

(19)
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(A)

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10-2004-0049252
2004 06 11

(21) 10-2003-0077834
(22) 2003 11 05

(30) JP-P-2002-00353672 2002 12 05 (JP)
JP-P-2003-00344803 2003 10 02 (JP)

(71) 가 가 2 4-1

(72) 가 3-3-5 가 가

(74)

:

(54)

(top emission)

, , .
, 2 (12) (2) , 1 (111) , (110b) (110) ,
, 2 (12) (110) 가, 2 (12)

4

1

1

2 1 .

3 2 1-1' .

4 1 .

5 1 .

6 1 .

7 1 .

8 7 1 .

9 1 .

10 1 .

11 1 .

12 1 .

13 1 .

14 1 .

15 1 .

16 1 .

17 1 .

18 1 .

19 1 .

20 1 .

21 2 .

22 .

23 .

[]

1 110 , 604 , 110b (, 2 , 2a (1), 2b , 112 (, 3 , 12 (2), A

L) PDA 가 . (, E
 EL , EL ()
 EL (bottom emission)
 (top emission)
 (needs)가 , EL
 EL 가
 가 (8 - 185984)

EL , EL ()
 가 ITO SnO₂ 가
 가
 , EL EL ()
 , EL 가

2 1 2
 2 2
 2 () 가
 가
 (單體) / /

5nm

1
가
2

1

가

가

가

가

2

2

가

가,

가

, 5nm , 30nm

5nm

30nm

, 2

< >

[1]

1

, 1 18 ,

가

1

EL

1) (101) (102) (102) (1) (101) (103) (10)

04)가 (102) (101) (1) (105)가

(101) 가 (112) (112) (102) (112) (cap)
) , (cap) 가 (123) (103) (123) 가
111) (111) (111) (12) (110) (103) (A)가 (1) (A) (

(102) 가 (101) (112)가 (on) (123)
(on · off) 가 (cap) (cap) (123) (103)

(111) 가 , (110) (12) 가 . (110)

2 , 3 2 1-1'

3 , 가 (1) (2) (14) (10)가 (11)

0b) 가 , (11) , (3) (11) (12) (12) (3) (3)

(2) , () , () , 가

2b) , (2a) , (2) (2a) (2) 2 (

(2a) , (2b) (A) (2a) (2d) (2b)

3 , (14) , (2a) , (A)

(12) 가 (5) (11) (2) (120) (5) IC6(

(5a) (5a))

(14) (2b) , (103) (103R,103G,103B)

(2a) 2 (105,105)가 (

105,105) (2d) (14) (105a) (14) (105b)

(2a) 2 (106)가 (106)

(3) (2) (603) , () (604)

(603) (2) (604) (603) (2)

1 가 (2) (603) (603)

(12) (11) (604) (604)

(603) (2) (604) (10) (604a)가

(603) (2)

(604) (getter) , (2b) , Li, Na, Rb, Cs , Be, Mg, Ca, Sr,

Ba , (A)

4 , (2a) (1) , (2) ,

TFT (14) , (111) , (110b) (110)

(11) , (12) .

(14) , (2) (2c) , (2c)
 (141b) P (141) , P가 (141) , (141a) (141c)

)

(14) , (2c) (141) (142) ,
 (142) , (141) (141c) , Al, Mo, Ta, Ti, W
 (143)(101) , (141), (142), (143)
 (123)가 (123) , (141)

(143) (142) 1 (144a) 2 (144b)
 , 1, 2 (144a,144b) , (144a,144b) (141) ,
 (141a,141b) (145,146) (145)
 , (145) (111) (141a) .
 (146) (103) , (146) , (103) 가

가 (14) , (cap)

(142) , 4 .

2a) (111) 2 (144b) , (

(111) , (Al) (Ag) , (2)
 (3)

(11) , (111) (110) , (111) (110)
 2) , (110) (112) (110) (110) (110) (1)
 (111), (110) (12) (A)가 .

(112) , (111) (111)
 (112d)가 .

(112) , 0.1 3.5 μ m 가 , 2 μ m 가 . 가 0.1 μ m
 , / (112) , (112d) , (112d)
 가 가 3.5 μ m , (112d) 가 (112)
 (112) (12) , (123) .

