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2004 03 11

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(22) 2002 09 04

(71) . 20

(72) 1102 138 1107

(74)
:

(54)

(PECVD) , (SiO₂) (annealing) .
, 가 가

6b

1 ,
2a 2e ,
3 ,
4 (V-C) ,
5 ,

6a 6e
 .
 < >
 100 : 102 :
 106 : 108 :
 110 :

(amorphous silicon)

(crystalline silicon)

(thin film)
 (liquid crystal panel)

가 ,
 (switching device)

가 .

(laptop computer),

TV

(leakage current))

(poly crystalline silicon)

(LTPS TFT)

가

가 .

, 1

1

(poly silicon)

(T)

(12)

(16)

(10)

가

(16)

(16)

(20)

(16) (20) (18)

(16b) (20) (16) 1 (16a) (16a)

(28) (30)

2a 2e

2a 2e

2a (10) (12) (SiN_x) (SiO₂)

(12) 가 (10)

(12) (a-Si:H) (14)

2b (16)

(16) 1 (16a) 2 (16b)

(16) (SiO₂) (PECVD)

(18)

2c 1 (16a) (12) (20)

2 (16b) p+ (

(20) 1 (16a) 가 (lon-stopper)

(18) (20)

2d (20) (10) 3 (22)

2 2 (16a) (22) 1 (16a)

(16b) (24) 2 (26)

2 2 (16b) (28) (30)

()

(Flowler - Nordheim stress) 가 가 FN

FN 3 .

3 MOS(metal-oxide-silicon) 가

3가 , MOS 가 가

(metal quality dependent area), FN ,
(break down)

FN

FN 가 FN 가

가 가

(charge to breakdown) *

FN

500mTorr

가 가 가

; 가 가 ; 가 ;
; ; ; ;
2 ; ;

가 400 600 .

480mTorr 500mTorr .

PECVD .

가 (N₂) (H₂) (N₂O)

-- --

, 500mTorr

500

, 4 5

4
C-V()

(A1,A2)

(B1,B2)

, A1 B1

, A2 B2

FN

가

, FN

가

(A2) 가
C-V

가

(A1)

C-V

가

P

(B2)

C-V

5

가

-25.5 μ A/cm²)

('Q_{bd}')

.(

(cumulative probability(%))

Q_{bd}

(A2)

(B2)

(-)1.27 μ A/cm²

(B2)

(A2)

가

(B2)

가

(B2)

6a

6e

6a

6e

6a (100) (SiN_x) (SiO₂)
 (102)
 (102) 가 (100)
 (102) (a-Si:H) (104)

6b (108)
 1 (108a) , 2 (108b)
 (108) (SiO₂) (110)
 (110) (SiO₂) (CVD)
) 가 (annealing) 500mTorr (480mTorr~520mTorr) (400 ~600
 가 (N₂), (H₂), (O₂), (N₂O), (NO)
 (H₂) (110)

6c 1 (110) (112)
 2 (108b) p+ (; boron)
 (112) 1 (108a) 가 (lon-
 stopper)

6d (112) (100) 3 (114)
 2 (108b) (106b) 1 (114) 2 (118) 1 (108a)
 (116)

6e 2 (108b) (120) (122)

FN 가 가

(57)

1.

가 가

2

2.

가 400 600

3.

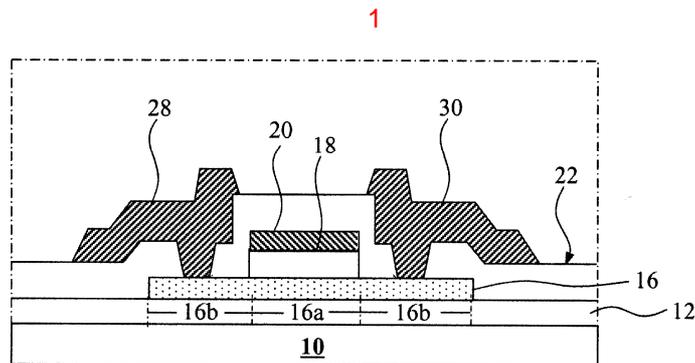
480mTorr 500mTorr

4.

