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(71) 575

(72)

5	7-1	가	가
5	7-1	가	가
5	7-1	가	가
5	7-1	가	가
5	7-1	가	가
5	7-1	가	가

(74)  
:

(54)

(3) (4) (6) , EL (1) (2) ,  
(5)

1 ,  
 2 ,  
 3 ,  
 4 ITO ,  
 5 ,  
 6 ,  
 7 5 ,  
 8 1  
 9 가 .  
 10 1  
 11 12 1

\*.

1 : 2:  
 3 : 4 : (MgAg)  
 5 : EL 6 : (ITO)  
 8, 33: ( - NMP) 9, 34 : (AIQ)  
 11 : ITO 12 :  
 13 : EL 31 :  
 32 : (ITO) 35 : (MgAg)

가 ,  
 ( , EL ) 가 ,



62-172691 )가 EL EL  
가 EL 가  
( )  
EL EL  
EL 1  
가 1 ( )가 가  
EL 가 가 EL  
EL 50nm EL EL 가  
가 10 200 nm 가 10 nm  
200 nm  
가 300 nm 300 nm  
EL 가  
70%  
200nm , CVD 가 630nm (Shimazu UV4000 )

(ZnO<sub>2</sub>), (ZrO<sub>2</sub>), 5 가 (Ta<sub>2</sub>O<sub>5</sub>), (SiO<sub>2</sub>), (TiO<sub>2</sub>), (ITO),  
가 EL 가  
EL  
(SOG)  
EL  
가 EL 가  
(EL, RIE)  
EL RIE  
가 (CMP) CMP  
(定盤)  
가 가 , NF3000( )가  
가 IC1000, Suba400  
가 RIE ( )  
가 RIE 가 , CF<sub>4</sub>, CHF<sub>3</sub>  
가 EL 가 2 , 2  
가 0.3 가 , 2  
EL 가  
1 , 2 EL EL EL  
) )-1,1- (1), N-N'- -N-N'- (3- )-1-1'- -4-4'- ( (P-  
-N-N- (1- -1,1'- )-4-4'- (3) ) (2), N-N'  
6)) ((04) (0  
)-1,3,4- (07), {2-84-t- }-1,3,4- }-m- , 2-(4- )-5-(4-t- ((0  
9), (10)), ((11) (14)) (08)  
EL EL  
8-298186

9-268284

5-70773

9-157643

9-268283

EL  
가 4.5eV

(ITO),

가 4.5eV

(IZO),

EL

EL

가

가

가

EL

(MBE )

( )

( 1)

1

1

. 50mm×50mm

(HOYA : NA45, 1.1mm )  
(東京應化製: THMR-iP1700)

2

2μm  
(1)

0.1μm,

0.1μm

100nm  
(Si<sub>3</sub>N<sub>4</sub>)

0nm

(2)  
Si<sub>3</sub>N<sub>4</sub>

Si<sub>3</sub>N<sub>4</sub>

(3)

(SiO<sub>2</sub>) 50nm  
EL

, 30

EL (5)(

3

(4),  
(ITO)

(8),

(9),

(6)

)

ITO

(1)  
100nm

20 /  
, 2mm×50mm

4

ITO

2mm×50mm  
(11)

가

(1)

5

(4)

ITO  
EL (5)

(8),

(9),

(6)

가

250 mm

30

가

( )

38 가  
5×10<sup>-7</sup> Torr

) -4,4'-  
70nm,  
EL

0.15nm  
( -NMP ) 50nm,

N,N'-  
(8-

-N-N-  
)

(1- ) -1,1'-  
( , ALQ )

10:1  
5

150nm  
(12))

mm

(4)

(6)

EL

(13)가 5

EL

6

(1)

2mm×2

( 2)

2

μm, 100nm

1

(2)

0.05μm,

0.05

- ( 3 )  
3 1 , 50mm×50mm (HOYA NA45, 1.1mm )  
, (3) , EL (5) 1 EL
- ( 4 )  
4 1 , 50mm×50mm (HOYA NA45, 1.1mm )  
#300 , (3) , EL (5) 1 EL
- ( 5 )  
5 EL 7  
1 , Si<sub>3</sub>N<sub>4</sub> 10nm 가  
Si<sub>3</sub>N<sub>4</sub> 50nm EL , SiO<sub>2</sub> 17가 7 Si<sub>3</sub>N<sub>4</sub> (2) (3) SiO<sub>2</sub>  
(5) (4) (8), (9), (6)
- ( 6 )  
6 5 , (3) SiO<sub>2</sub> 20nm
- ( 7 )  
7 5 , (3) SiO<sub>2</sub> 200nm
- ( 8 )  
8 5 , (3) (Si<sub>3</sub>N<sub>4</sub>) , Si<sub>3</sub>  
N<sub>4</sub> 50nm
- ( 9 )  
9 8 , (3) Si<sub>3</sub>N<sub>4</sub> 100nm
- ( 10 )  
10 8 , (3) Si<sub>3</sub>N<sub>4</sub> 300nm
- ( 11 )  
11 5 , (3) (TiO<sub>2</sub>) , TiO<sub>2</sub>  
50nm
- ( 12 )  
12 5 , (3) (ZrO<sub>2</sub>) , Zr  
O<sub>2</sub> 50nm
- ( 13 )