(112) , (111) (111a) 가 (112) (112f) 4
 가 , (112d) (撥液)) ,

(110) (111) / (110a) , / (110a)
 (110b) , (110b) (110c) .

/ (110a) (110b) , / (110a)
 /

Ob) , (110c) (11
 Oc) , (Liq) (LiF) . (11
 가 4eV , Mg, Ca, Ba, Sr, Li, Na, Rb, Cs, Yb, Sm .

/ (110a), (110c) (111) (110b) , , (12)

(110) 가
 가
 5nm (110) 5nm 30nm 가 30nm (110) (12)
 (12) SiO, SiO₂, SiN

(1) (1) (2) (3) /
 (6) (1) (7) (4) (2) (5)

(1) (2) (112d) (112)
 5 (144a,144b) (2) (111) (123) (14)

(2) (111) (112d) (6) (112)
 0.1 3.5μm 가 2μm 가
 가 0.1μm / (112)
 (110b) (112d) 가 3.5μm (112)
 112d) 가 (112d) (12) (12) (123)

(2) (111) (111) (112)
 (111) (112)

(2) - 1 가 (2) - 2 ()
 (2) - 3 (2) - 4 가

7
 7 (50) 가 (51), 1 (52), 2 (53),
 4) (54), (51 54) (2) (55) (51 5

가 가 (51) (2) 가

가 , (52,53) (112) . , (2) 1, 2 (52,53)
 , (55) (2) , (54) (2)
 , / (2)

(2) - 1 가
 가 가 가 (51) . (51) , (112) (2)
 가 가 .

(2) 가 (51) (2) ,
 (2) 가 .

가 (51) , (2) 70 80 가 가 .
 , (2) 가 , (2)

가 가 가 , (2) 가 가 , 가 ,
 가 가 , 가 ,
 , 가 , 가 ,
 , 1, 2 (52,53) (2)
 , 가 ,
 (56)

, 1, 2 (52,53) 가 , 70 80 (2)
 가 , (2) ,
 (112) ,
 , (2) 가 ,

(2) - 2
 1 (52) , 가 . (111) ,
 , 가 .

1 가 (O₂) 8
 , (112) (2)
 가 8 (2) 0.5 2mm
 (57) (2) (56) 가 ,
 (56) 가 (2)

O₂ 100 800kW, 가 50 100M²/
 0.5 10mm / , 70 90 , (56) 가 , 가
 (2)

O₂ (112d) , 9 (111) (111a), (112)
 (112f) , 가

9 ,

, O₂ , , (111) ,

(2) - 3

2 가 (53) 가 , (CF₄) 2 (4)
 8 1 (52) , (2) 가 (53)
 , (2) 가 가

CF₄ 0.5 10mm / , , 70 90 100 800kW, 4 가 50 100Mℓ / ,
 (52) 가 , 가 (2) , 가 , 1
 , 가 (4) , 가 .

CF₄ , 10 , (112d) (112) (112f)
 2 , 가 . 10 ,

, (111) (111a) CF₄ ,
 . 10 , .

(2) - 4

, (54) (,) 가 (2) .
 (54) (2) , (2) 가

, / (2) , (2) (가 , (2) 가)
 . , / , 1 , 1
 , /

(3) /

, (111) / .
 / , /
 , 1 (111a) (1) . , , /
 , (111) / (110a) .
 , / 가 , , 가 .

11 (H1) /
 1 (110d) , 가 (H1) (112d) (110d)
 , (2) , (H1) (2)
 (110d) . , (H1)

2 (110b) 2 , / (110a)

15 , 2 (110e) / (110a) (112d)
 (112f) (112f) 2 (110e) (110e) 가 , 2 (110e)
 (112d)

, 2 / (110a) 2 (110e) (112d) , (110b)

, 2 (110e) 1 , / (110a)
 , 2 (110e)

, 2 , 2 (110e) , 2
 (B) (110b₃) , 16 가 , 16
 () 가 , 2

, 17 (B) (110b₃) , (R)
 (110b₁) , (G) (110b₂)

, (110b) , , ,

, 2 (110b₃) , , 133.
 3Pa(1Torr) 5 10

가 2 (110e) 가 (112d) ,
 (110b₂), (110b₁) , 가
 , 40 (spray) 5 10

, 가 ,
 , (111) / (110a) (110b)

(5)

(110c) , 18 , (110b) (112) , Liq

(110c) , , CVD ,
 (110b)

(6)

, , (110c) ITO (12)

, In Sn , 가 (Ar)

, 가 , ()
 (12a)가 , 19 , (110c) ,

가 20 (12a) 가 140nm (12b) .

