

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷
H01L 21/76

(11)
(43)

2002 - 0074999
2002 10 04

(21) 10 - 2001 - 0015149
(22) 2001 03 23

(71) 3 416

(72) 905 402

(74)

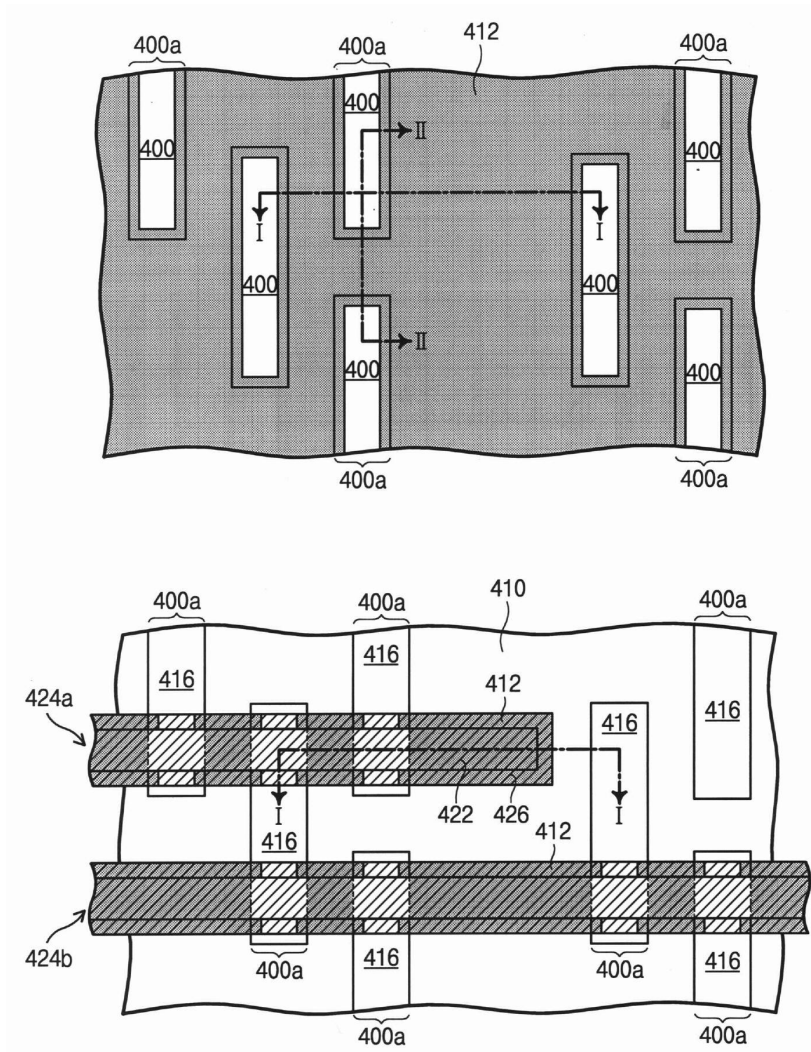
:

(54)

(charge trap)

가 (forming gas)

가



| | | |
|----|---|---|
| 1 | | |
| 2 | | |
| 3a | 2 | - |
| 3b | 2 | - |

4 12 2
, 2 -

13 15

*

400 : 400a :

402 : 404 :

405 : 406 :

408a, 408b : 410 :

412 : 413 :

414 : 416 :

418 : 420 :

422 : 424a, 424b :

426 :

가

가

가

(CVD:Chemical Vapor Deposition)

가

5,447,8

84

le) (coupling) (PMOS) (on) 가 (threshold voltage) (electrical charge)가 (trap) (ho) 가

(charge trap) 5,940,717 (" R ECESSSED SHALLOW TRENCH ISOLATION STRUCTURE NITRIDE LINER AND METHOD FOR MAKING SA ME", 1998 10 30) 1 1 100 5,940,717 , 112 , 106 (200) , 702 , 114 (112) (112) (114)가 (114)가 (114) (charge)가 (702)가 (112) (114)

가 (114) 가

가

()