( 1)

1 . 8 1 .  
 8 , (31), (ITO)(32), ( -NMP)(33), (AIQ)(34), (MgAg)  
 (35) .  
 50mm×25mm (31)(HOYA NA45, 1.1mm ) (ITO)  
 , (32) . ITO 100nm, 20 / , ITO  
 2mm×50mm 가 .  
 , (32) ITO (33), (34), (35) . , ( )  
 (33), (34)) (35) 가 .

250nm 3  
 8 가 , 30 ( ) , 5×10<sup>-7</sup> T  
 orr , 가  
 ,4'- ( , -NMP ) 50nm, N,N'- -N-N- (1- )-1,1'- )-4  
 , , - 10:1 ( , ALQ ) 70nm  
 , EL

( 2)

(1.1mm ) , , , EL . ,  
 1 .

( 3)

3 1 , , .

( 4)

4 2 , , .

( 5)

5 3 , , .

( 6)

6 4 , , .

( 7)

7 5 , , .

( 8)

8 18 , , .

( 9)

9 19 , , .

( 10)



「가 5」 1( )

가 3 가 4 가 3 ( A, B, C, D)

:  
:

x: 가

「가 6」 2( )

가 3 가 4 ( A, B, C, D) ( 12, 4 x3 )  
"Emax", "Emin"  
가 1 10V 가

: Emin/Emax가 0.90  
: Emin/Emax가 0.80 , 0.90

x: Emin/Emax가 0.80

「가 7」 3( )

가 EL 가 5mA/cm<sup>2</sup> 100 가 (E) 가 "Lmax", "Lmin"

: Lmin/Lmax가 0.90  
: Lmin/Lmax가 0.80 , 0.90

x: Lmin/Lmax가 0.80

[ 1 ]

	A	B	C	D
1	5.56	5.43	5.30	6.29
2	5.69	5.99	5.46	5.68
3	5.09	5.18	4.89	5.00
4	4.23	4.41	4.56	4.49
5	4.71	4.68	4.62	4.73
6	5.40	5.28	5.43	5.36
7	5.50	6.71	5.56	5.66
8	5.13	5.06	4.99	5.09
9	5.69	5.68	6.47	5.59

10	5.80	5.31	6.26	6.18
11	5.11	6.16	4.99	4.98
12	5.71	6.78	5.64	5.81
13	6.10	6.07	6.08	5.87
14	5.99	5.64	5.49	6.70
15	5.69	5.26	5.43	5.42
16	5.86	5.81	5.74	5.81
17	6.18	6.18	6.17	5.98
18	5.98	5.94	5.98	5.30
19	5.71	6.70	6.79	5.65
20	5.31	6.34	6.22	6.32
21	5.64	5.76	5.81	6.66
22	5.41	5.23	5.29	5.44
1	3.92	3.87	4.09	3.81
2	3.86	4.15	4.11	3.81
3	6.83	-	4.93	5.29
4	-	5.76	5.60	-
5	5.26	6.03	-	6.69
6	4.61	4.21	4.10	9.71
7	4.81	4.43	4.62	4.81
8	6.53	-	5.42	4.76
9	6.93	6.23	3.57	8.19
10	-	4.96	-	5.12
11	-	5.01	5.79	5.19
12	5.81	-	5.10	-

[ 2 ]

	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

13				
14				
15				
16				
17				
18				
19				
20				
21				
1				
2				
3		x		
4	x			x
5		x	x	
6				
7				
8			x	
9				
10	x		x	
11	x			
12		x		x

[ 3 ]

