

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl.⁷
H01L 29/78

(11)
(43)

10-2004-0074501
2004 08 25

(21) 10-2003-0010402
(22) 2003 02 19

(71) 416

(72) 가 932-105
110 303

1 649 1 809

234 403

92 419 903

(74)

:

(54)

(fin)

,
.
가
.
가
.
가

4a

on and Characterization of Self - Aligned Double - Gate TFT With Thin Channel and Thick Source/Drain'

ON DEVICES, VOL. 49, No. 3, MARCH 2002' 가 'IEEE TRANSACTIONS ON ELECTRON DEVICES, VOL. 49, No. 3, MARCH 2002' (Yang - Kyu Chio) 'A Spacer Patterning Technology for Nanoscale CMOS' 가 (floating body effect), 가 SOI SOI

6,355,532 , (John J. Seliskar) 'SUBTRACTIVE OXIDATION METHOD OF FABRICATING A SHORT - LENGTH AND VERTICALLY - ORIENTED CHANNEL, DUAL - GATE, CMOS FET' SOI 가

, 가 / (channel segments) 가 , ,

1 (1 , (20) (12) 가 (14) (10) (12) (20) (14)

2 2 , (14) (10) (12) 가 (14) (S/D) / (S/D) (12) (14) 가 / (full depletion) (15) (full inversion) (12) (14) 가 (12) DIBL

3 SOI 3 (buried oxide; 22) (30) 가 SOI (2) 4) , SOI (24) (26) (28a) (30) 가 (28) (28a) (29a) (28)

(fin)

(fin) ,

가

가

(etch-stop nitride)
가

/

가

가

가

가

/

(fin)

가

가

가

가

3

4a 1

4b 4c 1

4a (56) (58) (58) (56) (56) (56)

(56) (58) 2 nm (64) 50 nm (56) 50 nm 1000 nm

, CVD

(60a) (58) (56) (56) (60a)가 (62a) (56) (60a)

(60a) 5 nm 200nm (56) 10 nm 500nm (56) (56)

6) (SiGe) (66) 가 (66b) 가 (66a), (56)

66b) (56) (56) (60

62a) (56) (66) 가 (66)

a) (56) (66) 가 (66)

(56) (62a) 가 (56) (56) (66)

가

4b 4c 가 가 가 4c
4b (56a)

(56b) 가 .
 , 가 ,
 5, 6a, 6b, 6c, 7 10 1
 5 , (50) (52) (54)
 (50)
 6a , (56) (56) (56) (56)
 50 nm 1000 nm
 가 (56) 가
 가 가 HBr 가 가 HBr 가 6b
 가 (56a) 가 HBr 가 , 6c , (56b)
 7 , (50) (58), (60) (62)
 (58) CVD , CVD
 (58) 2 nm 50 nm (56) (60) 5 nm 200 nm
 (62)
 , (56) 100 nm 2000 nm 가
 8 , (62)
 (56) (60) (60) (62)
 a)
 9 , (Chemical Dry Etching) (56)
 (60) (56) (56) (50)
 (56) (58) (56) (56)
 (60) (62a) 가 (58)
 10 , (56) (64) (64)
 CVD , (56) 가 (66)
 4
 (66) (56)
 11 14 1
 1
 5) 11 , 6a, 6b 6c (50) (5)
 (56)
 12 , (55) (50) 7
 10 1

13 14 1

13 (53), (50) (56) (56) (51)
 (51) (56) (53)
 (56) (53), (51) (50)

14 (56) (50) (53), (50) (55)
 , 7 11 1

15a 2

15b 15c 2

15a , 2 1
 (124) 1 (112) (104)
 (106) (112) 가 ,
 (112) (116) (112) (100) ,
 (112) (118a) (112) (118a)가 (112) (122) (120a)
 (120a) 가 , (124) (112) (

124) (112) (124) (124a) ,
 (124b) 가

2 , 15b 15c 1 가 (112) 가 가
 , (112a, 112b) 가

16 22 2

16 (110) (100) (104), (106), (108)

nm 0.5 nm 5 nm , (106) 5 nm 100

17 (112) (104) (106) (110) 50 nm (108) 1000nm (112)

15b 15c (100) 6a, 6b 6c , HBr가 가

18 , CVD (100) (116) (116)
 가 CVD , 19 18 ,
 19 (112) (116) (112)

20 , (118) (116) (120) (118) 5 100nm (118)
 (116)

;
;
;

가

1 2. ,

1 3. ,

1 4. ,

1 5. ,

1 6. ,

가

6 7. ,

1 8. ,

가

1 9. ,

/ ;

10.