가 200 , 50 500

가 CVD

가

가

500 1500

가
500

가

00 1000

500

2

500

200 50
가

가

| | 2 | 3a | 3b | 4 | 12 | 2 | - | 4 | 1 |
|-------|--------|--------------|-------|-------|--------|--------|--------------|--------|---------|
| 2 | | | | | | | | | |
| 4 | (404) | | (400) | | | (402) | | (404) | |
| 1000 | | | (404) | 500 | 1500 | | | | (405)가 |
| 404a) | | (406) | (405) | (405) | (406a) | (404), | (402) | (400) | 5 |
| 6 | | | (406) | (406) | (406a) | (406b) | (408b) | | (40 |
| 4a) | (400) | (404) | | | | (404) | (404b) | | |
| a) | | (408a) | | | (404) | (404) | (408a) | | (400 |
| 7 | | | | | | | | | |
| | | (408a, 408b) | | (410) | | (406) | (408a, 408b) | | (410) |
| | | | | (410) | | | (410) | | |
| | | | | (410) | | (CVD) | | | |
| | | | (410) | | | | | | |
| | | (410) | | | | | (404) | | |
| | | (410) | | | | 8 | 9 | | |
| | | | | (404) | | | | | (410) |
| 500 | 가 | | | (404) | | (404) | (408a) | | (404) 가 |
| 9 | | | | | | | | (410) | |
| 402) | (404) | | | | | | (404) | | (|
| | (408a) | | (402) | | | | | (404b) | |
| | | | | | | | | (410) | 200 |

1000 , 500 , 가 .

10a , (410) (408a) (412) 50
 (412) .
 500 , 200 .

10b , (412) (413) (412) .

11a , (404) , (412)
 (400a) . 11a () 11b .
 , (400a) 가 .
 (412) . (41

0) (412) , .

12a 12a (404) 12b , (412)
 , (402) (400a) (404) (414) .

가 , 가

414) , (412) 12a 12b , ()
 , (410) . ,

8 , (410)
 (404) (404) , (404) 가
 (400a) . 가 (412) 가

13 15 가 .
 (passivation) 가 (forming gas) , .

가 가 .

(414) , ()

(device) , .
 (416) 12 .
 (418), (420) (422)
 (420) , , 13a
 (424a) (412) (416)
 , 14a 14b
 (424a, 424b) 가 (4)
 12) (400a) (416) , . ,
 (422) 가 .

, (424a, 424b)
 (424a, 424b) 15a (426)
 (410) 15a (412)
 , 15b ,

가

가

가

가

가

가

(57)

1.

;

;

2.

1

3.

1

가

CVD

4.

가

5.

4

6.

;

;

;

7.

6 ,

8.

6 ,

9.

7 ,

10.

7 ,

11.

10 ,

12.

7 ,

;

;

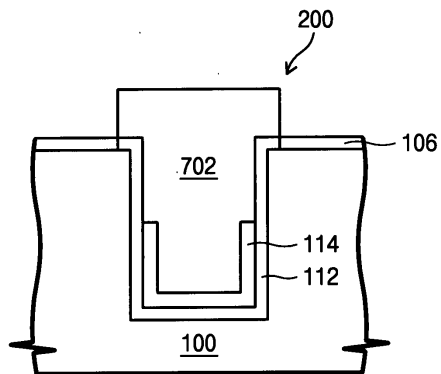
;

;

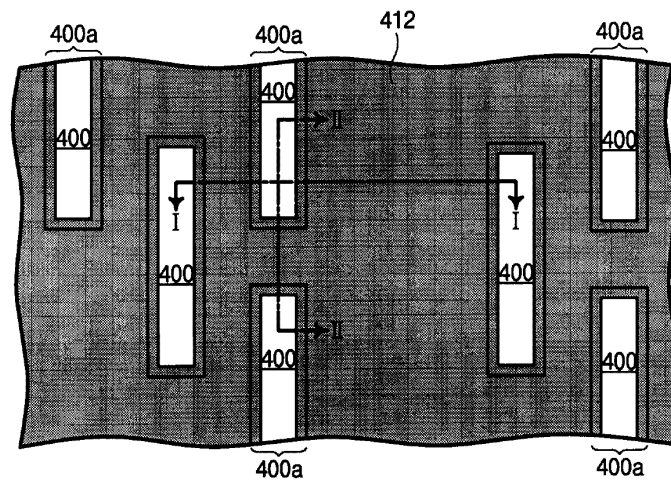
13.

