

(19)
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(A)

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(43)

2003-0091332
2003 12 03

(21) 10-2002-0029261
(22) 2002 05 27

(71) .
20

(72) 101 905

2 943-22

(74)

:

(54)

가

가

가

9

1

EL

2

EL

3

2

EL

4	1	3	'A - A"	.
5	4			.
6	EL		(band diagram)	.
7		EL		.
8	7			.
9		1	EL	.
10	9	2		.
11	9			.
12		2	EL	.
< >				
1,70 :	2 :			
4,82a,82b,86a,86b :	6 :			
8 :	10,64,74 :			
12 :	30 :			
32 :	34 :			
38 :	40,44,54 :			
42 :	50 :			
52 :	58,72 :			
60 :	66,76 :			
74a :	74b :			
74c :	74d :			
74e :				

(Cathode Ray Tube) (Liquid Crystal Display : 'LCD'), (Field Emis
sion Display : 'FED'), (Plasma Display Panel : 'PDP') (Electro Luminescence : 'EL') EL (contrast ratio
EL 100 200V 가 EL EL 5 20V (Surfa
) ce Light Source) (pixel),
EL EL EL
1 (2) EL (4) (4) E
(12) (12) (8) (4) (8) (6) EL (10)
(12) (8) (4) (8) (6)
EL (2) (work function)가 (4) 가 (12)
EL (10) 가 (4) (Anode)
(12) (Cathode) (4)
(4) (Indium Tin Oxide ; 'ITO')가 (In₂O₃) (SnO₂) - -
EL (10) (4) (12) (4,12)
2 EL
2 EL 1 ; 1
2 (Pixel area) ; EL
TFT TFT , TFT EL TFT ,
TFT (Hole) (Anode Electrode) EL (Electron) (Cathode Electr
ode)
3 2 TFT EL , 2 EL
3 가 (1) (32), (38), (50,52) TFT(T)
(C_{ST}) EL (E)
(C_{ST}) 가 (42) (34)
EL (E) EL (64) (58) (66)

(E) , TFT(T) (50) (42) , (52) EL (6)
 4) (58) , (66) EL (64) EL (58)
 (Work function) EL
 EL (30) , (C_{ST}) 가 1 (1) (32)
 8) (42) 2 (44) , (58) (52) 3 (40) , (50)
 (60) 가 1 3 (54) , (5)
 (40,44,54)
 4 1 3 'A-A" , 5 4
 6 EL (band diagram)
 70 1 (2) 3 (40,44,54)
 72 (ITO) 1 (4) 3 (56)
 74 1 EL (10) 3 EL (64)
 76 (12) 3 (66)
 4 EL (Work function)가
 EL 가 (ano
 de; 72) (cathode ; 76)
 가
 (76) (72) , ITO(Indium Tin Oxide)가 가
 가
 (Ca), (Mg), (Al)
 EL (74) 5 (72) (Hole Injection Layer ; HIL)(74a),
 (Hole Transporting Layer ; HTL)(74b), (Emitting Material Layer ; EML)(74c), (Electron
 Transporting Layer ; ETL)(74d), (Electron Injection Layer ; EIL)(74e)
 EL (74) 가 (72) (76)
 EL (74) (74a) (74e) (74b) (74d) (74b) (74d)
 (74c) (74c) (74b) (74d) (74c)
 (74c) (exciton) , (decay) 6 EL (74)
 LUMO(Lowest Unoccupied Molecular Orbital) HOMO(Highest Occupied Molecular Orbital)
 7 EL
 7 EL (72) (72) (70)
 Oxide ; , 'ITO')가 (In₂O₃) (SnO₂) - - (Indium Tin
 (Ar) (Ar)+ 4sccm (O₂) 가 (72) 70sccm
 (72) (70) EL (74) (76) EL
 (O₂) 가 (α) EL 8 가 (72)
 EL (74) (74a) (72) (Work Function) 4.7 가 EL (64) (74
 a) 5.2 , (72) (74a) (Exciton)