;

;

;

;

;

가

11.

10

,

12.

10

,

13.

10

,

14.

10

,

,

15.

10

,

가

16.

15

,

17.

10

,

가

;

;

;

;

가

23.

22

,

24.

23

,

,

;

;

25.

22

,

26.

22

,

,

27.

26

,

;

;

;

28.

;

가

;

;

;

;

;

가

29.

28

,

,

;

;

30.

28

,

,

;

31.

30

,

.

32.

30

,

.

33.

30

,

,

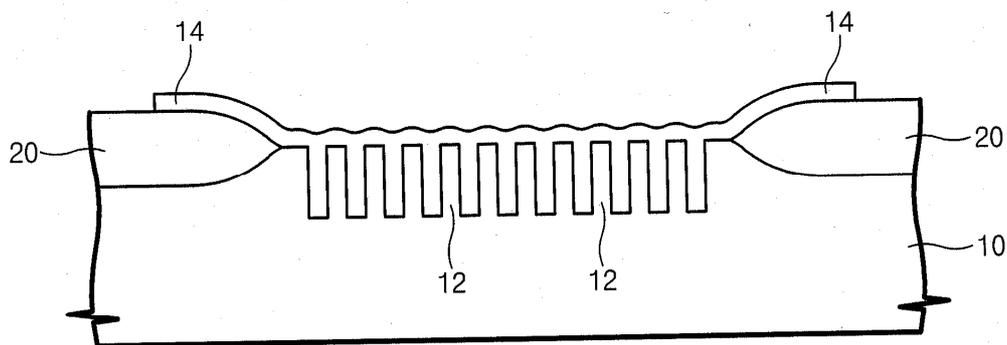
34.

30

,

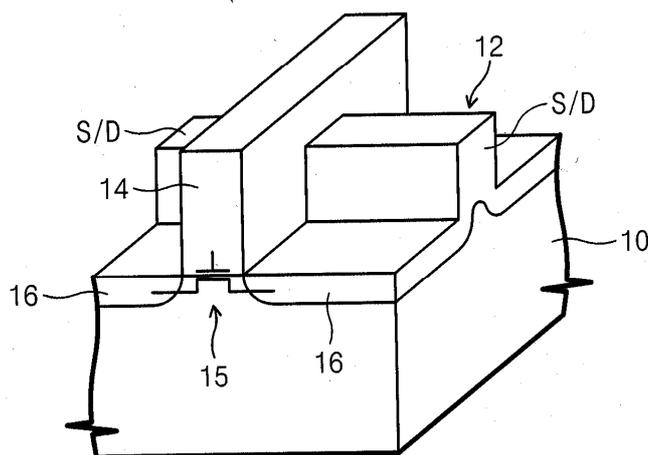
1

(종래 기술)



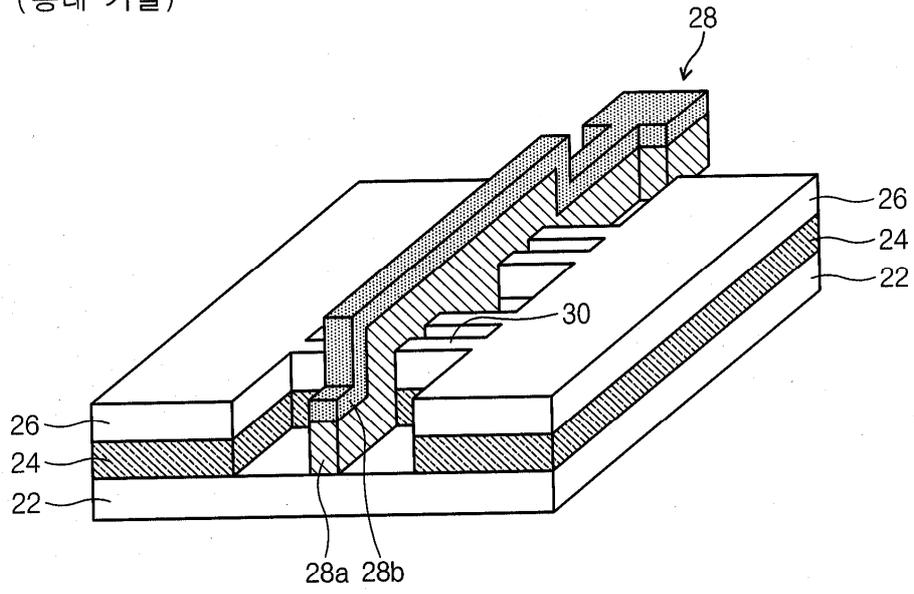
2

(종래 기술)

