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2003 - 0010136
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(21) 10 - 2001 - 0044928
(22) 2001 07 25

(71) . 20

(72) 가 307 - 801

(74)
:

(54)

; , ; (p - Si) 1 ;
 ; 1 ; 1
 , , 1 가 2 ; 2 1
 , , ; 가 3 ; 2 1
 , (Organic Electroluminescent layer) ;
 (cathode electrode)
 , , 가 .

4

1

2

3a 3i 2

4

5a 5h 4

100 : 102 :

104 : 107 :

108 : 110 : 1

112 : 114 :

118 : 2 124 :

126 : 128 : 3

132 : 134 :

(Organic Electroluminescent Device) ,
(Active - Matrix Organic Electroluminescent Device) .

(LCD ; Liquid Crystal Display Device) 가 가 ,
(FPD ; Flat Panel Display) 가 .

, 가 (contrast), ,
가

(E) (1) (32) (52)
 (30) , (C_{ST}) 1 (40) , (54) , (58) (50) 3 (54) , (42) 2 (44) , (60) 가 , 1 4 (4
 (T) (58) 4 () .
 0, 44, 54, 60)

, 3a 3i 2
 ,
 osure), (Develop) , (Photo Resist Coating), (Align & Exp
 (photolithography) .

3a , (1) 1 (30) , (30)
 , 1 (32a ; active layer) (34)

, 3b , 3a , 2 1 , 2
 (32a) (36) (38) .

3c , 3b , 3 1 (40) , 1
 (40) 2 , 3 (34)

(42) .

, 3d , 3c , 3 , 4 ,
 (32a) (42) 1, 2 (46a, 46b) (

48) 가 2 (44) .

(32a) , (la)
 , (lb) .

, (32a)
 (32b ; ohmic contact layer) , (32a) (32b)
 (32) .

, 3e , 3 , 5 (3d 48)
 1 (3d 46a) , (42) (lb) (32b) (

50) , (50) , 2 (3d 46b) (la) (

(32b) (52) .

(32), (38), (50, 52) (T)

, (42) (34) (52) (1)
 , 1 (40) , (C_{ST}) .

3f , 3e , 4 , 6
 (56) 가 3 (54) .

, 3g , (3f 56) (50) , 4
 , 7 , (E) (58) .

1, 2

ITO(Indium Tin Oxide)
(work function)가 4eV

(LiF) (alkali) / (Mg:Ag), / (Al : Li),

1 2

가 가 가

(Hole - Injection Layer), (Hole
- Transport Layer), (Emissive Layer), (Electron - Transport Layer)

(vacuum evaporation)

2 1 1 1, 2

가
(Active - Matrix Organic Electroluminescent Device)

1 ; 1 ; 1

가 2 ; 2 1 ; 1

2 ; 2 1 2 가 3 ;

2 1

2 ,

2 .

ITO , 가 4eV .

(Hole - Injection Layer), (Hole
 - Transport Layer), (Emissive Layer), (Electron - Transport Layer)

1 , 2 ,

1 3 .

4 ,

1 , 가 ,

(108) (106) (1) (102) (104) (104) (102) (104) (104) (107), (124, 126)

(124) (112) (106) 1 (110)

1 (110) (112) (106) (C_{ST})

(126) (E) (114)

(114) (130) 2 (118) (T) 2 (118)

(132) (134)

1 (E) (110) (114) (102) 1 (110) , 가 ,
 2, 3 (118, 128) (132), (134) (114) (130) (114) (130) (114)
 , (114) (130) (T) (126) ,
 (132) 3 (128) (T) (130)
 (114)
 , (114) (126) (114) 1 (110) ,
 (114) (114) (126)
 ()
 ,
 5a 5h 4 가
 가
 5a , (100) 1 (102) (102)
 , 1 (104a) (106)
 (100) (flexible)
 (104a) , (102)
 ,
 , 1 ,
 , (102) (102) 1 (100) (damage)가 가
 , (SiO₂), (Si₃N₄)
 , 1 (106) (1)
 5b , 5a , 2 1 , 2
 , (104a) , 2 (107)
 (107) , 1 (108)
 2 , 3a 1 ,
 (SiO₂), (Si₃N₄)
 , 1 , (Mo), (Ni), (W)
 (AlNd)/ (Mo)

5a
 (108)
 5c, 5b, 3, 1, (110), 1, (110)
 0) 2, 3, (106), (112)
 1, (110), (112), (106)
 (C_{ST})
 3, 5b, 2
 (C_{ST})
 2
 2, (112)
 5d, 5c, 3, 4, (114)
 (114), 5c, (E)
 3, ITO(Indium Tin Oxide)
 5e, 5d, 3, 5, (114),
 (104a), (112), 1, (116), 1, 2, (112)
 0a, 120b), (122) 가 2, (118)
 2, (118), (104a), (104a), (104a)
 (104), (104b)
 (n⁺, p⁺), n, p
 (104b)
 (IIa, IIb)
 (dry etching)
 5f, 5e, 4, 6
 (124, 126)

a) (124) 1 (5e 120a) (5e 122) (II
 (104b) (112) (126) 2 (5e
 120b) 1 (116) (IIb) (104b) (114)

