

(19)
(12)

(KR)
(A)

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G02F 1/136

(11)
(43)

2003 - 0005910
2003 01 23

(21) 10 - 2001 - 0041378
(22) 2001 07 10

(71)	.	20		
			1	
(72)		53	102	1103
			1	
			1	

(74)

:

(54)

1

2

2d

1a 1c

2a 2d 1

3 1

4a 4b 2

5a 5b 3

6a 6b 4

7

8

9a 9f

*

11,111 : 12, 112 :

13, 113 : 14, 114 : 1

15, 115 : 16, 116 : 2

123 : 123a,123b : /

123b : 124 :

125 : 126 :

127 : 127a,127b : /

128 : 129 :

가 ,
가

가 ,

350

(mobility)가

가

(ELA : Eximer Lazer Annealing),

(SPC : Solid Phase Crystallization),

(MIC : Metal Induced Crystallization)

, SPC 600 (furnace)

ELA 가 가 가 가 가 가 가 가 400

, 500

FE - MIC(Field Enhanced - Metal Induced Crystallization)

FE - MIC

가

가

FE - MIC

가

MIC

가

가

FE -

1a

1c

1a

(1)

(2)

가

0 - 400

PECVD(Plasma - Enhanced CVD), LPCVD(Low - Pressure CVD), Sputter
(Amorphous Silicon) (3)

30

1b

(3)

(Ni)

(4)

(4)

(5)

가
가

(4)

가

가

< 111 >

(1) (3) (Grain) 가 .
 가 ,
 ,
 ,
 (4) (3) 가 . ,
 < 111 >
 가 (seed) 가 ,
 (3) 가 .
 가 FE - MIC 가
 가 가
 ,
 (SiNx) .
 (photolithography)
 / .
 / / .
 / ,
 가 가 ,
 가 .
 가 가 가 가 가
 가 가 가 가 가

(MILC;Metal Induced Lateral Crystallization)

, 500

2 μ m/h

가

1

2

1

1

2

/

/

/

1

2

1

2

가

1

2a

2d

1

3

1

O₂)

1

2a
(SiO₂)(12)

(11)

800 1200

(

(12)

(11)

(13)

(11)

2b

(12)

가

PECVD(Plasma - Enhanced CVD), LP

CVD(Low - Pressure CVD), Sputter
(13)

300 - 400

(Amorphous Silicon)

(13)

14)

2c

(13)

(Ni)

(Co)

1

(

1

(14)

(13)

2

(16)

2

(13)

2

2

2

1 가 2 2

1, 2 (14,16)

가 가

1 (14) (cm²) 5 × 10¹² 5 × 10¹⁴ 2 (16)

1/2 가 (cm²) 10¹⁴ 10¹⁶ 2 (14)

가 가

2d 가 1, 2 (14,16) (13) (15)

(Mo), (Graphite) 0 500V/cm

1 (14) (13) 1 2 (16)

(13) 2 (13)

(NiSi₂) 1, 2 가

1, 2 가 (13) 가 가 가

1, 2 2 (main seed)

2

4a 4b 2

4a 4b 2 (21)

(SiO₂)(22)

(22) 1 (24) CVD 1 (24)

(23)

(23) 2 (26)

2 (26)

1, 2 (24,26)

(26) 1 (24) (cm²) 5 × 10¹² 5 × 10¹⁴ 2
 1 (24) 1/2 가 (cm²) 10¹⁴ 10¹⁶

1 (24) 2 (26) (23)
 (annealing) 1, 2 (24,26)

(23) (25) 1 1000V/cm 가

(Mo), (Graphite)

(21) (23) 2

가

3

5a 5b 3

5a 5b (SiO₂) (32) 3 (31)

(32)

(32) CVD 1 1 (33a)

1 (33a) 1 1 (34)

1

(33b) 1 (34) CVD 2 2
 2 (33b)

