 가 (126) 75 4 μ m
 , TFT (151) (152) (110)

(110) 1 A . A LC 10

TFT (151) (152) 2 (116) . , 4
 (150) ,

4 1 가

4 가 가

, 가 . , 가 10%가
가 , 가 ,
B/B (10%) 가 . ,

B/B(10%) 2% ,

, 1 TFT , , 76%, / Tg 가 A
 $T_g(N-1) = 76$. , 3
 가 , 230 .

(5)

$$\begin{array}{ccc} 5 & 5 & (105) \\ (108) & , & (107) \\ 4 & . & \end{array}$$

$$(105) \quad , \quad 0.3\mu\text{m} \quad , \quad (108) \quad , \quad 4 \quad (102), \quad (105)$$

(108) 1 30nm가 , 150nm . (109) 80nm

5 가 , 가

, B/B(10%) 2.5% ,

(6)

6 4 , ,
 (108) 4 , ,
 0.4 μm . . 4 , ,

5 , - 2.2
 , n 0.1 B . B LC 4.5 . ,
 3 , 230 /30 , 60nm
 , TFT , 20nm
 15 偈 (126)

5 가 , 가

1 , , , , , , ,
 78% , , , , , , ,
 1 , , , , , , ,
 30 , , , , , , ,
 10% , , , , , , ,
 1 , , , , , , ,
 30 , , , , , , ,
 3% , , , , , , ,
 B , , , , , , ,
 B/B(10%) , , , , , , ,
 3% , , , , , , ,
 B/B(10%) , , , , , , ,
 1.6% , , , , , , ,
 , , , , , , ,
 (7) , , , , , , ,
 , 3 , , , , , ,
 7 , , , , , , ,
 6 , , , , , , ,
 7 , , , , , , ,
 7 (201) (250) , , , , ,
 . (217), (217) (202, 205, 206, 218)
 (204),
 (205) TFT (251)
 7 (217) (202, 205, 206)
 (217) (205), (206), (218) (219)
 (218) (206) (207) (202)
 (205) ITO
 (204) (207) , , , , ,
 (205) (202) (204, 207) , , , ,
 4 (208) 0.2μm 0.3μm (205)
 (205) (206) 768 (202) (218) 1024 × 3(R, G, B)
 (205) , TFT (251) 1 (209) 80nm , ,
 20nm , , , , ,
 140nm , , , , ,
 (215) 1 (50) , , , , ,
 (213) , (252) (212) (214) 가
 (211) 80nm , , , , ,
 TFT (251) (252) (209, 211)
 가 (226) 75 (252) (210) 3μm
 , TFT (251) , , , , ,
 (210) , 1 A , , , ,
 A , , , , ,
 LC 10 , , , , ,

TFT (251) (252) 2 (216) . , 6
 (250) ,

7 1 가

7		가	가
.	, 1	가	,
,		가	,
30	,	가	가
,	B	B/B(10%)	1
3%		가	,
		가	,

$$B/B(10\%) = 2\% \quad ,$$

, 1 / Tg 가 , Tg 105
 A T(N-1)=76 . 1 (SVM)
 50Hz . 4GPa

(8)

1 4, 4' - , , 230 ,
 , 50nm, 20nm . ,

1 A 100 10

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1

1 / Tg 가 , Tg 85 ,
A T(N-1)=76 . 1 ,
, 가 , B/B(10%) 3% ,

가 , 80%

(9)

8 , 220 , 30 , , Xe
C12 가 308nm .

, 4 A , 100 , 10

, $d \geq 4.0 \mu\text{m}$.

1

3
=76 . , 1
가 , B/B(10%) 2% ,
,
가 76%

(1)

1
3, 3', 4, 4' -
, 200 /30 , 70nm

, B/B(10%) 5% , 30 ,

, 1 가 , TFT , 5
 6% . 2 (SVM) ,
 0Hz , 0.3GPa .

(2)

(104) $0.6\mu\text{m}$, (105) ITO,
 (107) $0.2\mu\text{m}$, (108)
 (109) 60nm, (205)
 Onm ,

4 ,
가 . , 30 , 가

B
3%

B/B (10%)

가 . ,

,

B/B(10%)

5%

,

30

,

,

IPS

,
가

(57)

1.

,

,

가

,

,

,

60%

2.

1

,

70%

3.

1

2

,

4.

1

3

,

,

5.

4

,

,

(ZnO)

6.

1 5 ,

2

7.

1 6 ,

가 , , 1

8.

1 7 ,

,

9.

8 ,

,

10.

1 9 ,

5

11.

,

,

가

,

,

가 , , 1

12.

,

,

가

,

2

13.

11 12 ,

L 1/4

가

14.

11 12 ,

T가, L 1/2

가

15.

11

PAS 가 LC

16.

11 15

가
D가, L< 2D 가 .

17.

11 16

가

18.

17

가지 50nm

19.

11 18

가 ,

20.

11 19 ,

21.

11 19 ,

22.

11 19 ,

2

23.

20 22 ,

, , ,

24.

21 22 ,

, , ,

25.

11 24 ,

, , ,

26.

11 25 ,

, , ,

27.

26 ,

, (ZnO)

28.

11 27 ,

29.

11 28 ,

60%

30.

11 28 ,

70%

31.

29 30 ,

γ , , 1

32.

11 28 ,

1GPa

33.

11 28 ,

Tg γ T(N-I)

34.

11 28 ,

Tg γ 22

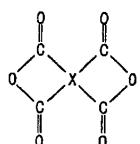
0

35.

11

28

,



$\text{R} - \text{X}$,
 $-\text{SO}_2^-$,

가
3

, -O-, -S-, -CH₂-, -C(CH₃)₂-, -C(CF₃)₂- ,

36.

11

35

,

,

37.

36

,

,

38.