(1)

4 /

(104), (108), (124, 126)

(T)

(T) (T)

5g (5f 116) 2 4 (130) 가 3 7 (128) 1
 3 (128) (T) (T)

4

7

0b) (114) (124, 126) (5e 120a, 12
 (5e 122) (5e 116) 가
 (3f 56)

(114) 5h 5g (5g 130)
 5 (134) (132) (132)

5 가 4eV (alkali m
 etals) / (Mg:Ag), / (Al : Li)
 (LiF)

(132) (132)

(134) (132)

(132)

(132) (132)

Hole - Injection Layer), (Hole - Transport Layer), (Emissive Layer), (Electron
 - Transport Layer)

(p - Si)

;

;

1 ;

1 ;

ode) ; 1 , (anode electr

, 1 가 2 ;

2 , 1 , ;

가 3 ; , 2 1 2

2 , (Organi
c Electroluminescent layer) ;

(cathode electrode)

2.

1 ,

1 3 .

3.

2 ,

(SiO₂), (Si₃N₄)

4.

1 ,

1, 2 , 2

5.

4 ,

13.

1 ,
 (Hole - Injection Layer), (Hole
 - Transport Layer), (Emissive Layer), (Electron - Transport Layer)

14.

1 ,
 (vacuum evaporation)

15.

1 1 , 1 2
 2 가 1, 2 , ,
 (Active - Matrix Organic Electroluminescent Device)

;

;

;

1 ;

1 ;

;

,

;

1

가

2

;

2

1

,

;

,

,

1

2

가

3

;

2

,

16.

15 ,

2	1	,	.
17.			
16	,	,	.
18.			
17	,	,	.
	2	,	.
19.			
16	,	2	.
20.			
15	,		
21.			
15	,		
	ITO		.
22.			
15	,		
	가 4eV		.
23.			
15	,		
- Transport Layer),	(Emissive Layer),	(Hole - Injection Layer),	(Hole
		(Electron - Transport Layer)	

24.

15

1

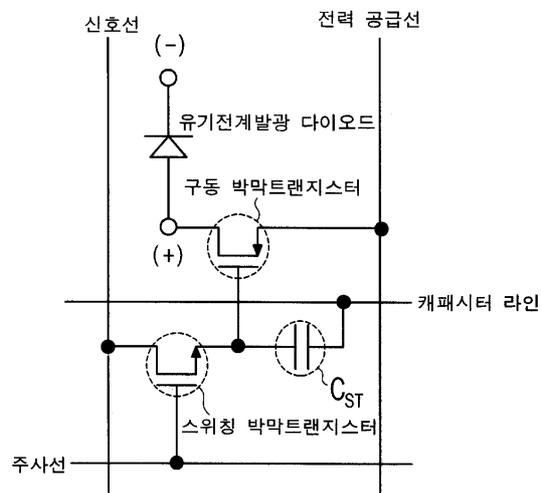
2

25.

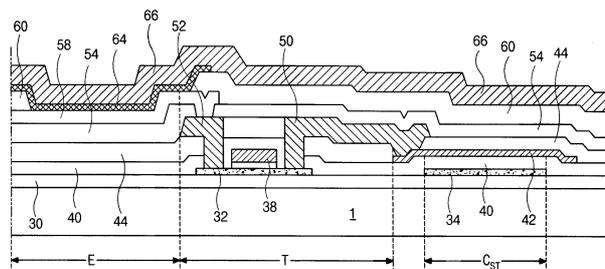
15

1 3

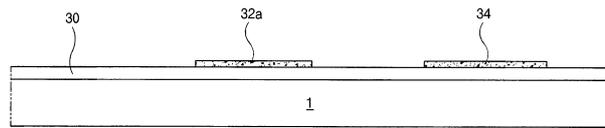
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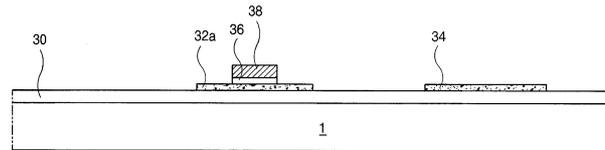
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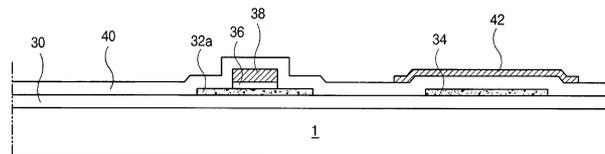
3a