1 (34) (cm²) 5 × 10¹² 5 × 10¹⁴ 2 (36)
 1 (34) 1/2 가 (cm²) 10¹⁴ 10¹⁶

2 (33b) 가 1, 2 (33a,33b)
 1, 2

2 (33b) (35) 1 1000V/cm 가
 , 2
 (31) 1, 2 (33a,33b)
 4
 6a 6b 4
 6a 6b 4 (41)
 (SiO₂)(42)
 (42) CVD (43)
 (43) 1
 1 (43)
 2 (46)
 2 (46)
 가 (cm²) 10¹⁴ 10¹⁶ 가
 가
 1 (43) 가
 (43) (45) 1 1000V/cm 가
 가
 가
 가
 7
 5 × 10¹⁴ cm⁻² 500 가 200nm 2 30
 5 × 10¹³ cm⁻²
 가 가
 7
 7 (a) 가 2 가
 , 2 가
 7 (b) 40V/cm 가 가
 7 (c) 60V/cm 가 가
 가 , 1 가 2

7 (d) 80V/cm 가 , 2 가 .
 , 2 1 가

7 (e) 100V/cm 가 , 2
 1 가
 , 8 .

500cm⁻¹ , 8 , 520cm⁻¹
 , 480cm⁻¹ 가
 , 87.01% (Volume Fra
 ction) .

1

9a 9f .

9a , (111) 800 1200 CVD
 (SiO₂)(112)
 (113)

9b , (113) 1 (114)
 (116) , 1 (114) (113) 1 (114)

2 (116)

1, 2

116) 1 (114) (cm²) 5 × 10¹² 5 × 10¹⁴ 가 , 2 ()
 1 1/2 가 (cm²) 10¹⁴ 10¹⁶ 가 ,
 가

9c , (113) (115) 1 500V/cm
 가 가
 (Mo), (Graphite)

1 (114) , (113) 1 , 2
 (116) , (113) 2

1, 2 가 .

9d (123) 1800 (123)

(124) .

(124) 3000 (photolithography) (125)

450 (125) (123) n+ (123a/123c) (123b)

CVD 7e (125) (126) (126) (124)

(123a/123c) 가 .

(126) (127) / (123a/123c) / (127a/127b)

가

7f / (127a/127b) BCB, (128)

(122) (128) ITO (127b)

ue) 2 , ITO R,G,B(red, green, bl

1 2 가 μm

1

가 .

1 2

, , 가 . 가 .

(57)

1.

;

1

;

2

;

2.

1

,

1

2

,

3.

1

,

1

,

4.

1

,

1

5.

4

,

1

,

1

,

1

1

,

1

2

6.

1

,

2

7.

1

,

1

,

8.

1 , 가

9.

8 , .

10.

8 , 0 500V/cm .

11.

1 , 1 .

12.

1 , 1 (cm²) 5 × 10¹² 5 × 10¹⁴ 가

13.

1 , 2 .

14.

1 , 2 (cm²) 10¹⁴ 10¹⁶ 가

15.

1 , 2 1 1/2 .

16.

1 , .

17.

1 , 1, 2 , .

18.

1 , , .

19.

1 ;

1 ;

2 ;

;

;

;

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/ ;

/ ;

;

1 2

.

20.

19 , 1 .

21.

19 , 2 .

22.

19 , 1 , .

23.

1 , 가 .

24.

23 , .

25.

23 , 0 500V/cm .

26.

19 , 1, 2

27.

19 , 1 (cm²) 5 × 10¹² 5 × 10¹⁴ 가

28.

19 , 2 (cm²) 10¹⁴ 10¹⁶ 가

29.

19 , 2 1 1/2

30.

1 ,

31.

19 , 1, 2 ,

32.

19 , ,

33.

19 , ;

/

34.

19 , ,

35.

34 ,

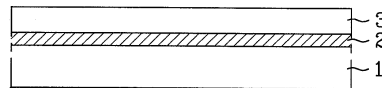
36.

19 , / ,

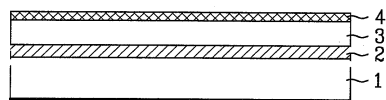
37.