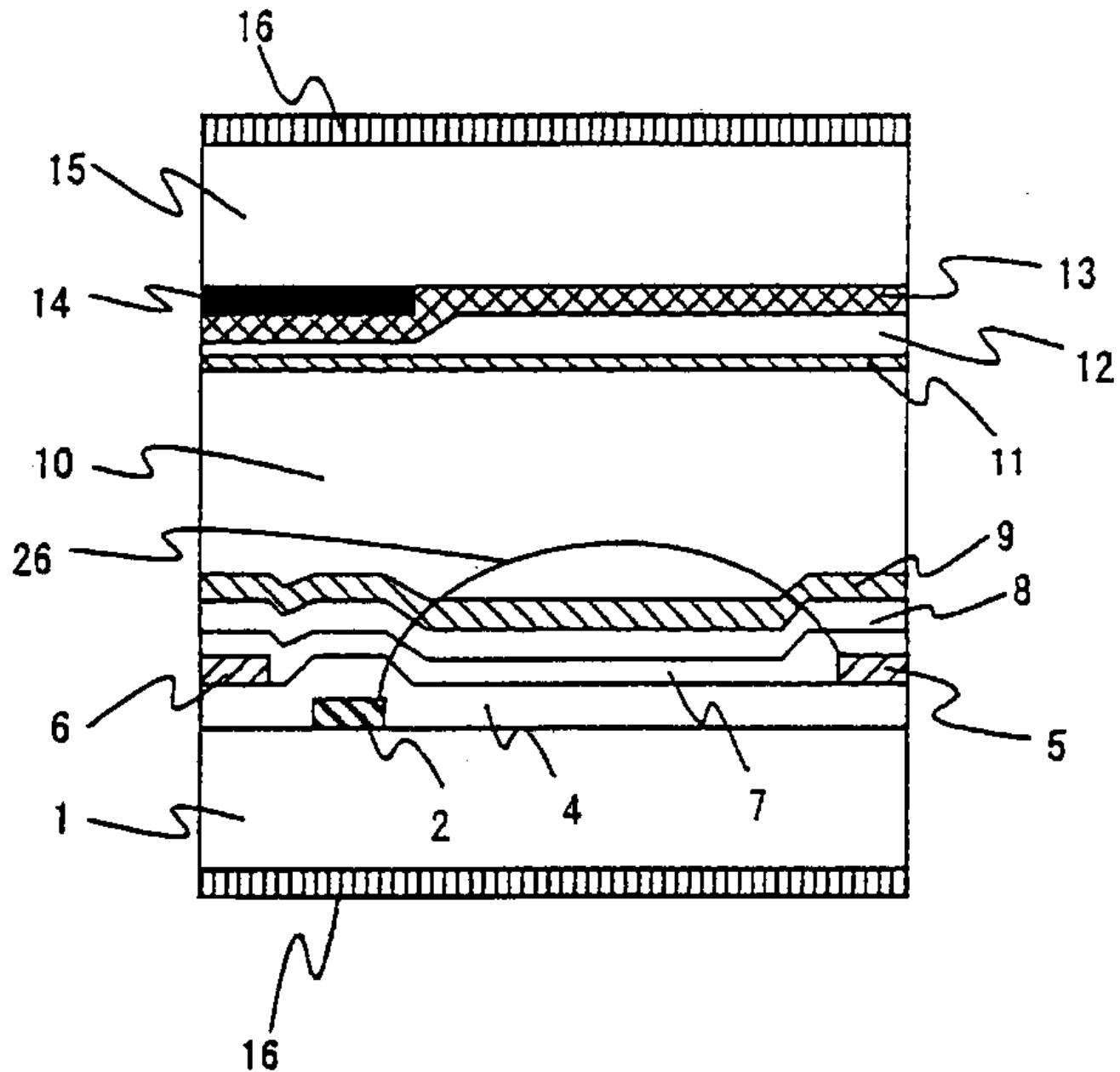
11

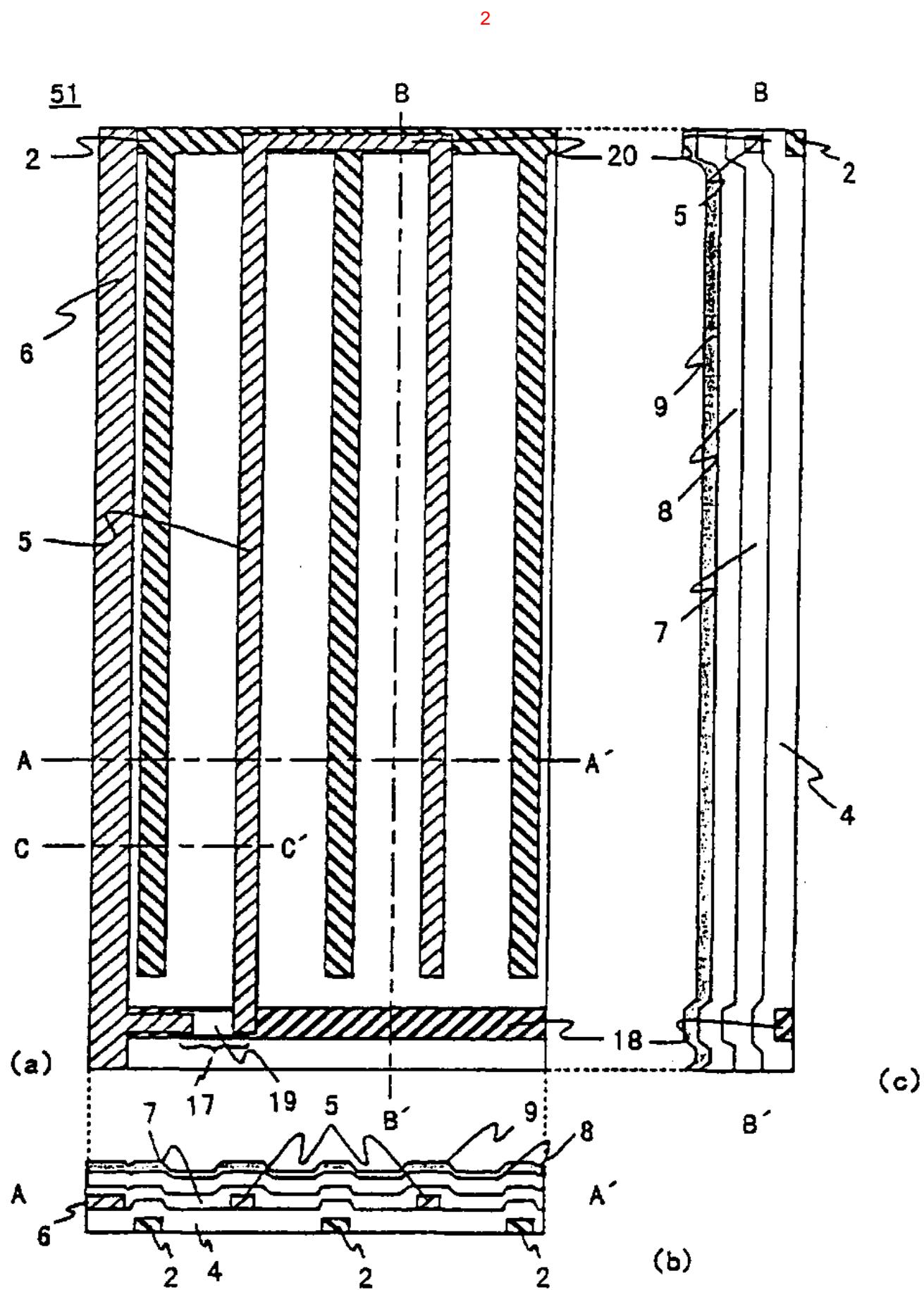
37