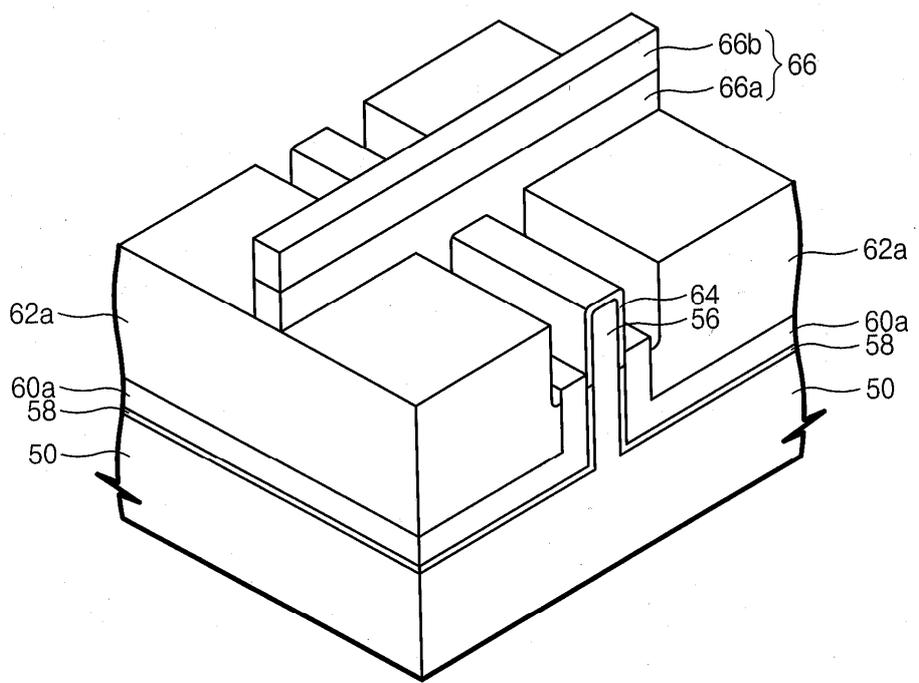


(종래 기술)