36 , , BCB

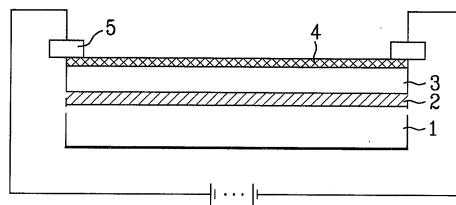
1a



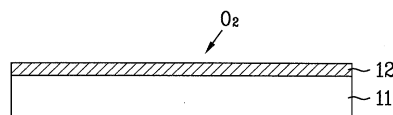
1b



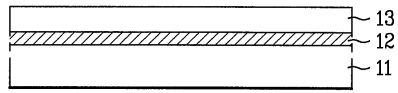
1c



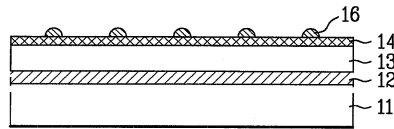
2a



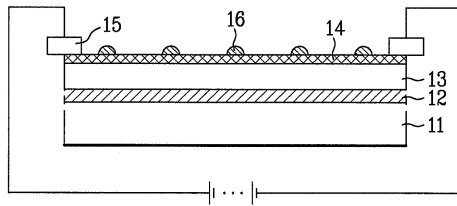
2b



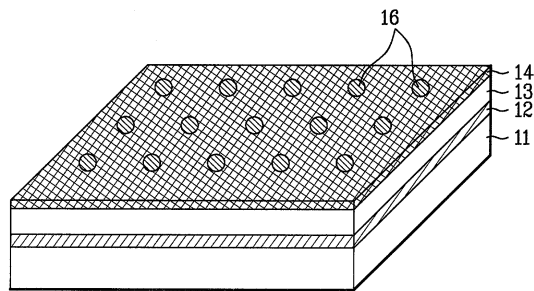
2c



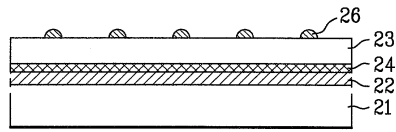
2d



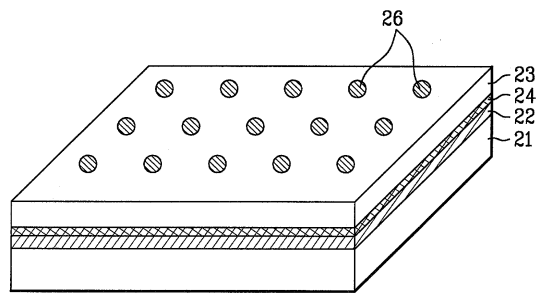
3



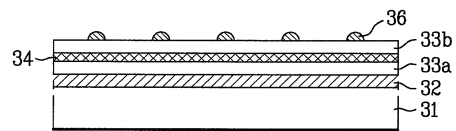
4a



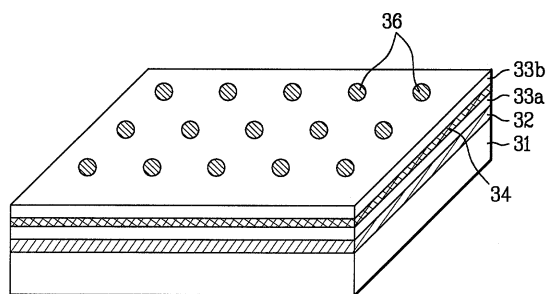
4b



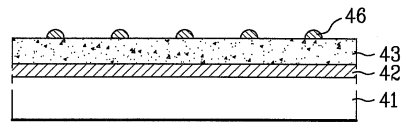
5a



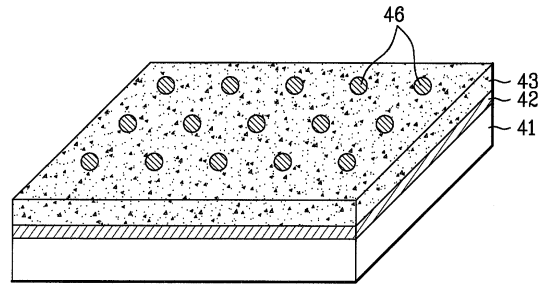