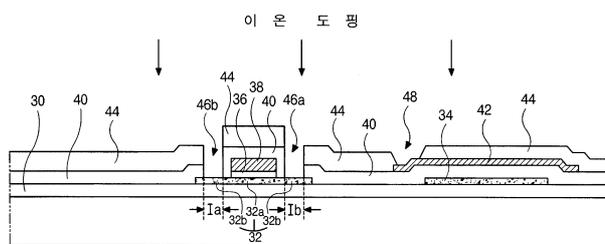
3b



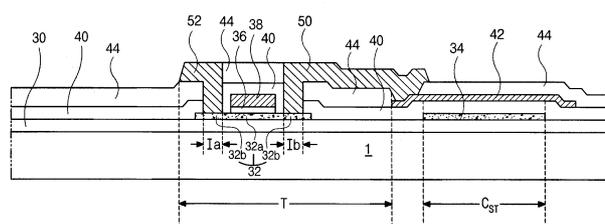
3c



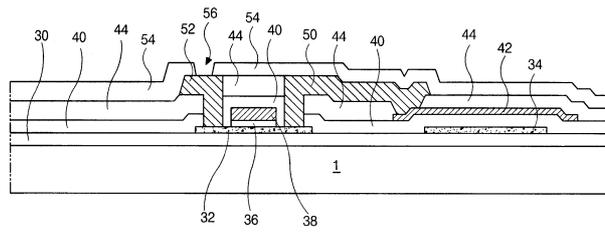
3d



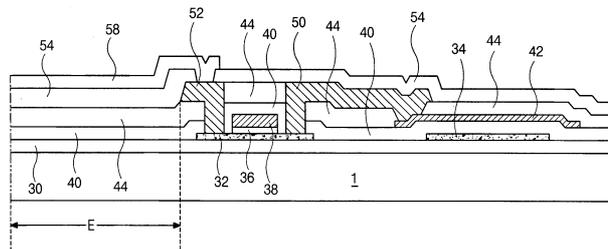
3e



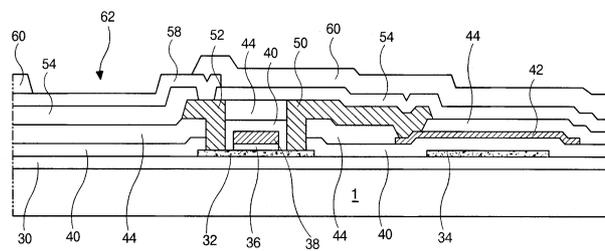
3f



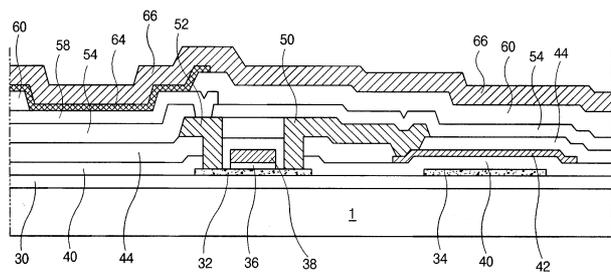
3g



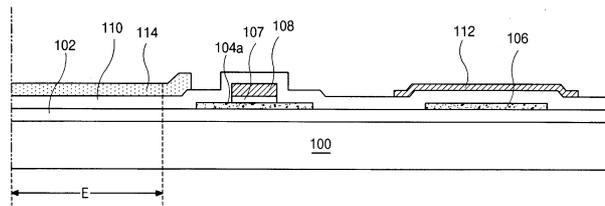
3h



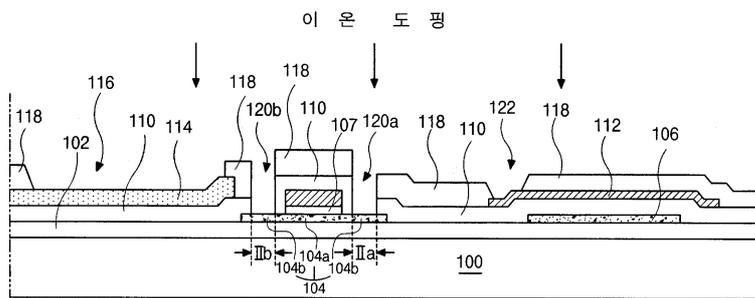
3i



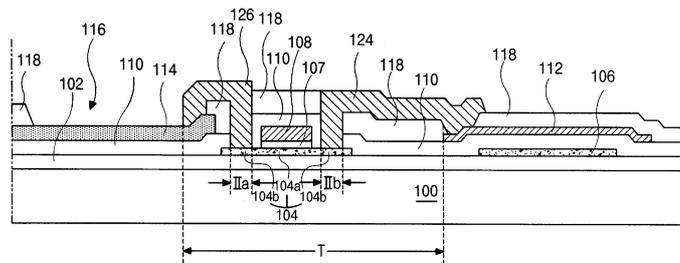
5d



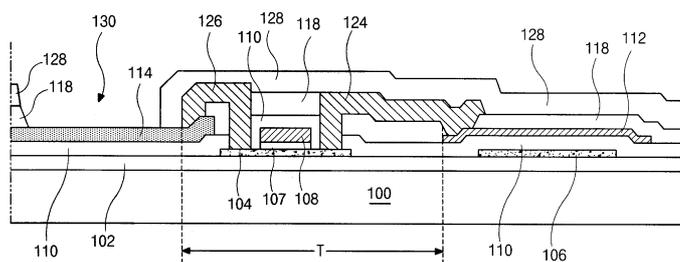
5e



5f



5g



5h