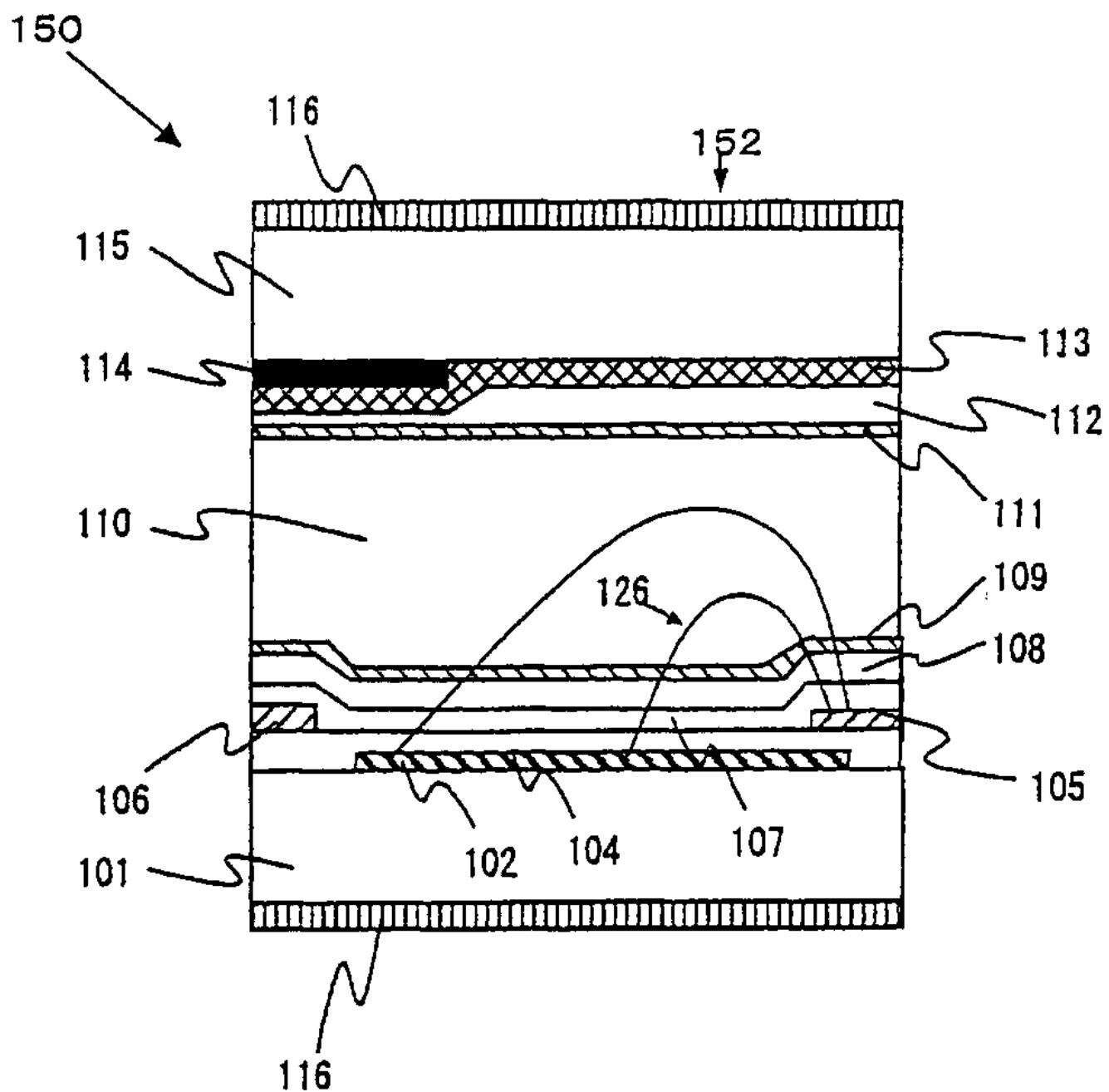
,

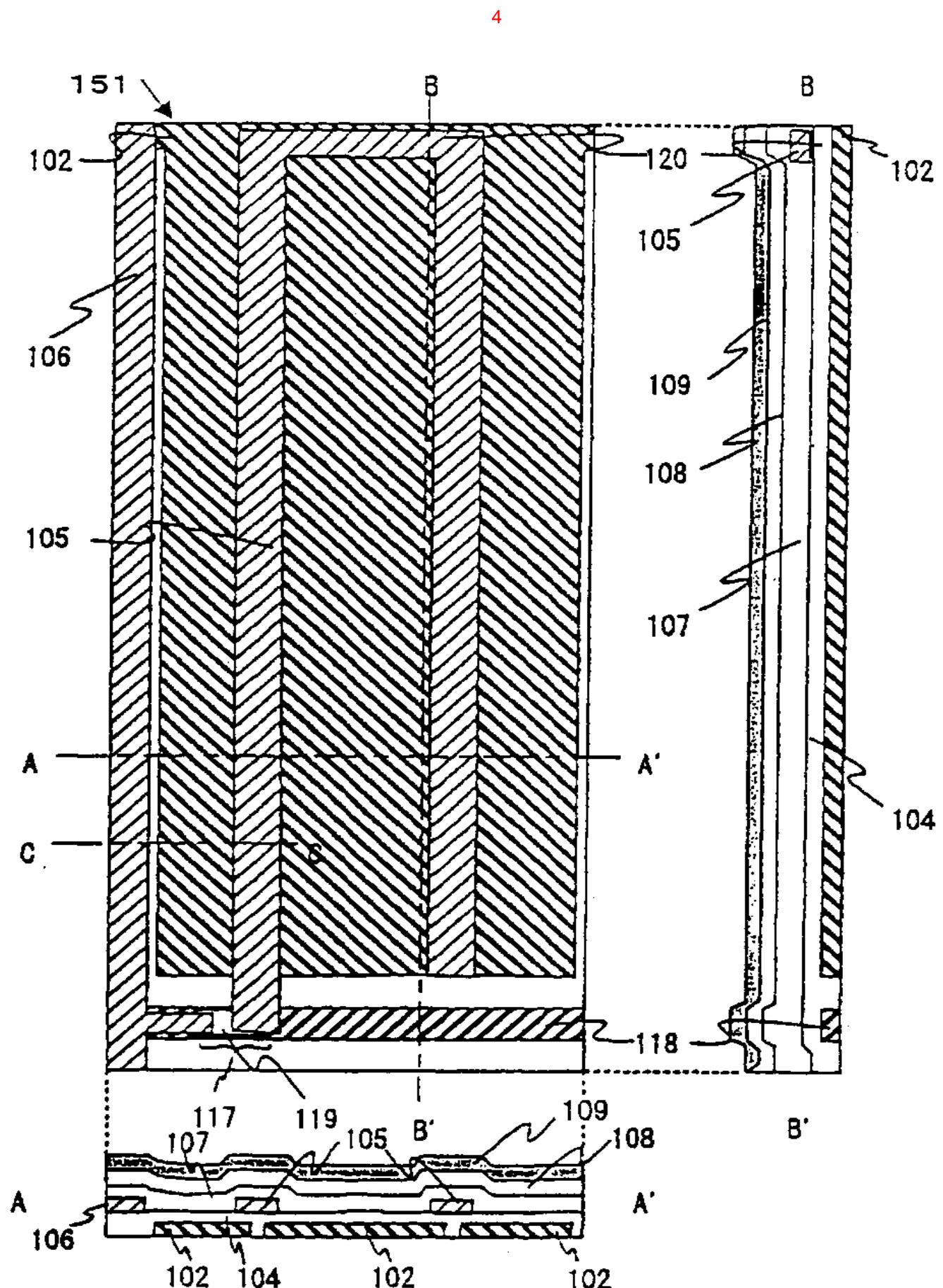
5