	가 3 (La/Lb)	가 4 (Emin/Emax)	가 5
1	(0.984)	(0.951)	
2	(0.973)	(0.947)	
3	(0.952)	(0.928)	
4	(0.980)	(0.951)	
5	(0.976)	(0.976)	
6	(0.921)	(0.972)	
7	(0.949)	(0.971)	
8	(0.952)	(0.972)	
9	(0.961)	(0.976)	
10	(0.972)	(0.977)	
11	(0.948)	(0.965)	
12	(0.937)	(0.970)	
13	(0.982)	(0.962)	
14	(0.951)	(0.941)	
15	(0.957)	(0.961)	

16	(0.961)	(0.958)	
17	(0.924)	(0.961)	
18	(0.931)	(0.975)	
19	(0.921)	(0.976)	
20	(0.947)	(0.996)	
21	(0.952)	(0.967)	
22	(0.981)	(0.961)	
1	(0.966)	(0.945)	
2	(0.971)	(0.918)	
3	x(0.691)	x	x
4	x(0.733)	x	x
5	x(0.781)	x	x
6	x(0.620)	(0.904)	
7	x(0.711)	(0.896)	
8	x(0.761)	x	x
9	(0.813)	(0.894)	
10	x(0.761)	x	x
11	x(0.743)	x	x
12	x(0.761)	x	x

[ 4 ]

	가 3 (La/Lb)	가 4 (Emin/Emax)
1	(0.931)	(0.931)
2	(0.911)	(0.955)
3	(0.920)	(0.948)
4	(0.908)	(0.960)
5	(0.965)	(0.925)
6	(0.962)	(0.931)
7	(0.954)	(0.948)
8	(0.931)	(0.945)
9	(0.951)	(0.942)
10	(0.917)	(0.923)
11	(0.926)	(0.912)
12	(0.962)	(0.961)
13	(0.941)	(0.957)
14	(0.838)	(0.971)
15	(0.907)	(0.926)
16	(0.912)	(0.934)
17	(0.961)	(0.928)

18	(0.967)	(0.949)
19	(0.941)	(0.982)
20	(0.981)	(0.941)
21	(0.923)	(0.928)
22	(0.945)	(0.941)
1	(0.901)	(0.928)
2	(0.887)	(0.923)
3	x	x(0.621)
4	x	x(0.612)
5	x	(0.812)
6	x(0.748)	x(0.423)
7	x(0.782)	x(0.612)
8	x	x(0.691)
9	x(0.652)	(0.923)
10	x	x(0.532)
11	x	x(0.511)
12	x	x(0.423)

10 1

10 AM (AMOLCD(Active matrix organic light emitting display))

(92) 가 (90) (200) (91) (TFT) (91) 가 (300)

(91) p n (92) (93)

(93) (92) (94)

(92) 1 (95) 1 (95) (95) (96) (96a)(97a) (97) (111) 1

(97) 1 (95) 2 (112) (110) (111)

)가 1 (95) 2 (98) (99a)가 (99) (99) (100) 2

(101) 1 (99) (100) (70) (96) (99) (100)

가 (99) (80) (80)

(3) SiO2가 (99)

(80) (51), (91), (93), (98) 1,2 (100) (95)(98) ITO  
 (80) 2 (98) 가 가  
 (80) 11 12 (51) (91)

1 가

(57)

1.

1

2.

1

50nm

3.

1

2

4.

1

3

가 10 200nm

5.

1

4

가 300nm

6.

1

5

200nm

가,

630nm

70%

7.

1

6

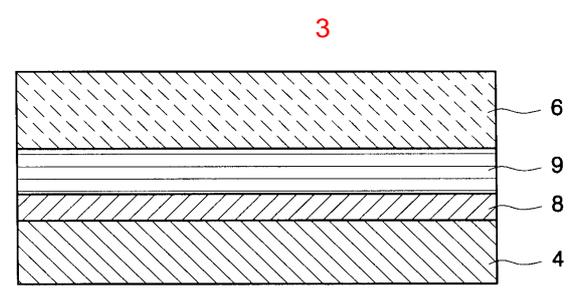
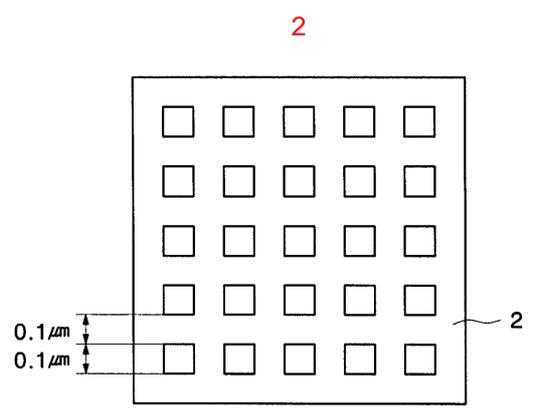
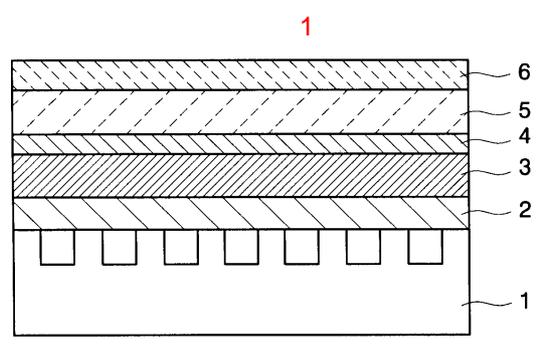
(ZrO<sub>2</sub>), 5 가 (Ta<sub>2</sub>O<sub>5</sub>), (SiO<sub>2</sub>), (TiO<sub>2</sub>), (ITO), (ZnO<sub>2</sub>), (Al<sub>2</sub>O<sub>3</sub>),