ITO (O₂)

가

(In₂O₃) (SnO₂) - - (I

ndium Tin Oxide)

1400

1200 가 1 200

가 1 2 (Ar) 가 (O₂)

2 1 50 4

1 4sccm

1 2

1 2 가 가

(In₂O₃) (SnO₂) - - (In

dium Tin Oxide)

(Ar) 1 4sccm (O₂)가 가

4 2 1 (Ar) 3.75sccm (O₂)가 가

(O₂)가 가 (Ar) 3.25sccm (O₂)가 가 (Ar) 3.5sccm

(Ar) 3sccm (O₂)가 가 3

4

9 12

9 10 9 1 2 EL

EL 1 3

9 10 , EL (70) , (70) (72)

, (70) EL () ()

(72) 1400 , (70) 1 (82a) 2

(82b) , 1 2 (82a,82b) ITO

(Phtolithography)

1 (82a) 1200 , 2 (82b) 200

1 (82a) 1 (82a) (70) (Ar)+4

sccm (O₂)

2 (82b) 10 200 50 4 4

2 (82b) 1 (82a) (Ar)+ 3.82sccm (O₂)가 1 (84a),

(Ar)+ 3.5sccm (O₂)가 2 (84b), (Ar)+ 3.25sccm (O₂)가 3 (

84c) (Ar)+ 3sccm (O₂)가 4 (84d) (O₂) (82a,82b) (Ar)

(mass flow controller ; MFC) 가 (O₂)

가 가 1 (82a) 4 3sccm (O₂) (Ar)

(82a,82b) 1 4 (84a 84d) 2 (82b) 1 2

(72) 11 (α) 27 ° (72) 가

(72) (Work Function) 4.95eV 가

, EL (72) 가 EL (72)

(86a) EL 가 (72) (Exciton)

12 2 EL

12 , EL (70) , (70) (72) , (70)

EL () ()

(72) 1400 , (70) 1 (86a) 1 (86a)

2 (86b) , 1 2 (86a,86b) ITO

(70) (Phtolithography)

1 (86a) 1200 , 2 (86b) 200

1 (86a) , (70) (Ar)+4sccm (O₂)

, 2 (86b) , ITO (Ar) 3 3.5sccm

(O₂)

2 EL (72) 가 EL

(72) (74a) 가 (72) (72)

EL

(Exciton)

가 가

가

(57)

1.

가

2.

1 (In₂O₃) (SnO₂) - - (Indium Tin Oxide)

3.

1400

4.

3 1200 가 1 200 가 1 2

5.

3 1 2 (Ar) 가 (O₂)

6.

4 2 1 50 4

1 2 가 가

.

14.

13

,

.

15.

13

,

1 2 (In₂O₃) (SnO₂) - - (Indium Tin Oxide)

16.

15

,

1

,

(Ar) 4sccm (O₂)가 가

.

17.

16

,

1

1200

.

18.

15

,

2

50

4

.

19.

18

,

4

2

(Ar) 3 4sccm

가

가

.

20.

17

,

4

2

1

,

(Ar) 3.75ccm (O₂)가 가

1

,

(Ar) 3.5sccm (O₂)가 가

2

,

(Ar) 3.25sccm (O₂)가 가

3

,

(Ar) 3sccm (O₂)가 가

4

.

21.

14

22.

21

23.

13

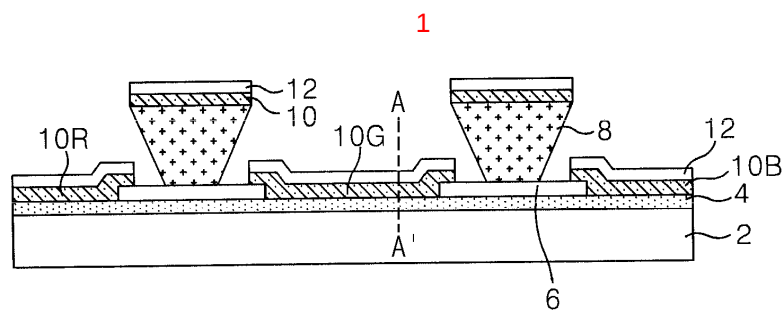
1	2
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24.