(12a) 5nm, 30nm (12a) 30nm (110)

c) (12) (12a) (12b) (12)

(7)

(603) 가 (2) (604) (2) (604) (3)

가 (12) (12) 가 (604) (2b) (12)

2, 3 (2) (5a) (12) IC6 (14) (1)가

(12)

[2]

2 21 1 2, 3

(110b), / (110c'), (12') (2) (111'), (110a'), EL (110a'), (110b), / (110c') (110')

Ag 1 (112) (110') (111') Al ITO I

ZO (12')

(12')

가 (12'), 가 (12a') 가 (12') 가 (110c')

(Ar) , In Sn (12') / (110c')

가 가

(12') (2) (5a) (120) (5) (120) IC6(가) (5)

(2, 3).

1

, , 1 , , 가

[]

22 (1106) , (1100) , (1102) (1104) ,)

가

(110)

(110b)

, R, G, B

가

23(a)

23(b)

23(c)

(, EL (110b)) EL

가 (110b) EL

(A) , (112) (112) (A) , (A)

(57)

1.

, 1 , , 2

2

2

2

2.

1 ,

2

, 가

3.

1

1

가
2

가

4.

3

가

5.

3

4

가

6.

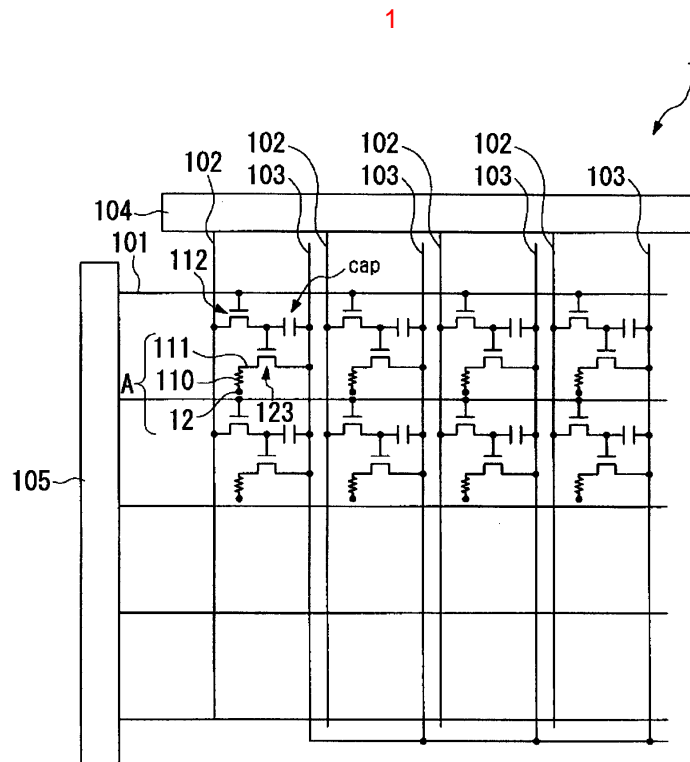
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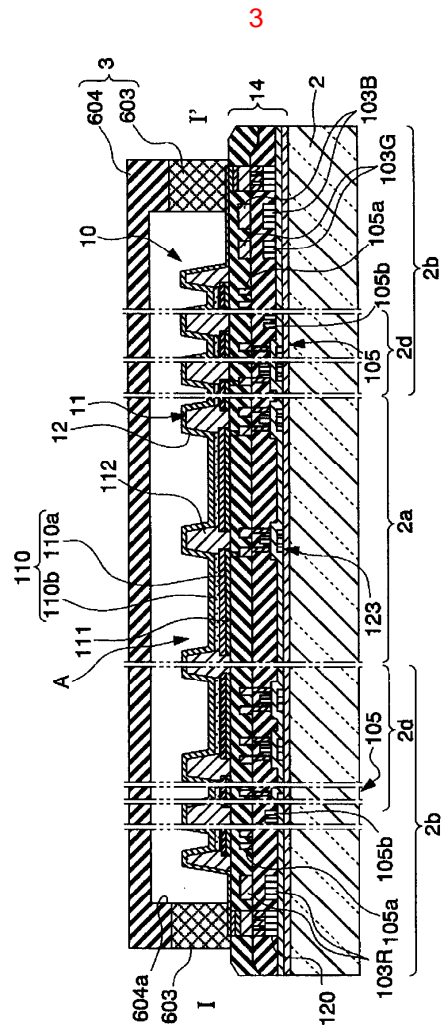
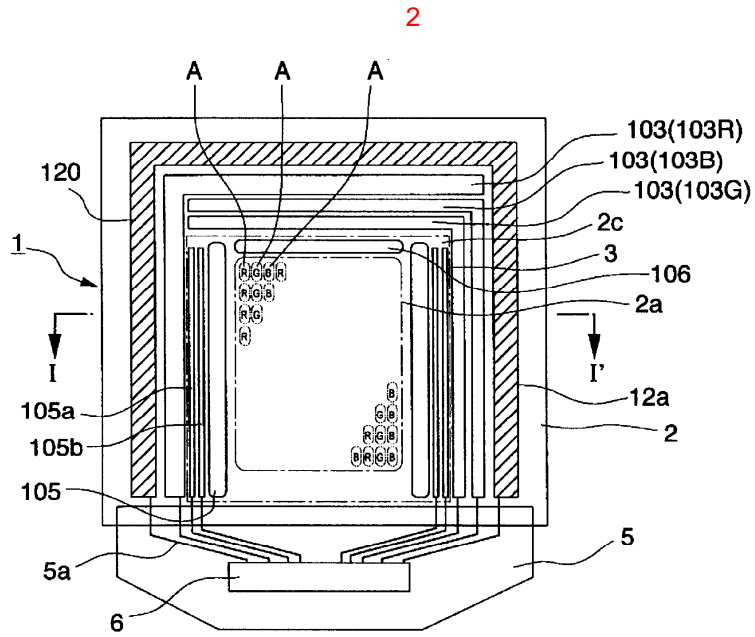
5nm 30nm