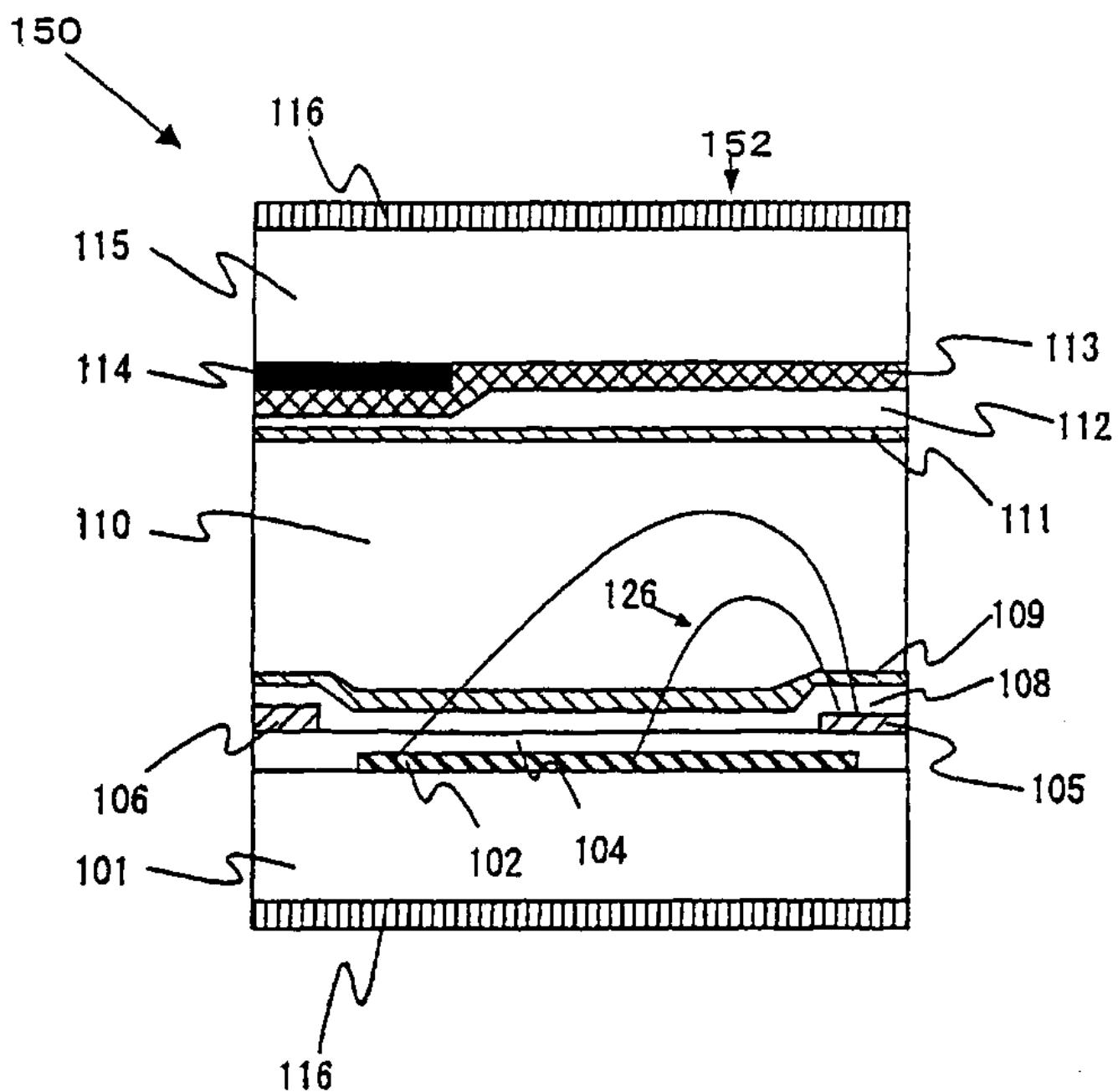
1

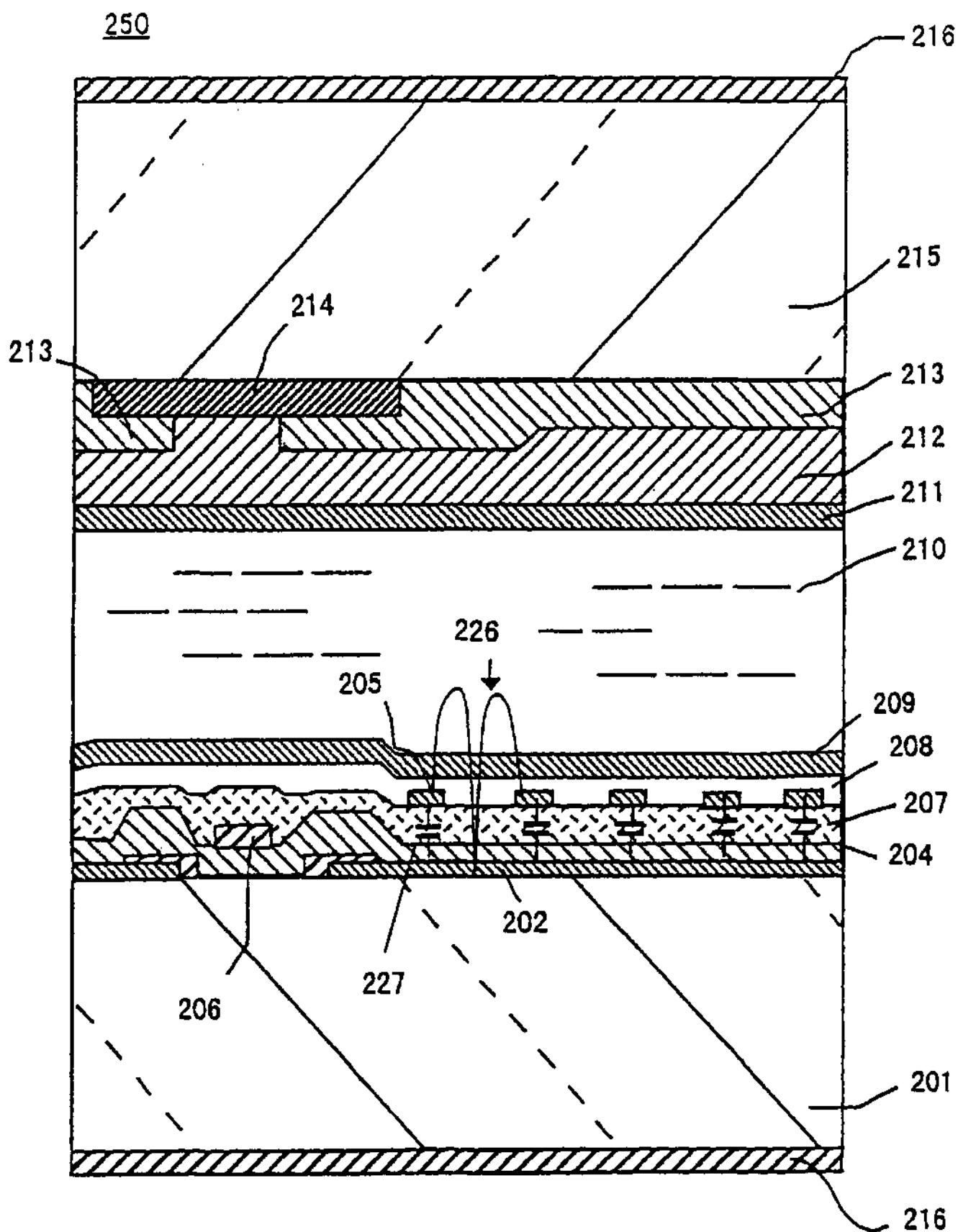
5052