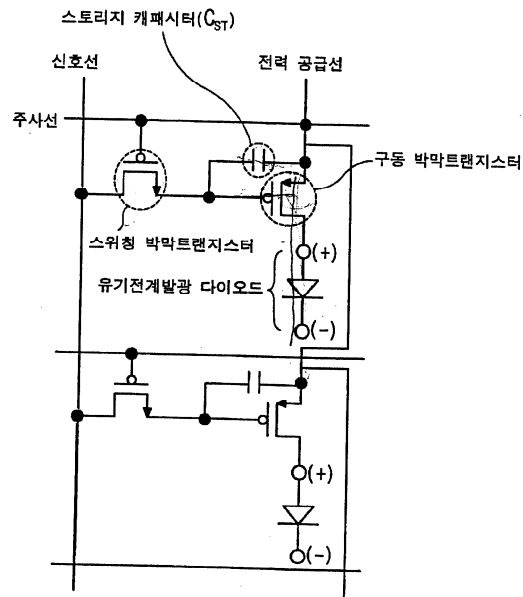
23

1	2
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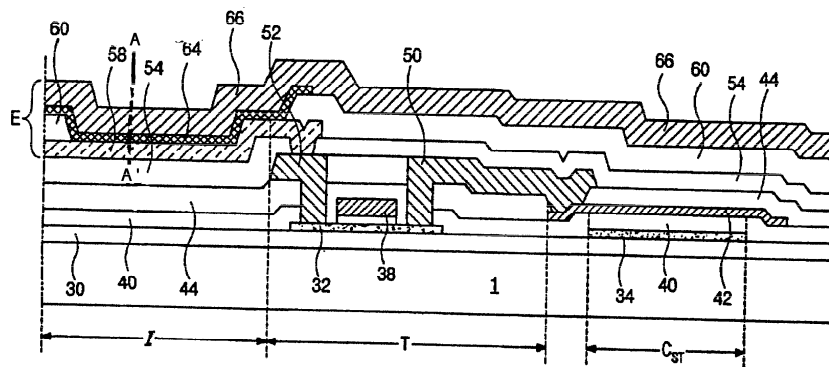
27 °



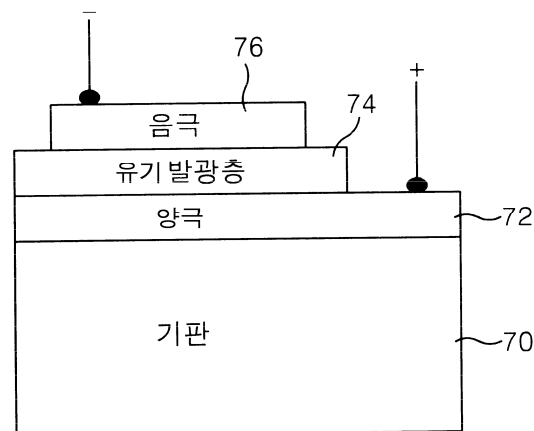
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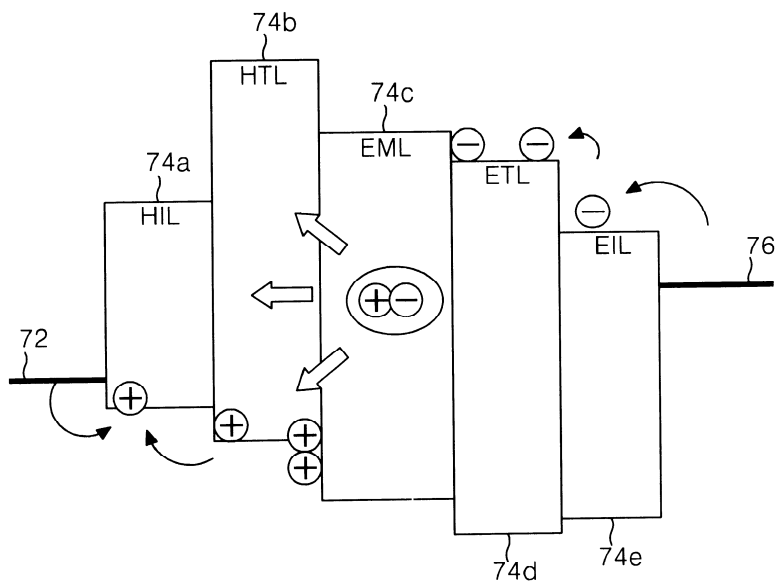
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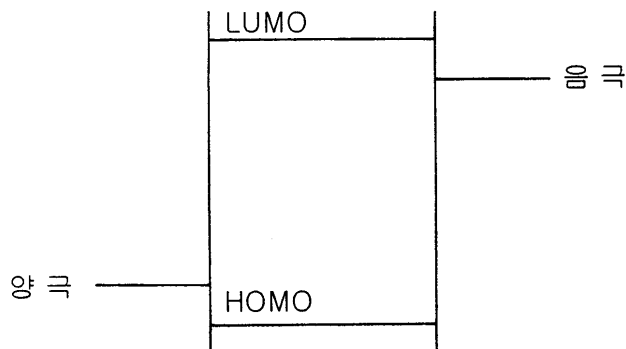
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5