7

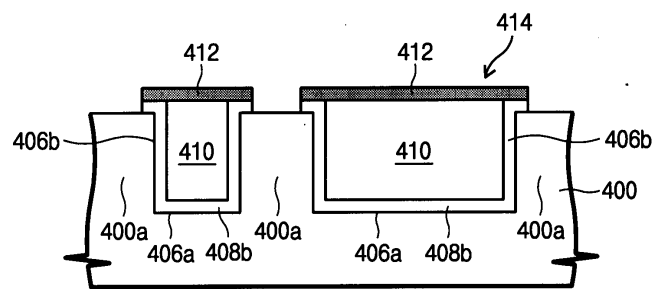
(종래 기술)¹



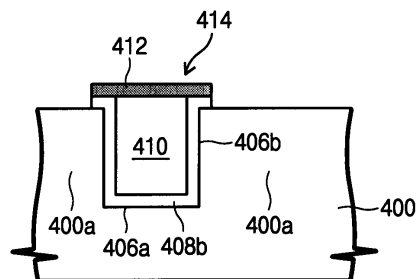
2



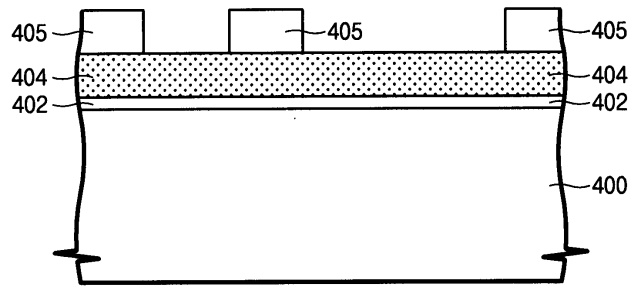
3a



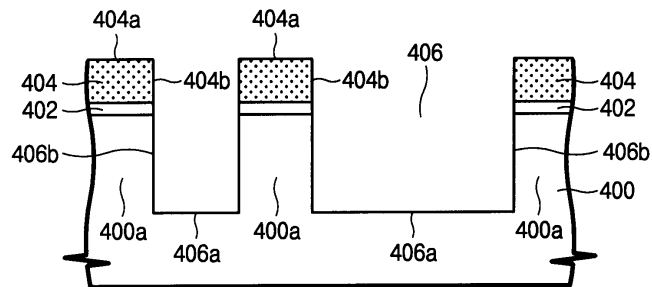
3b



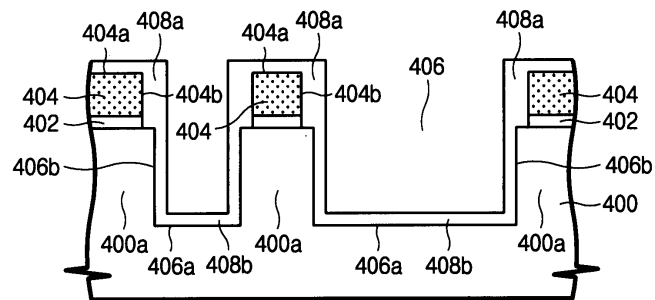
4



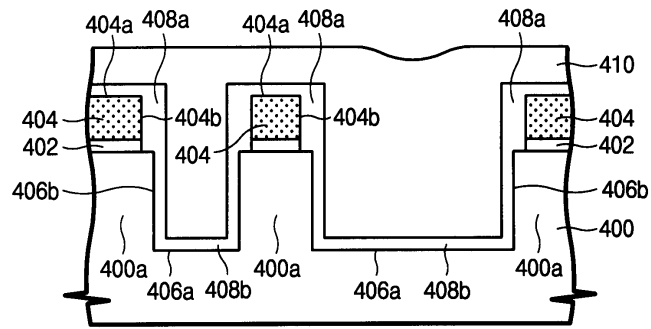
5