7.

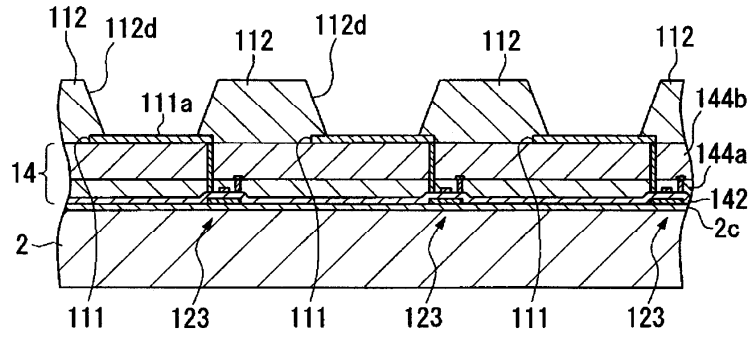
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2

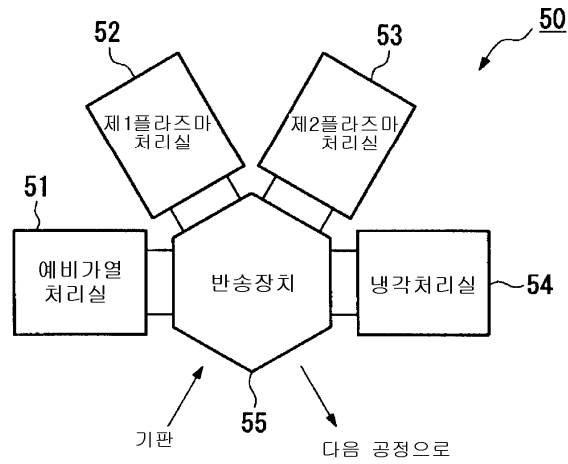




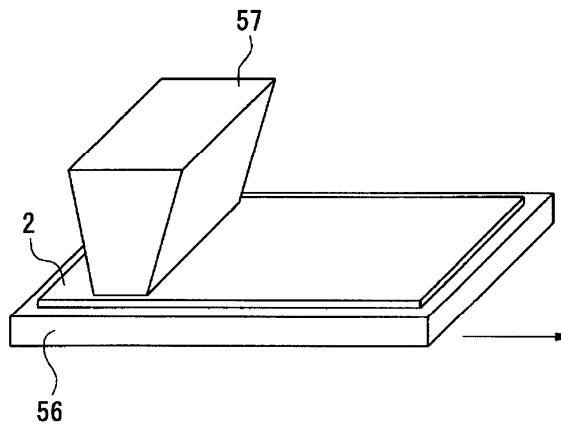
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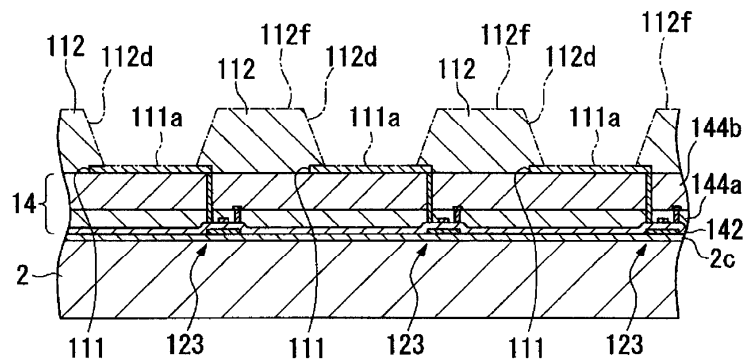
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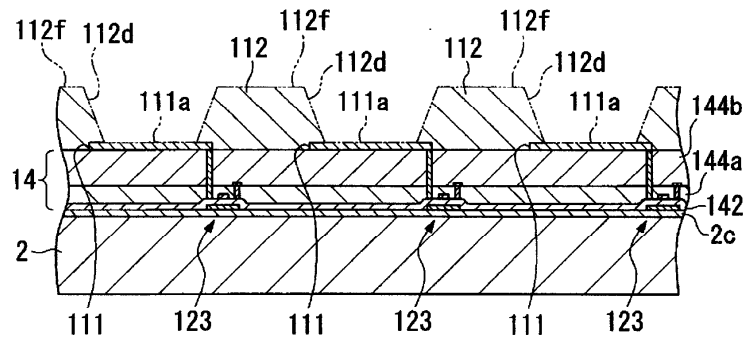
8