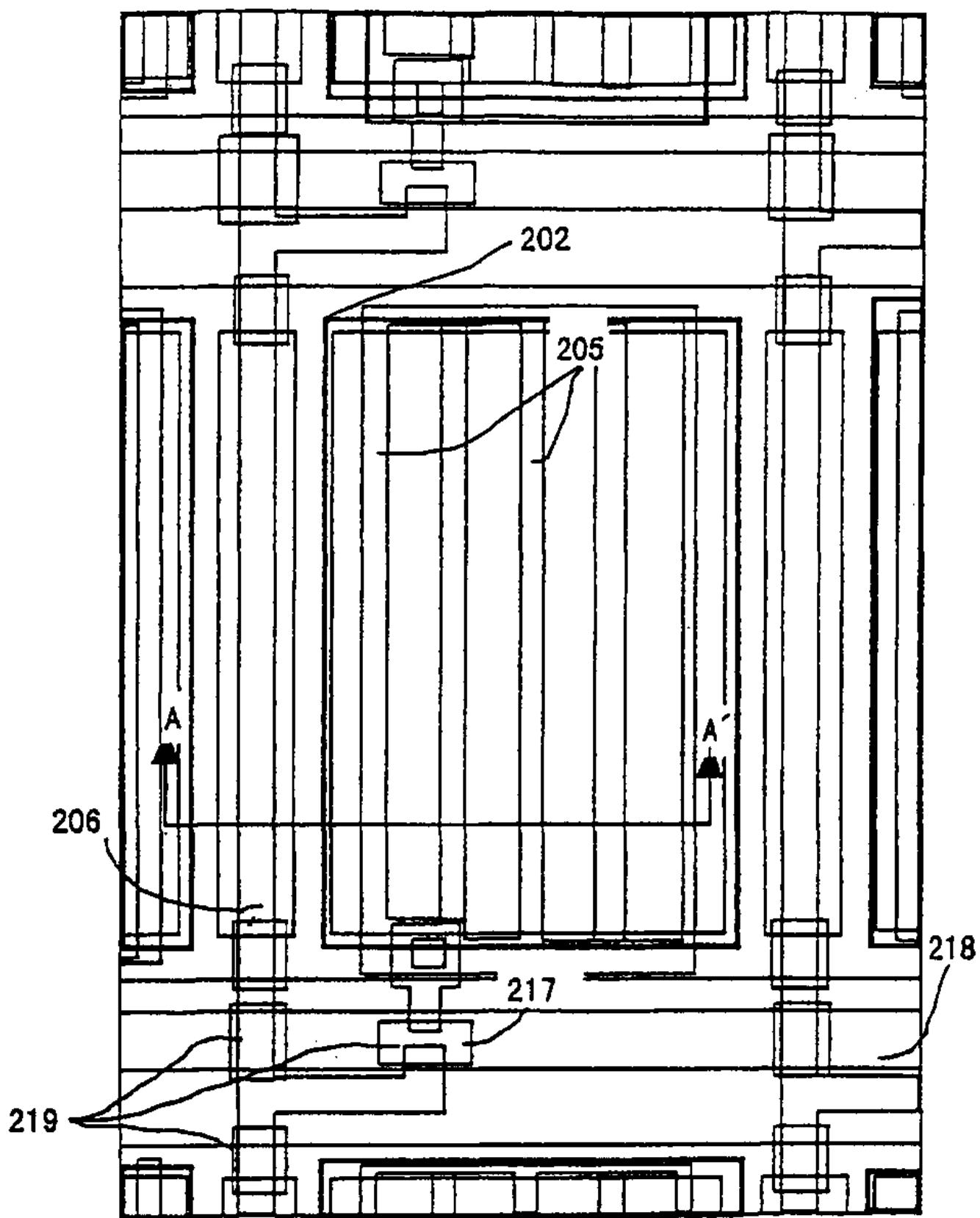




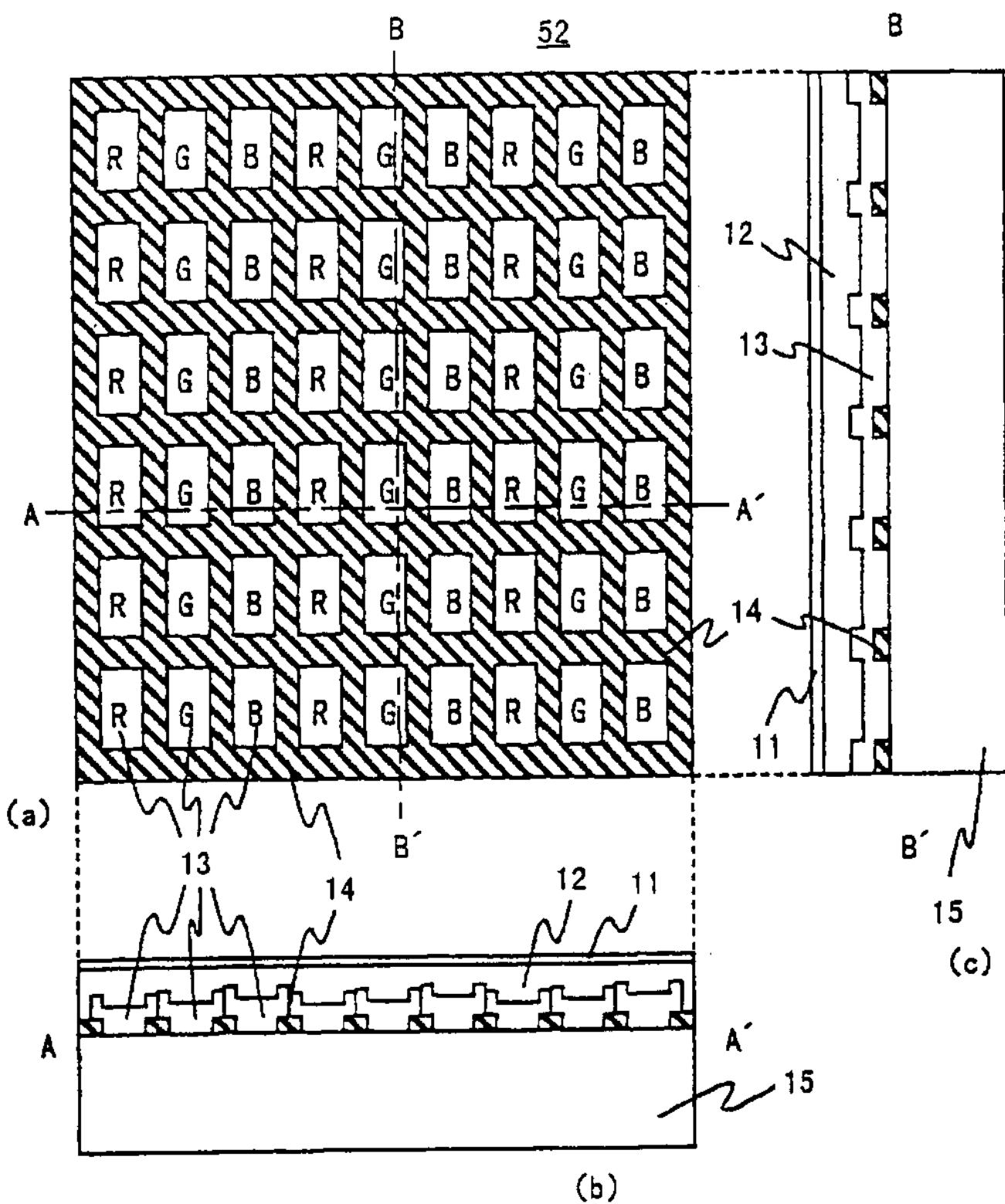


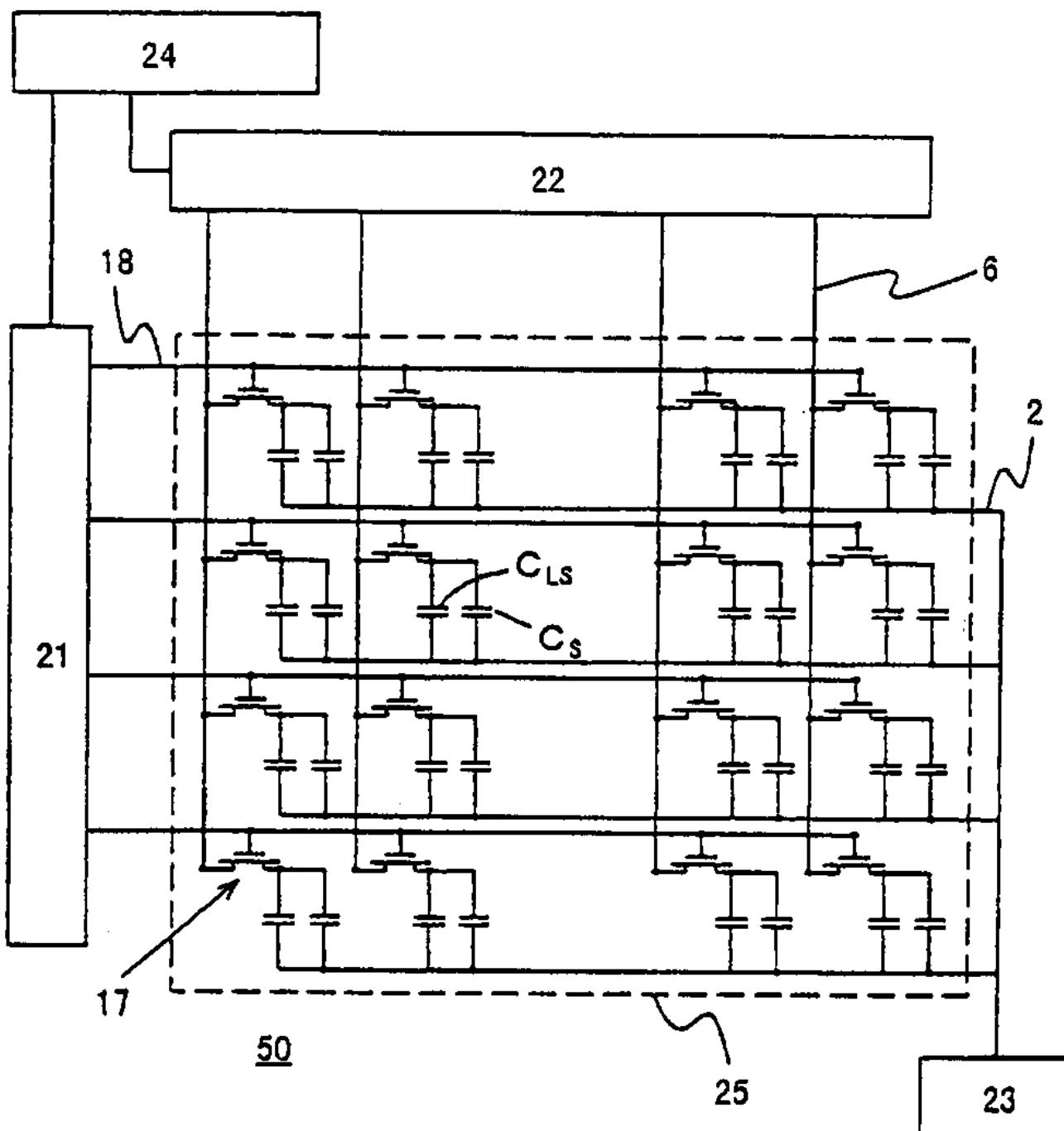