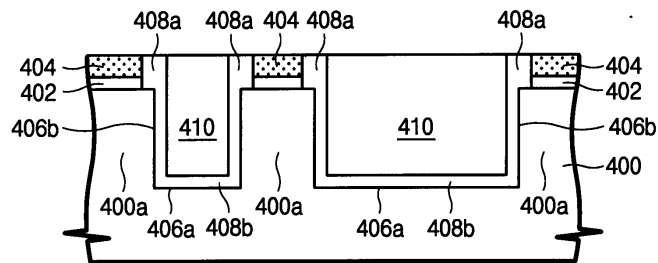
6



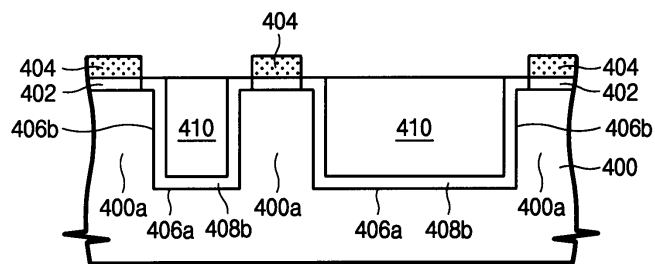
7



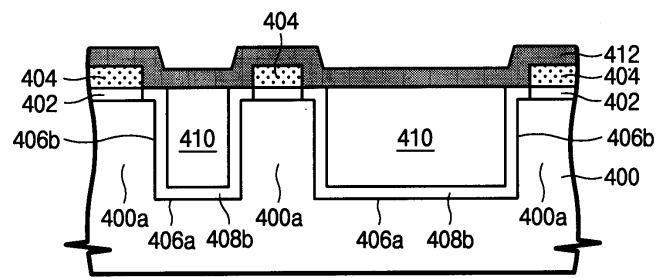
8



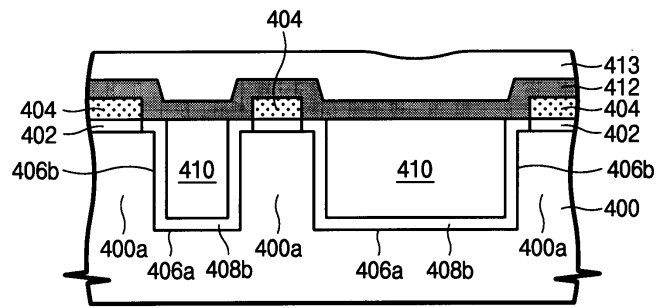
9



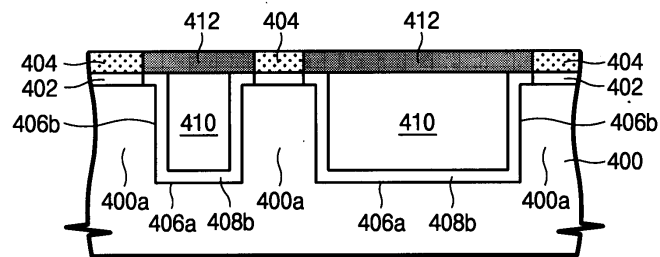
10a



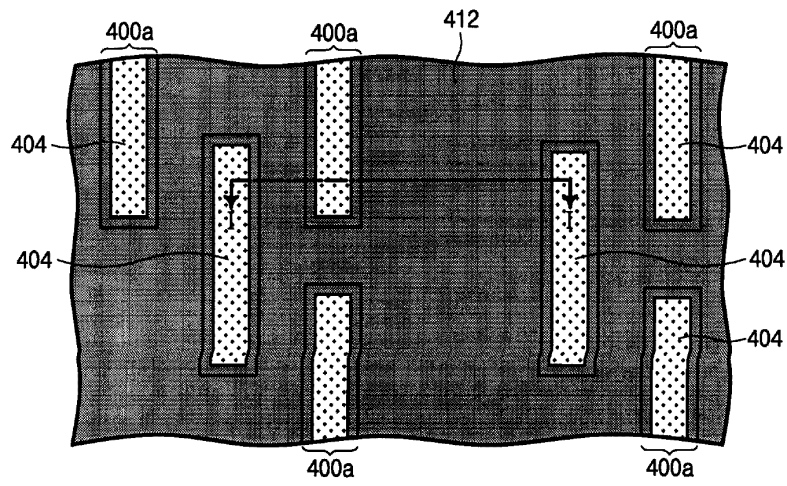
10b