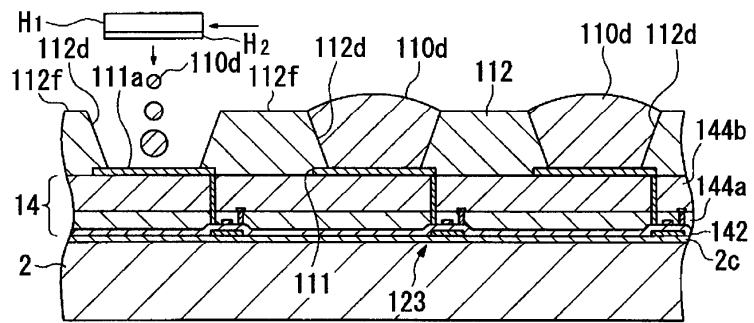
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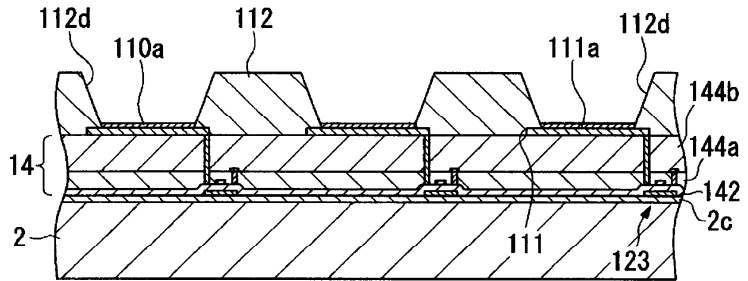
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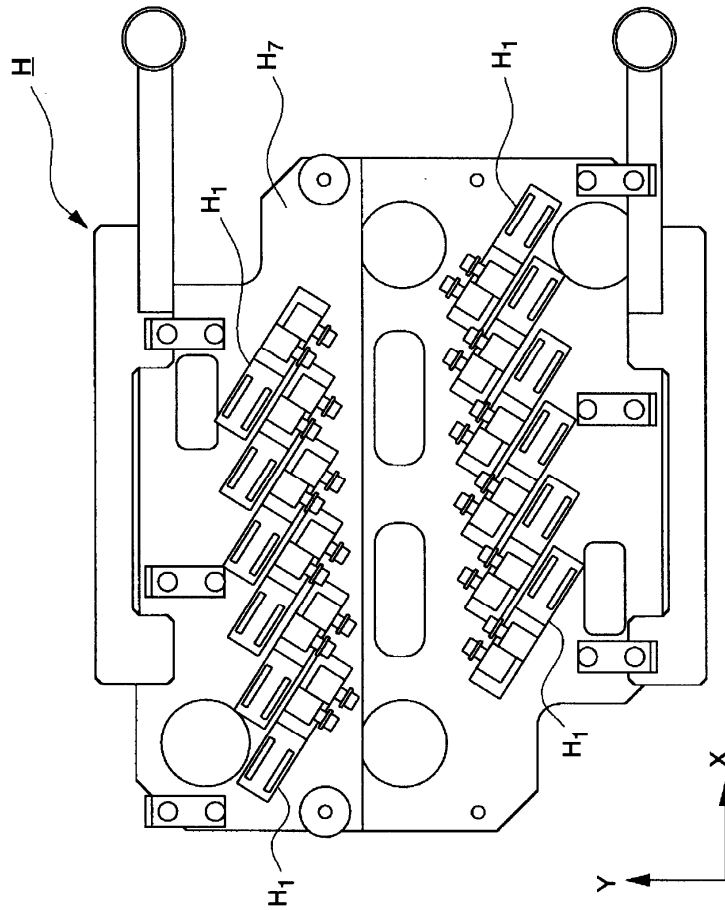
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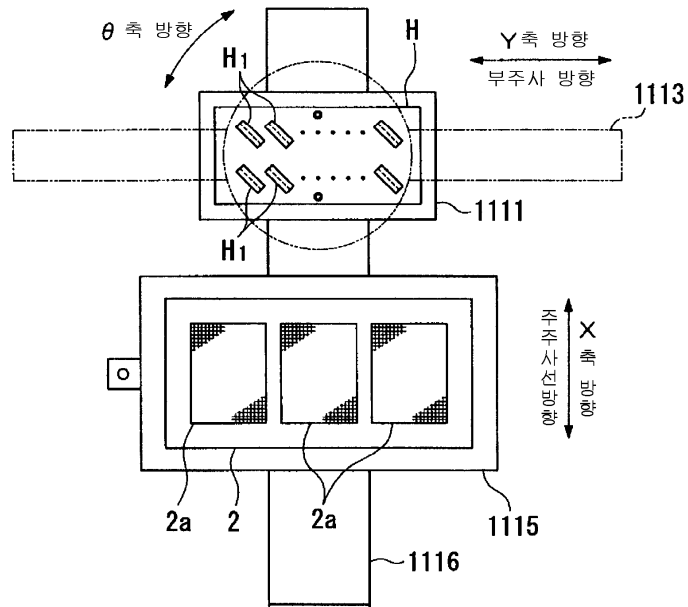