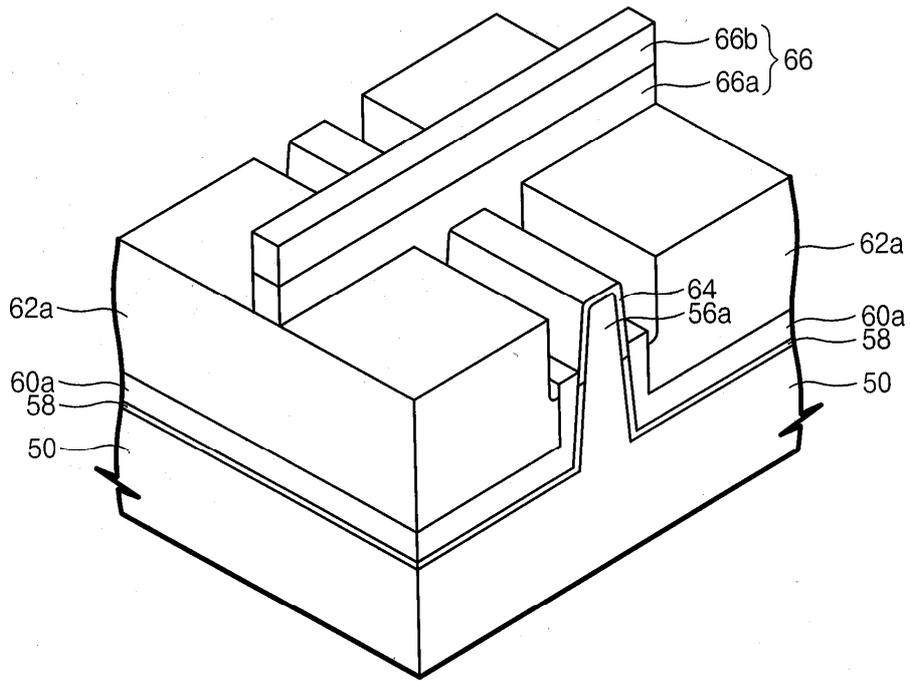
3



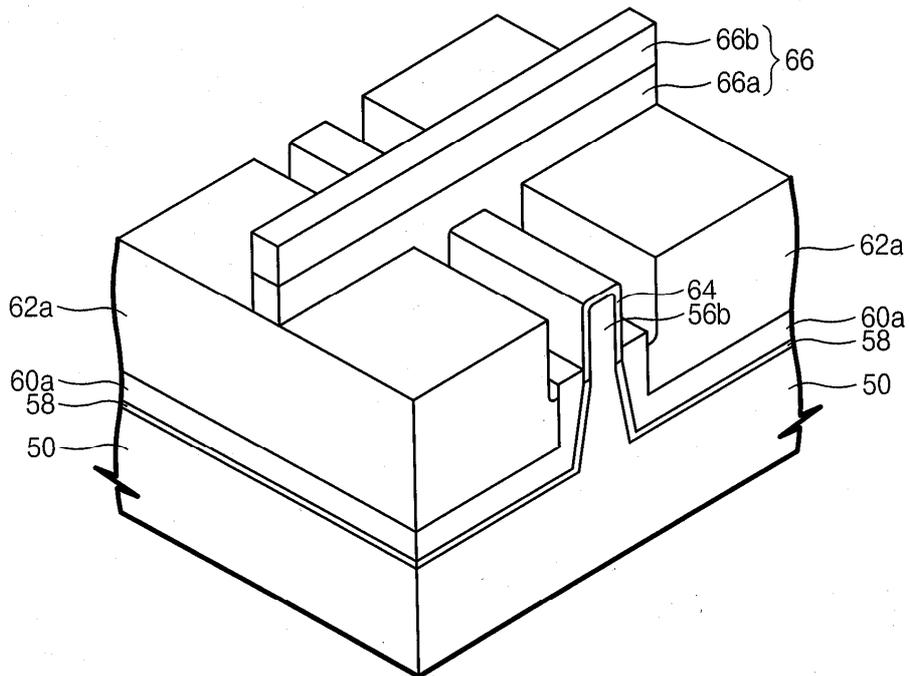
4a



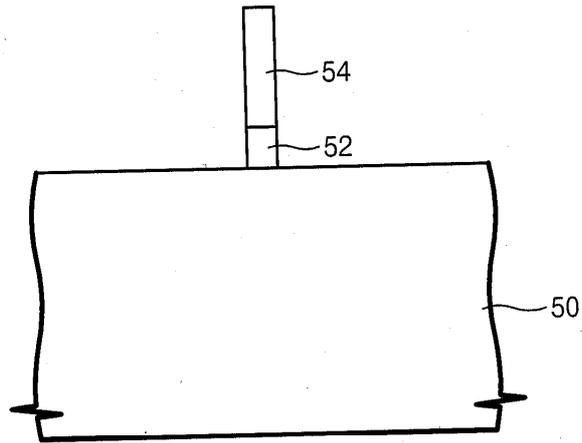
4b



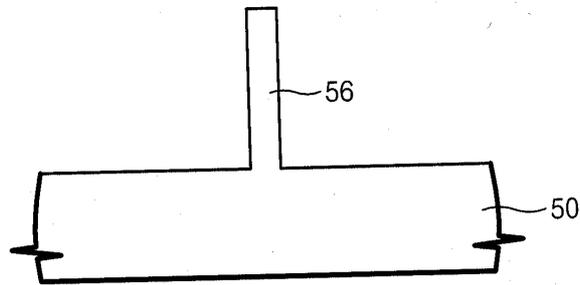
4c



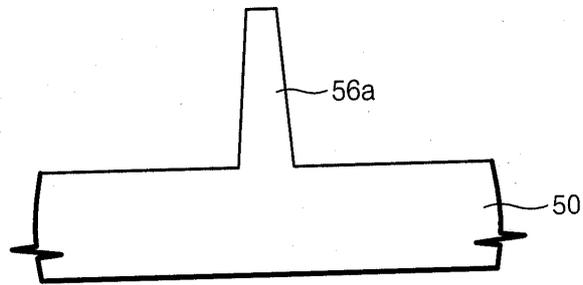