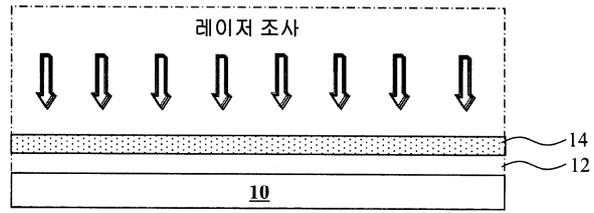
PECVD

5.

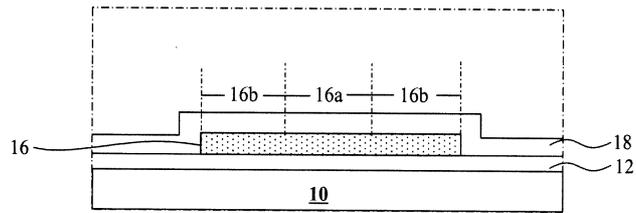
가 (N₂) (H₂) (N₂O)



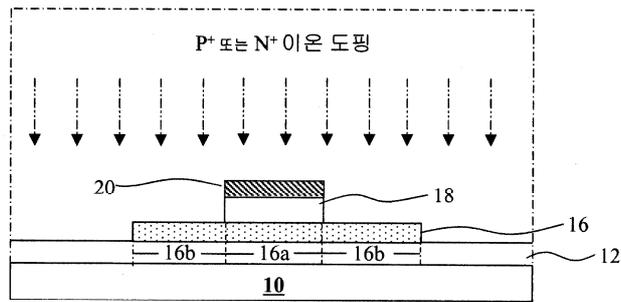
2a



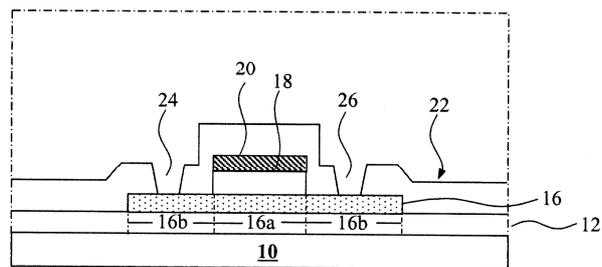
2b



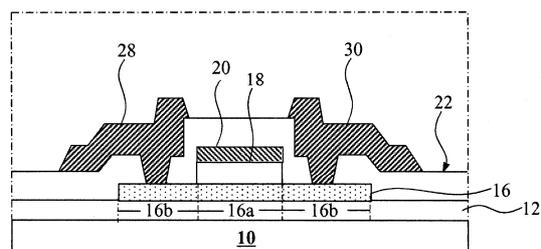
2c



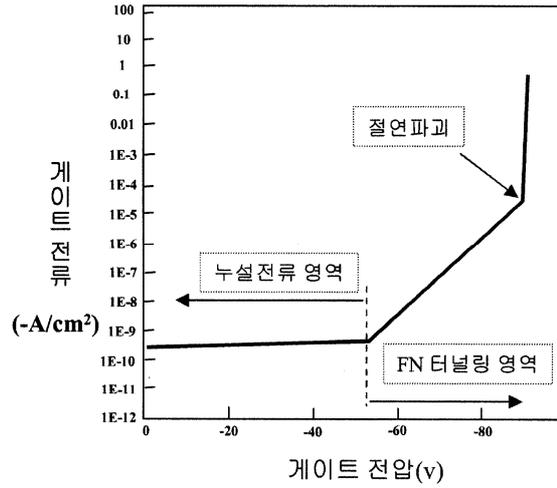
2d