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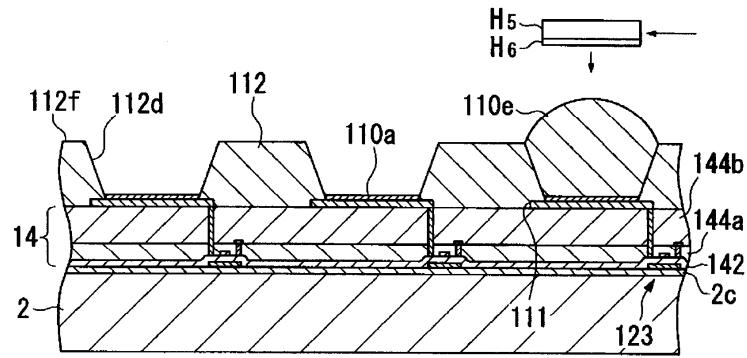
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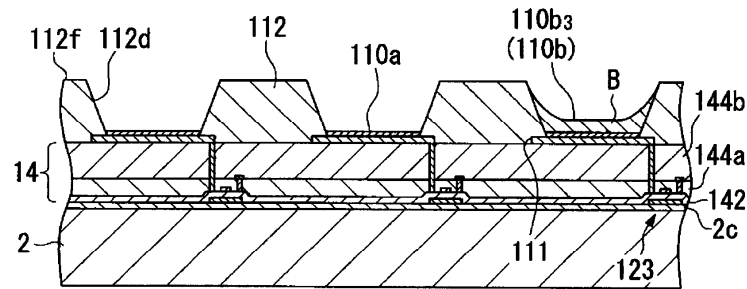
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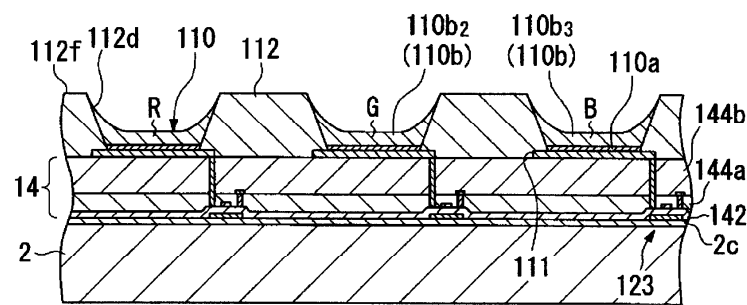
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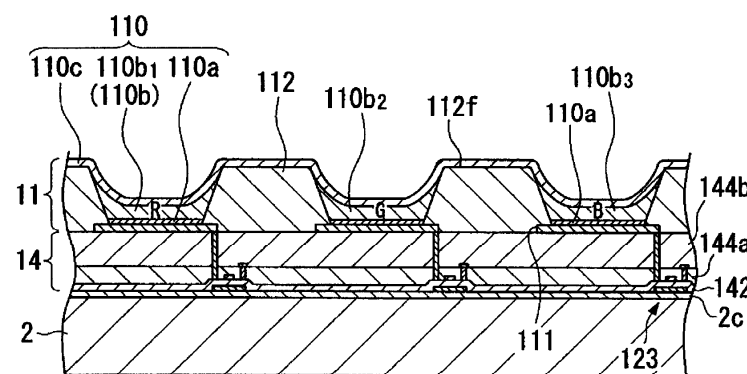