5b



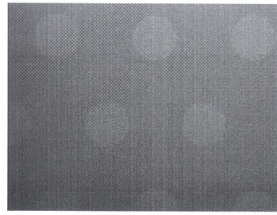
6a



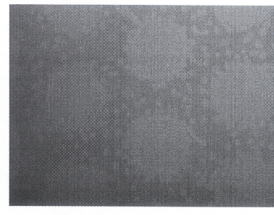
6b



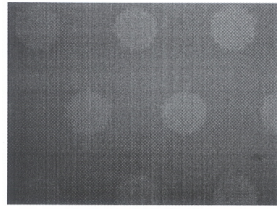
7



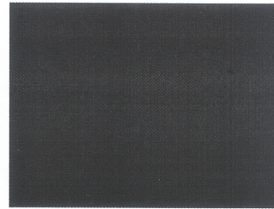
(a)



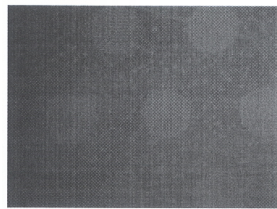
(d)



(b)

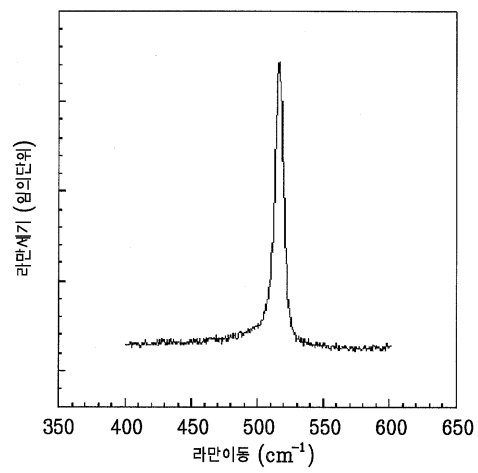


(e)

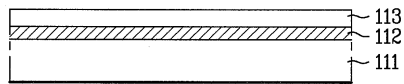


(c)

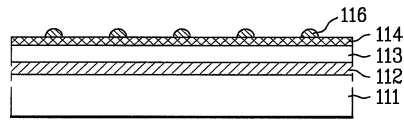
8



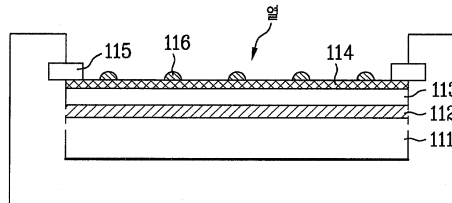
9a



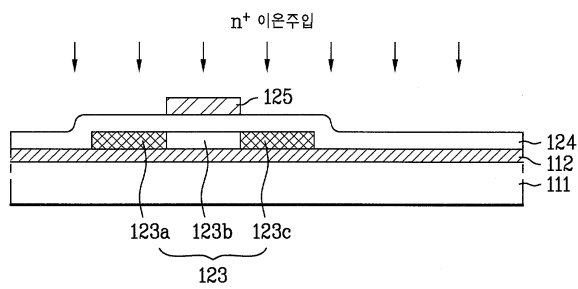
9b



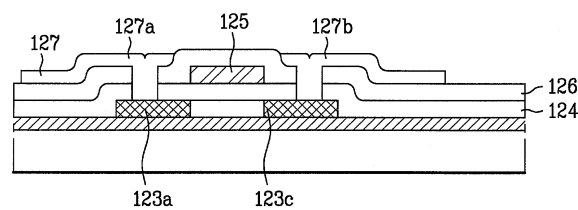
9c



9d



9e



9f