7

251 ▾

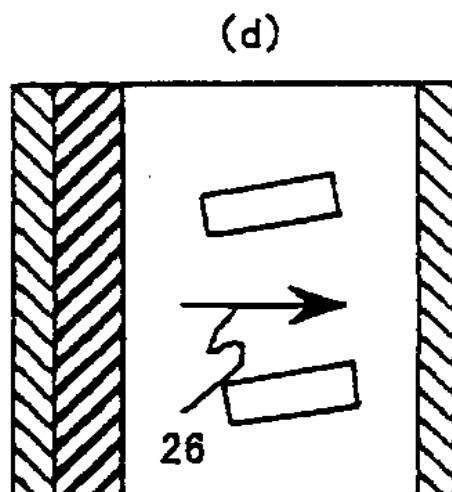
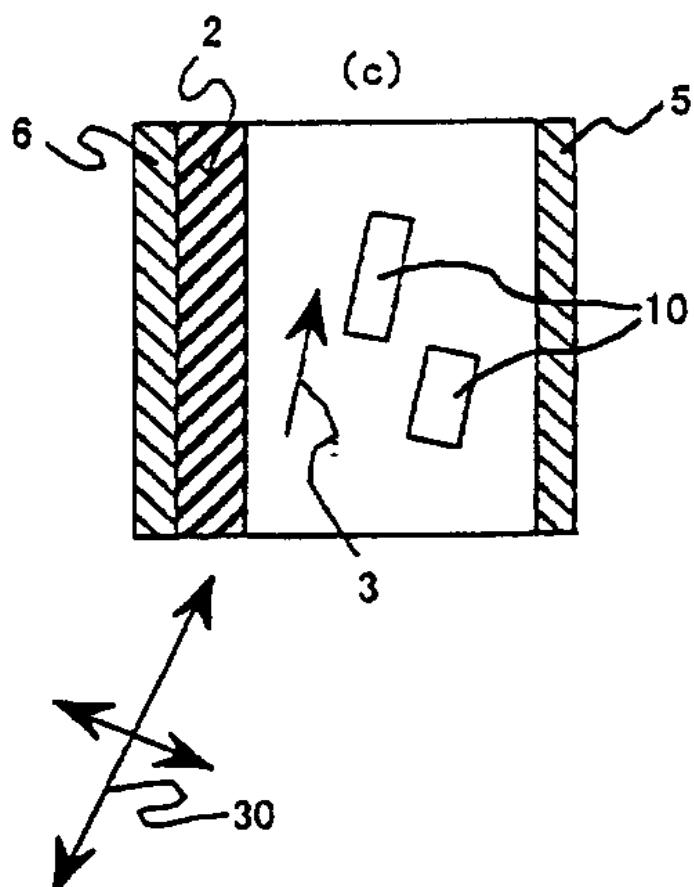