5



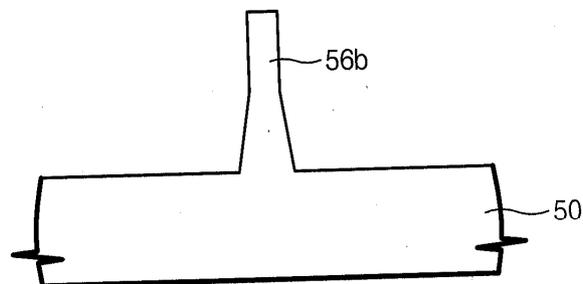
6a



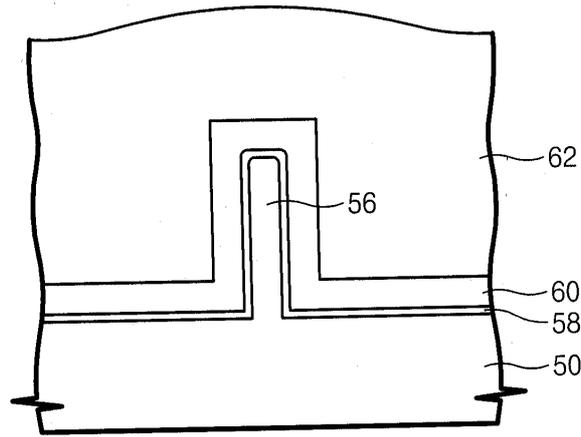
6b



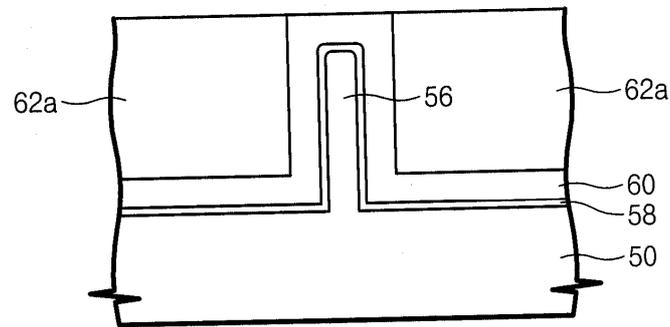
6c



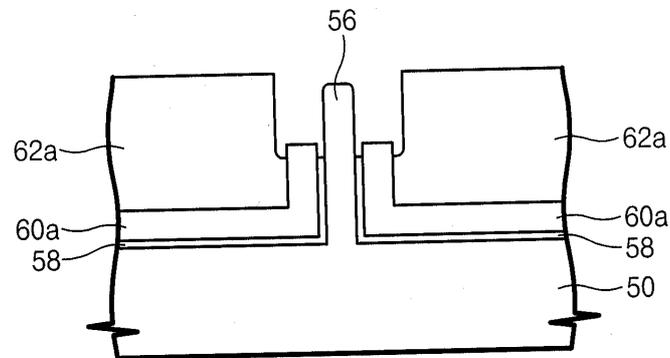
7



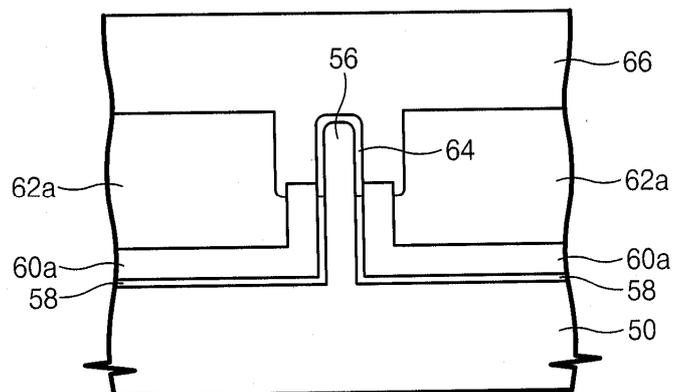