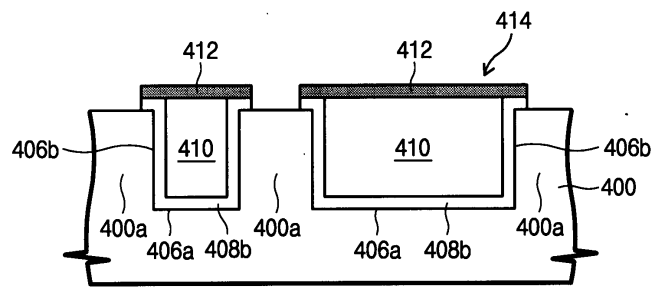
11a



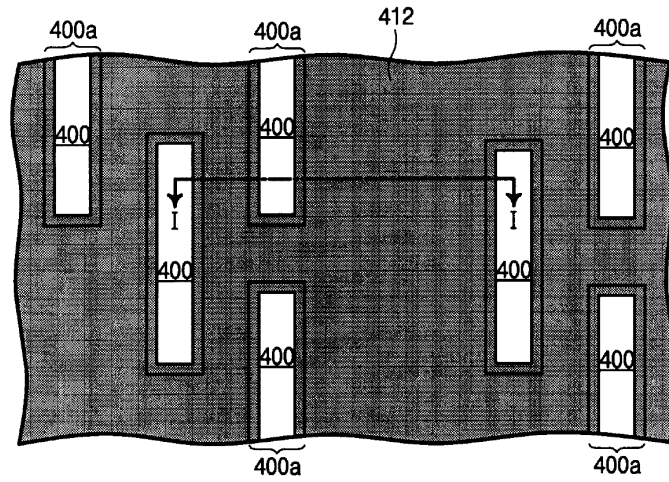
11b



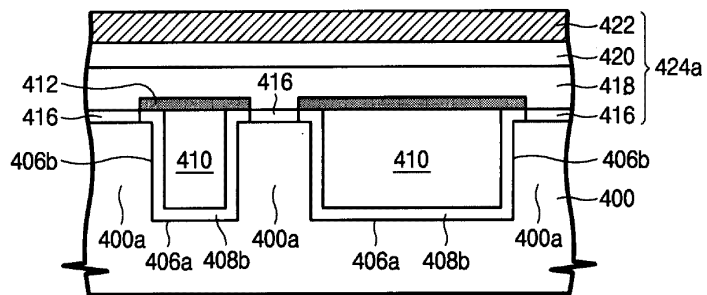
12a



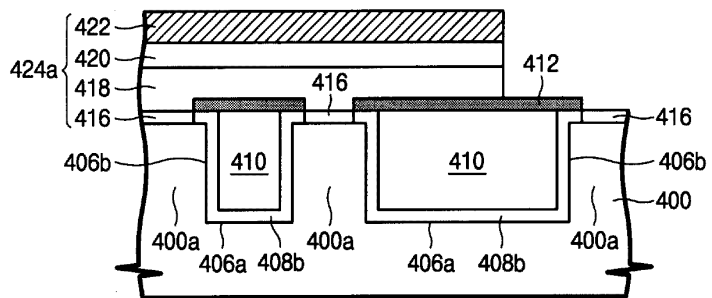
12b



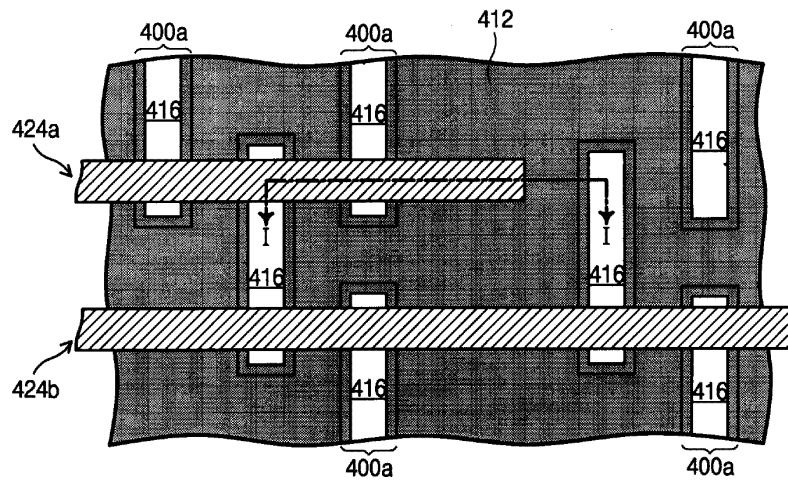
13



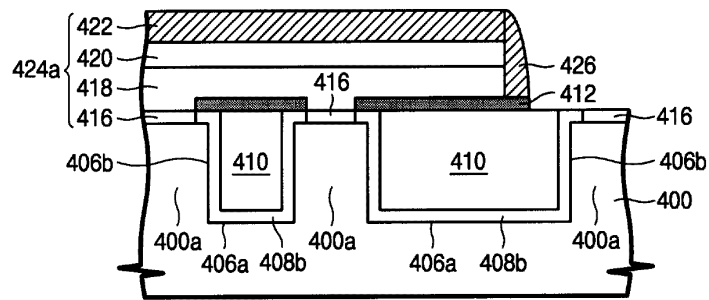
14a



14b



15a



15b