8. 1 7

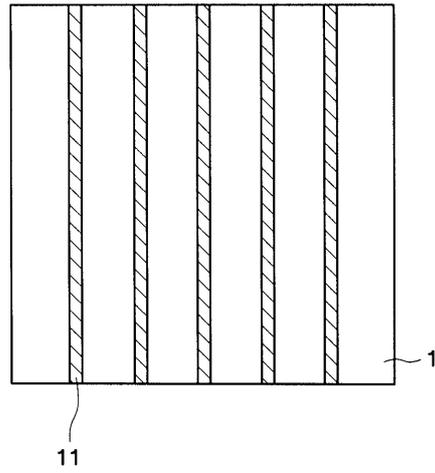
9. 1 8

10. 1 9  
가 2

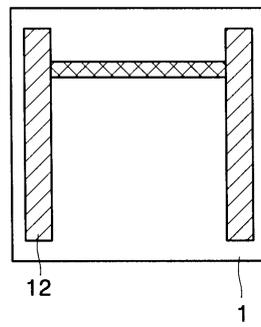
, 2 가 0.3



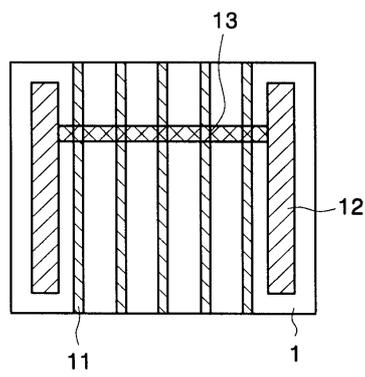
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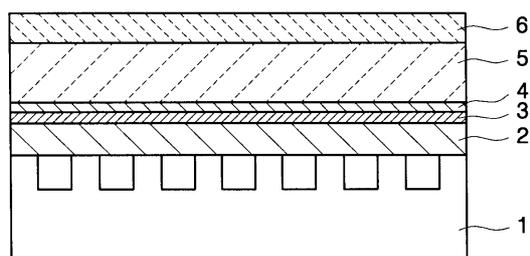
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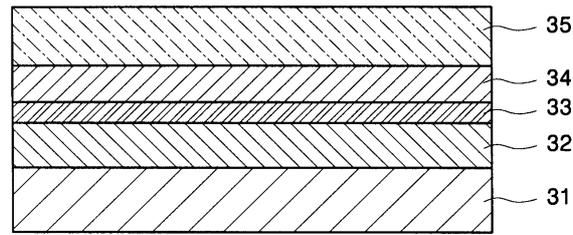
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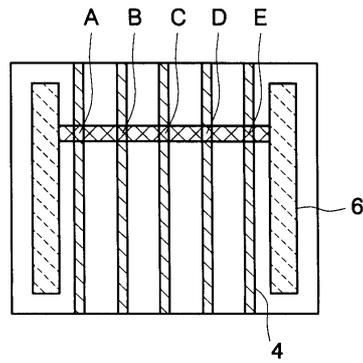
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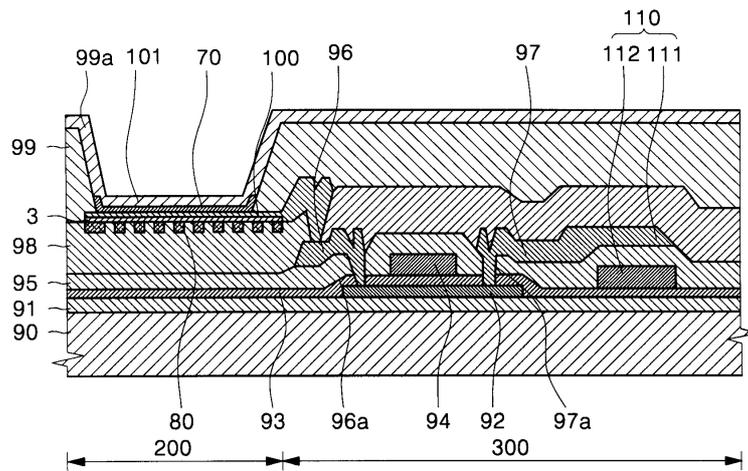
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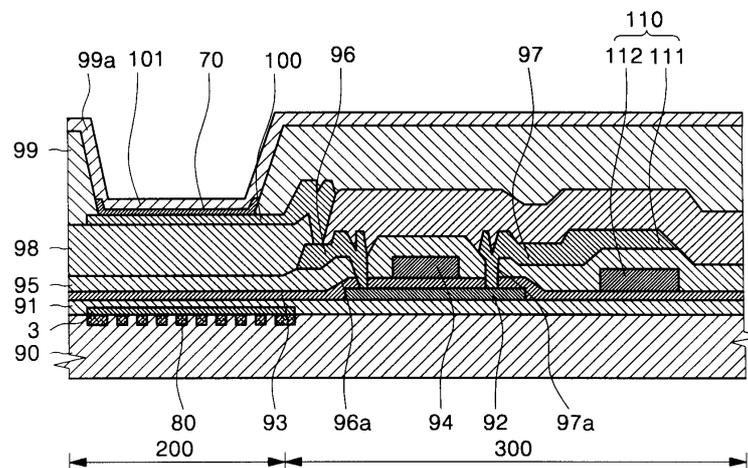
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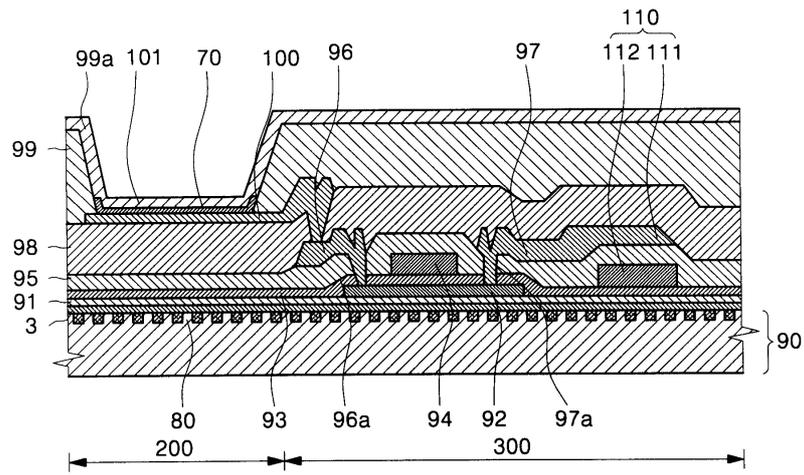