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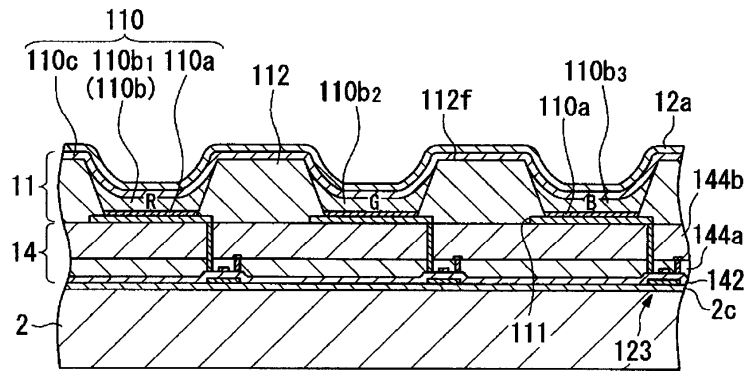
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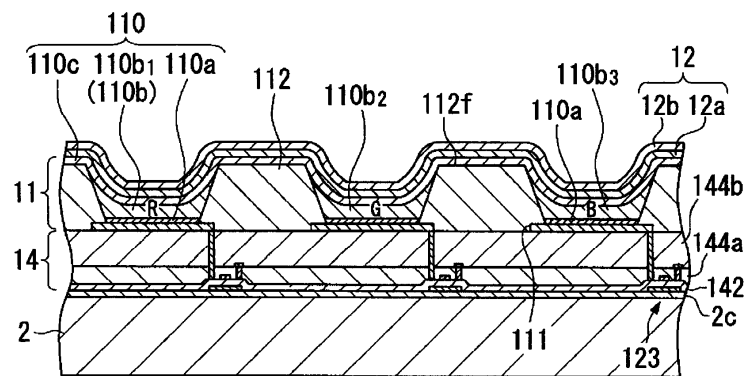
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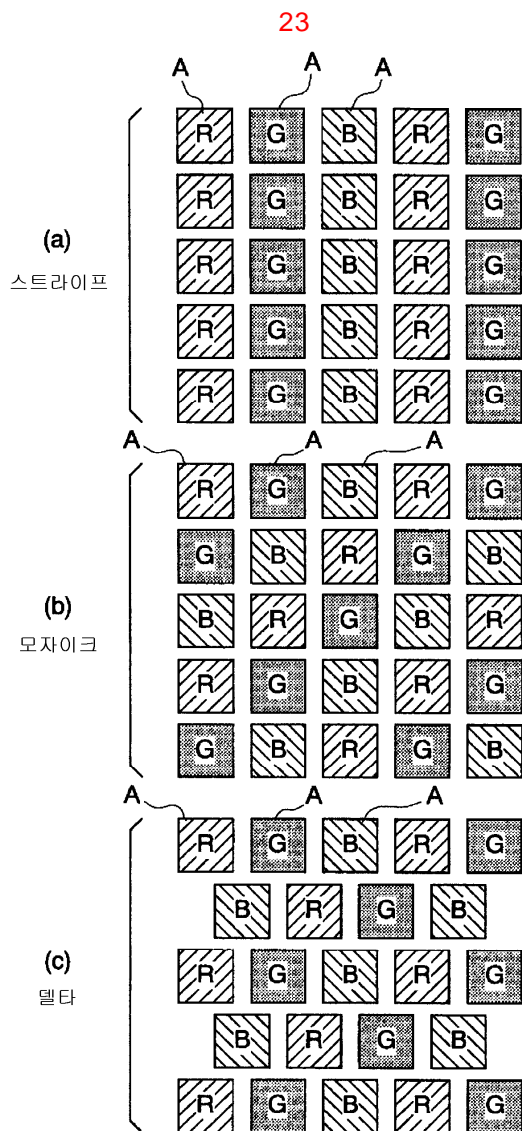