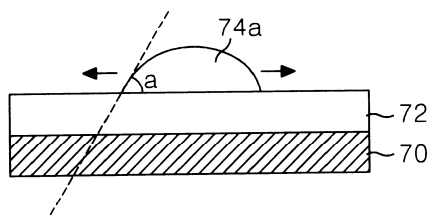
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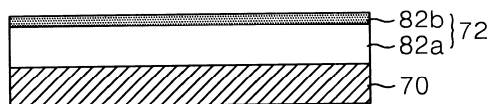
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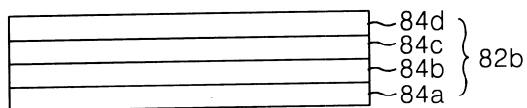
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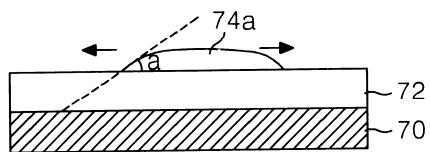
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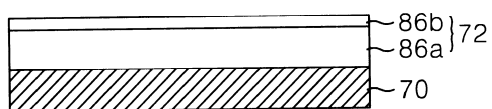
10



11



12



专利名称(译)	有机电致发光显示装置及其制造方法		
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[标]申请(专利权)人(译)	乐金显示有限公司		
申请(专利权)人(译)	LG显示器有限公司		
当前申请(专利权)人(译)	LG显示器有限公司		
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IPC分类号	H05B33/00 H01L33/00		
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其他公开文献	KR100845254B1		
外部链接	Espacenet		

摘要(译)

本发明涉及一种有机发光显示装置和制造方法，以提高显示面板的特性，以改善透明电极和构成有机发光二极管的有机发光层之间的界面性质的方法。根据本发明，金属电极，和一个透明电极和在由氧流量所形成的多层结构的衬底的整个表面上的金属材料形成的多层结构的有机电致发光显示装置线性地涂覆在该预定发光区域限定衬底并且有机发光层形成在透明电极和金属电极之间，并通过外部施加的电压发光。通过这样的结构，该有机发光器件和制造根据本发明，能够提高透明电极和有机发光层，以控制透明电极形成为正极线性时的氧流量之间的界面特性相同的方法。出于这个原因，它提高在透明电极上的有机发光层的空穴注入变得不仅具有有机光的发射效率的发光显示装置的增加有机发光元件的甚至更低的工作电压的效果。 9