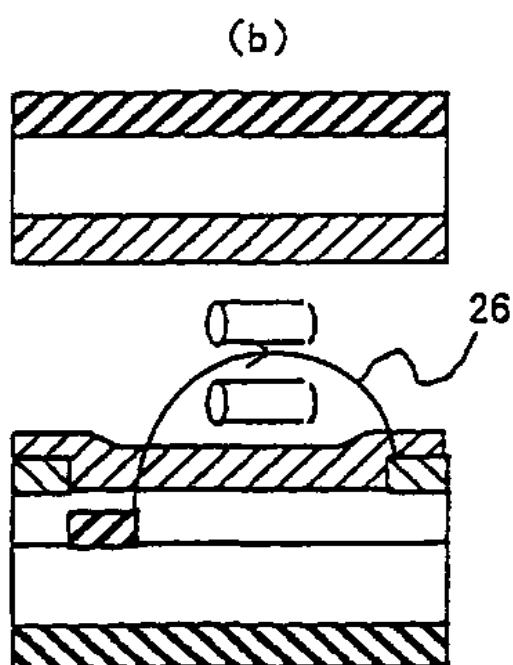
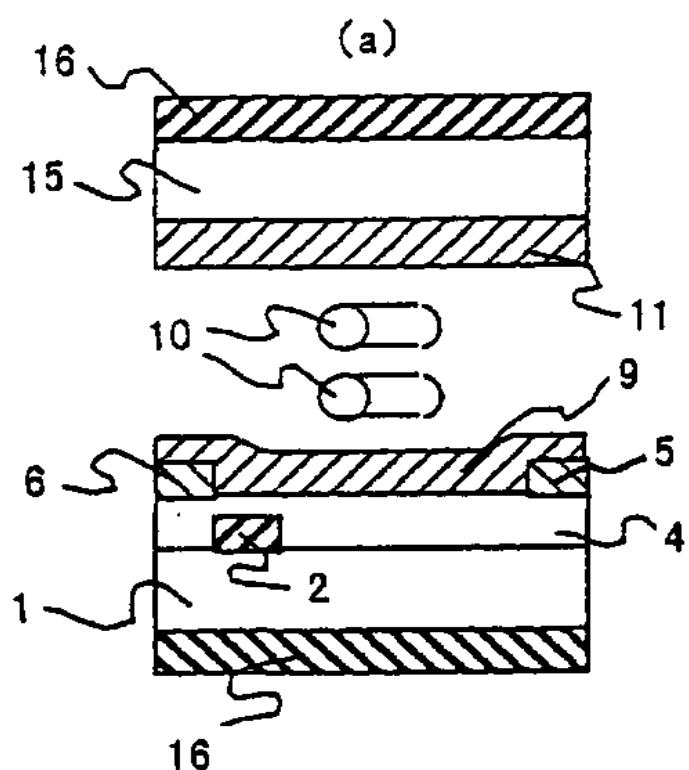