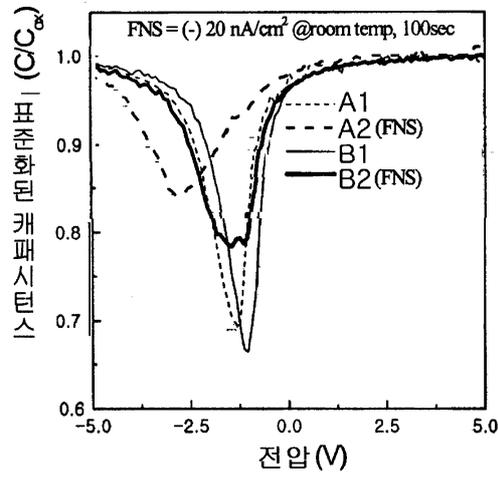
2e



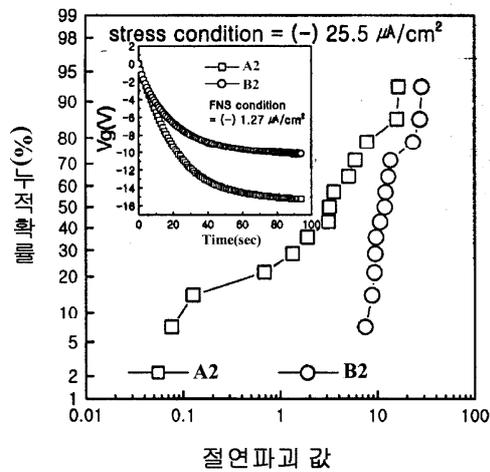
3



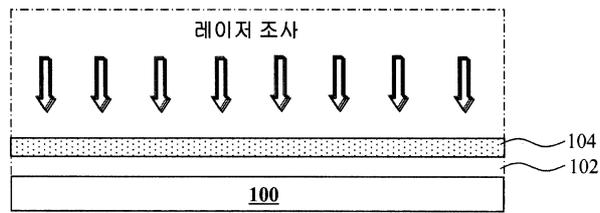
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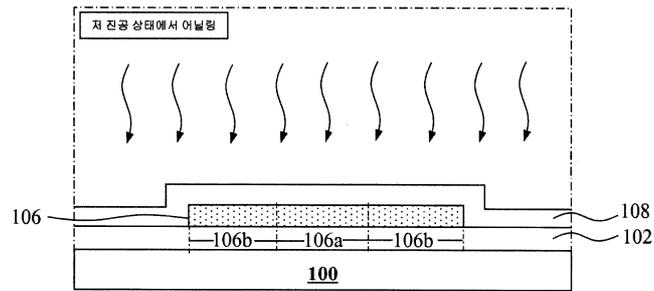
5



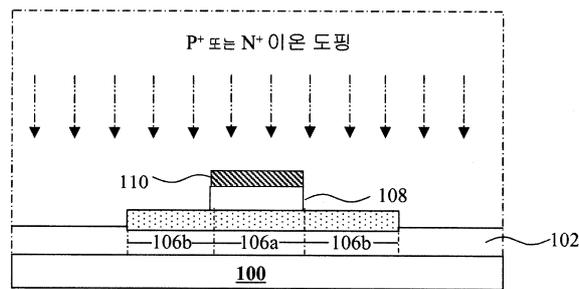
6a



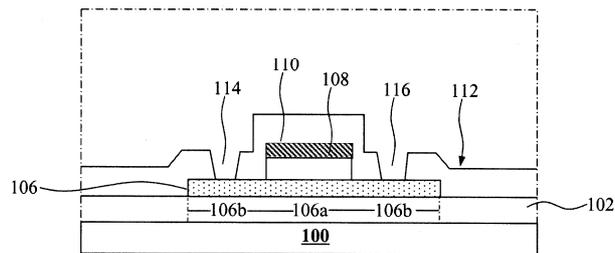
6b



6c



6d



6e