10



11



12



专利名称(译)	有机电致发光器件		
公开(公告)号	<a href="#">KR1020040101004A</a>	公开(公告)日	2004-12-02
申请号	KR1020040035753	申请日	2004-05-19
[标]申请(专利权)人(译)	三星显示有限公司		
申请(专利权)人(译)	三圣母工作显示有限公司		
当前申请(专利权)人(译)	三圣母工作显示有限公司		
[标]发明人	OHNISHI YASUHARU 오니시야스하루 TOGUCHI SATORU 토구찌사토루 YAMANARI JUNICHI 야마나리주니찌 ISHIKAWA HITOSHI 이시카와히토시 GOTOH TOMOHISA 고토토모히사 KAMIJO ATSUSHI 카미조아쯔시		
发明人	오니시야스하루 토구찌사토루 야마나리주니찌 이시카와히토시 고토토모히사 카미조아쯔시		
IPC分类号	H05B33/02 H01L51/50 H05B33/22 H01L51/52		
CPC分类号	H01L51/5262 H01L51/5268 H01L51/5275		
代理人(译)	PARK, 常树		
优先权	2003144769 2003-05-22 JP		
其他公开文献	KR100894625B1		
外部链接	<a href="#">Espacenet</a>		

摘要(译)

有机电致发光器件包括在基板(1)的表面层上的衍射光栅(2),以及插入在阳极(4)和阴极之间的中间层(3)并且提供包括发光层的有机EL层5以提供具有良好发光特性和高发光效率的有机电致发光器件。1 指数方面 有机电致发光器件,衍射光栅