8

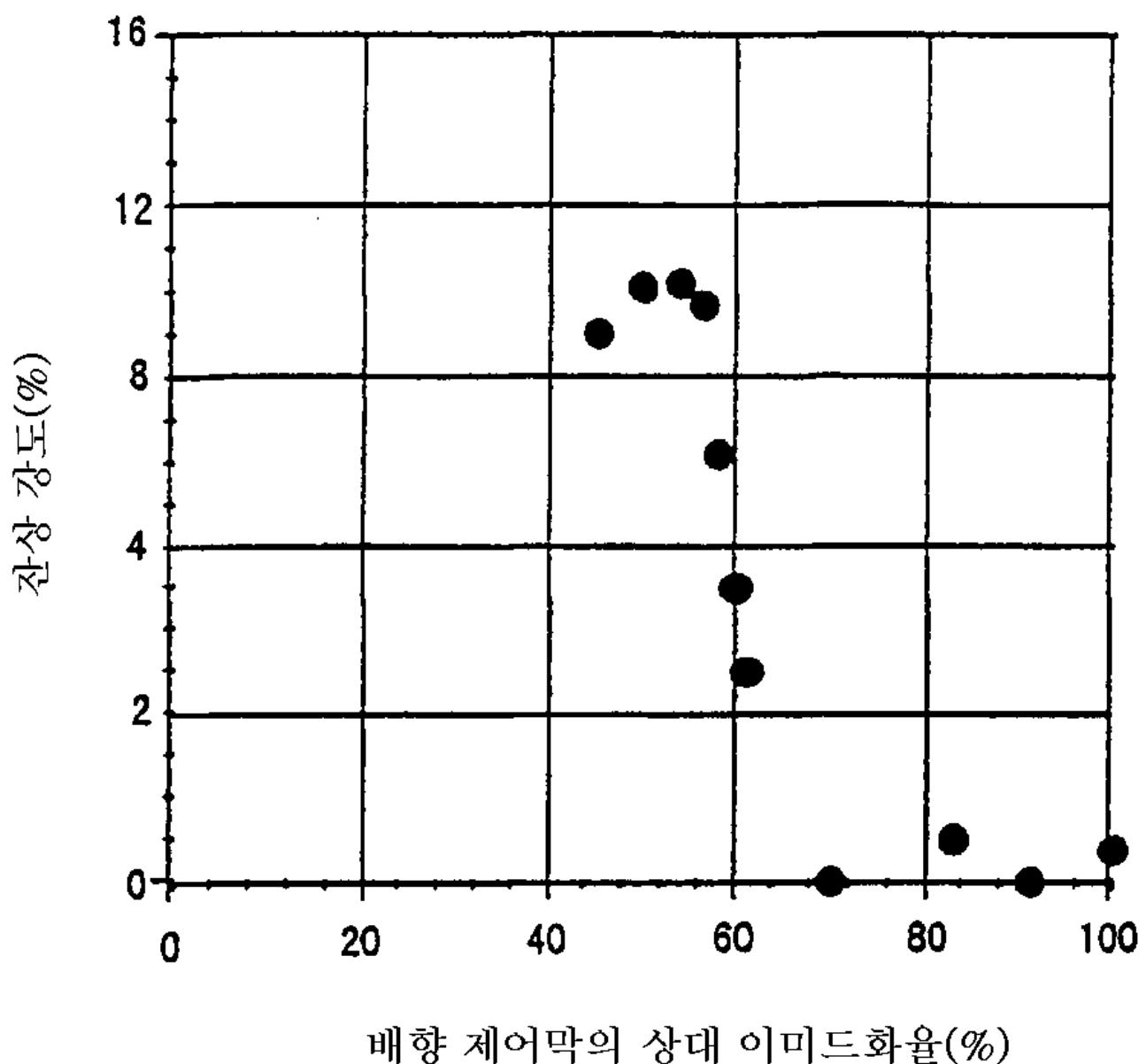




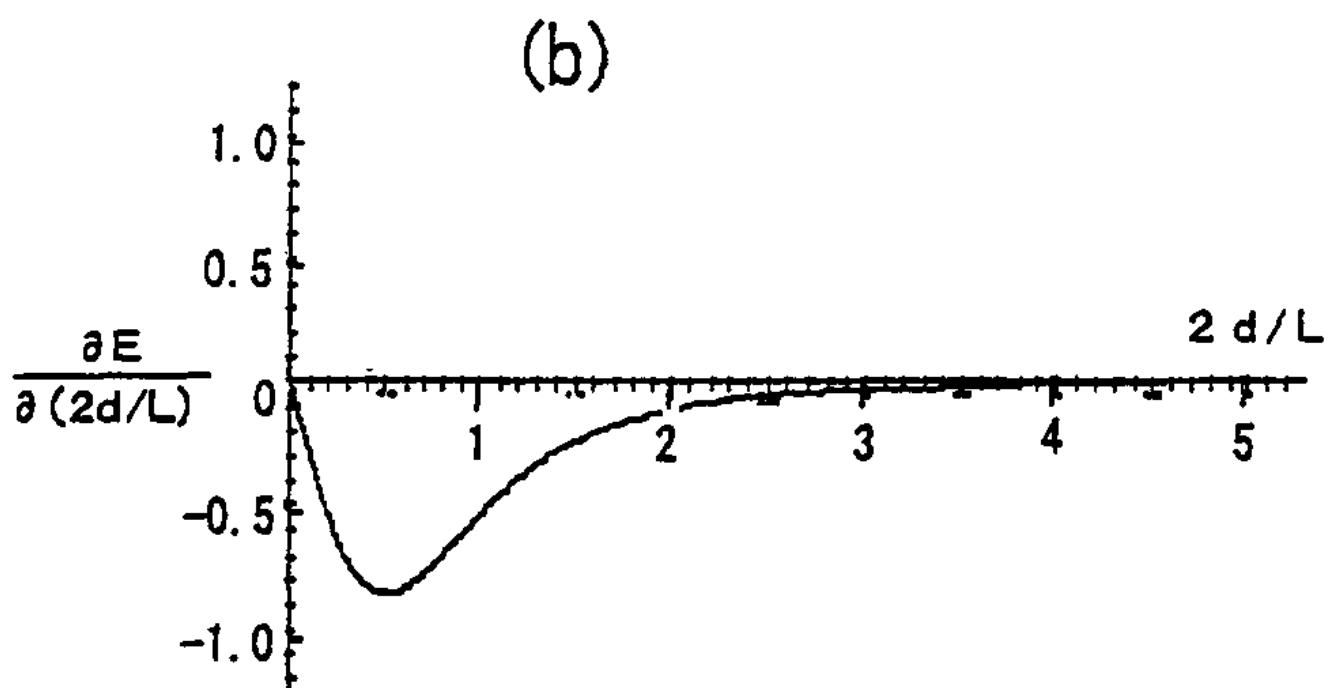
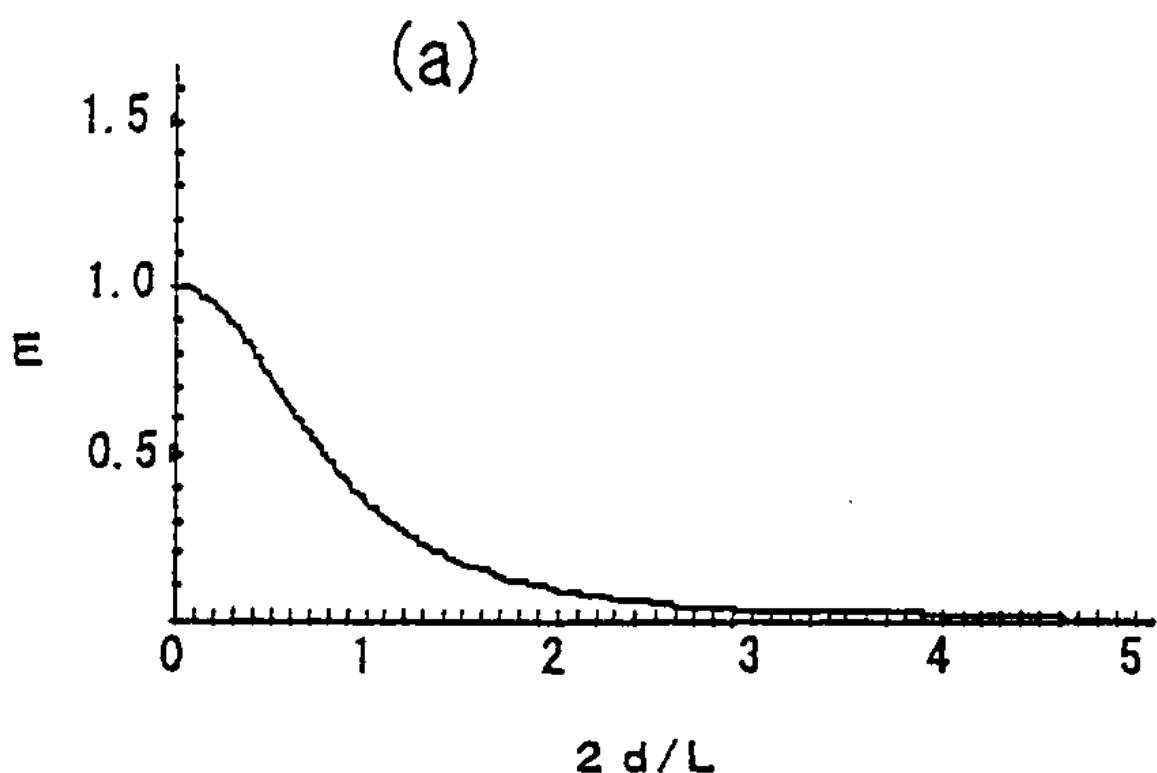
10



11



12



专利名称(译)	液晶显示器		
公开(公告)号	KR1020010094942A	公开(公告)日	2001-11-03
申请号	KR1020010008192	申请日	2001-02-19
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA		
申请(专利权)人(译)	株式会社日立制作所		
当前申请(专利权)人(译)	株式会社日立制作所		
[标]发明人	TOMIOKA YASUSHI 도미오까야스시 OKISHIRO KENJI 오끼시로겐지 UMEDA YOSHIYUKI 우메다요시유키 OOAKU HITOSHI 오아꾸히또시 KONDOW KATSUMI 곤도우가쓰미		
发明人	도미오까야스시 오끼시로겐지 우메다요시유키 오아꾸히또시 곤도우가쓰미		
IPC分类号	G02F1/1343 G02F1/1368 G02F1/1337 G02F1/136 C08G73/10 G02F1/1333		
CPC分类号	G02F2001/133397 G02F1/134363 G02F1/133723		
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优先权	2000097820 2000-03-30 JP		
外部链接	Espacenet		

摘要(译)

对于面内切换模式的液晶显示器，图像的扫描和重影减少。可以防止显示不均匀产生。相反侧酰亚胺化率是指一对基板和由公共电极和有源电路元件组成的液晶显示器和形成在每个基板上的取向控制膜和偏振板，其中至少一侧对有机聚合物是公平的聚酰亚胺超过60%或聚酰亚胺酯基。上面描述的绝缘层越来越多地插入在像素电极和位于取向控制膜中的公共电极和基板侧的底部之间，其中形成电极组和电极端部平坦化并且减轻了电场的浓度，并且防止了图像的扫描和残像产生。液晶显示器，ISP模式，余像，取向控制膜，酰亚胺化率。