19



20





专利名称(译)	电致发光显示装置，其制造方法和电子装置		
公开(公告)号	KR1020040049252A	公开(公告)日	2004-06-11
申请号	KR1020030077834	申请日	2003-11-05
[标]申请(专利权)人(译)	精工爱普生株式会社		
申请(专利权)人(译)	精工爱普生株式会社		
当前申请(专利权)人(译)	精工爱普生株式会社		
[标]发明人	KOBAYASHI HIDEKAZU		
发明人	KOBAYASHI,HIDEKAZU		
IPC分类号	H01L51/50 C23C14/34 H05B33/26 H05B33/28 C23C14/08 H01L51/30 H01L51/52 H01L27/32 H05B33/10 H05B33/14 H01B13/00 H01L51/00		
CPC分类号	H01L27/3244 H01L51/0059 H01L51/0043 H01L51/0038 H01L2251/5315 H01L51/0039 H01L51/5234 H01L51/0036		
代理人(译)	MOON, KI桑		
优先权	2002353672 2002-12-05 JP 2003344803 2003-10-02 JP		
其他公开文献	KR100572237B1		
外部链接	Espacenet		

摘要(译)

本发明的目的是提供一种顶部发光型电致发光显示器及其制造方法，其能够防止在用金属氧化物进行成膜时膜的氧化作为电致发光显示器的透明阴极电极技术。具有顶部发射结构的电子设备和配备有该显示设备的电子设备。为了达到目的，由本发明组成的透明第二电极（12）涉及功能层（110），包括基板（2）上的第一电极（111）和发光层（110b）。金属氧化物依次层压在下面。此时，第二电极（12）的氧含量变为膜厚方向。第二电极（12）和功能层（110）的界面附近的氧含量低于第二电极（12）的平均氧含量。电致发光显示器和顶部发射结构。