8

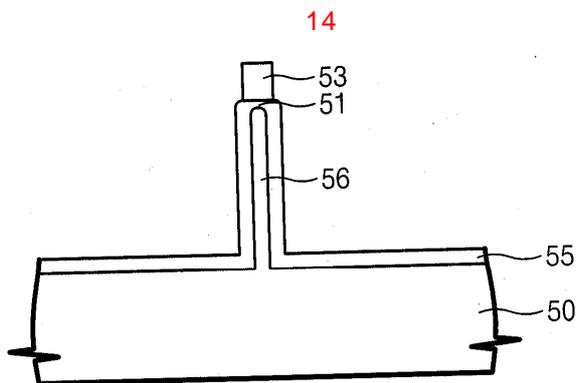
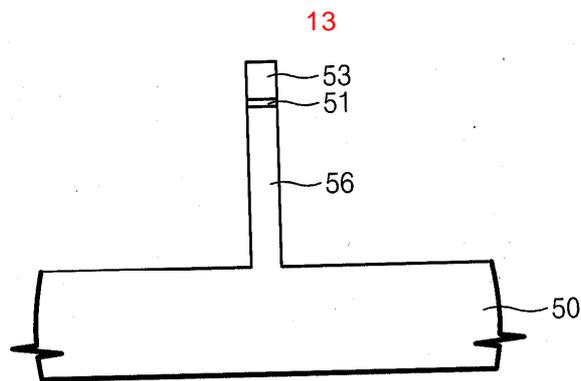
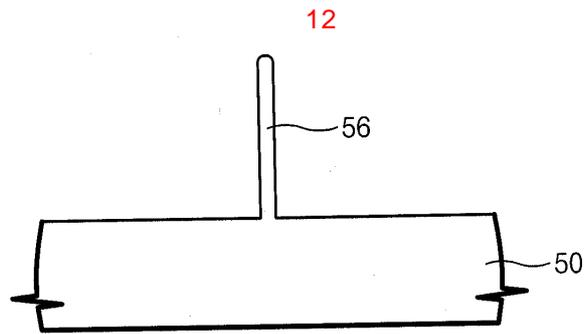
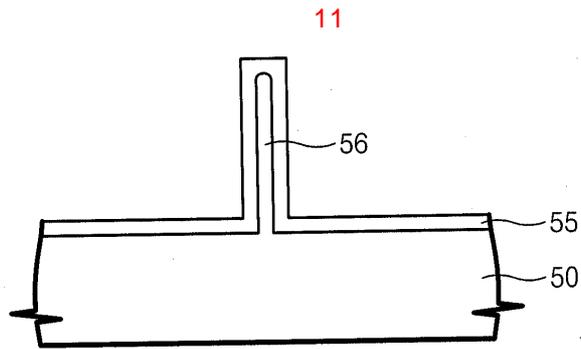


9

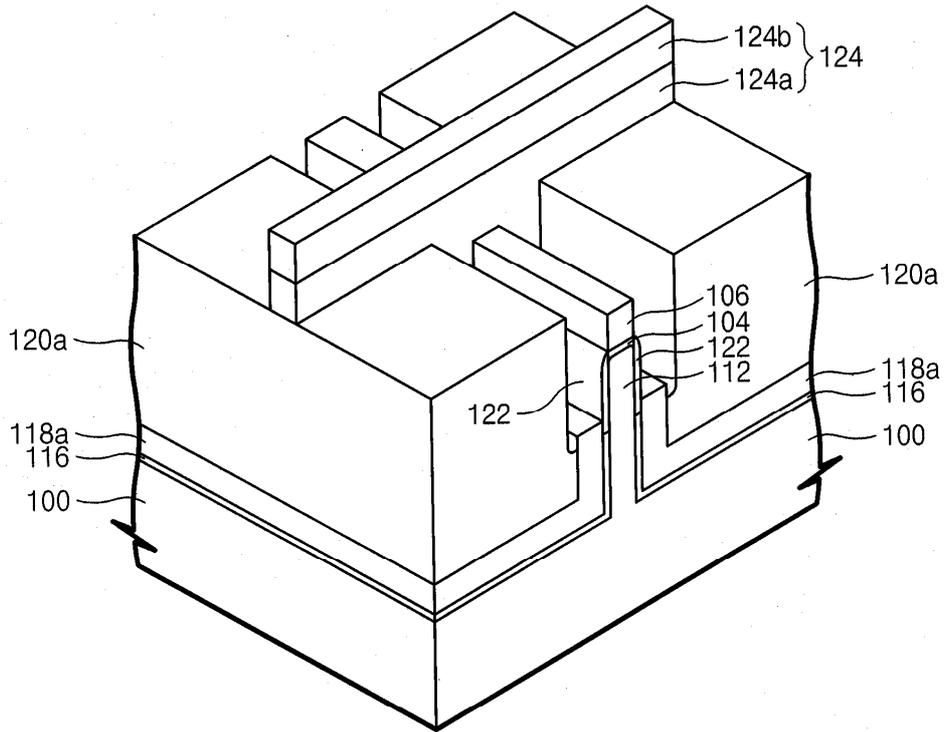


10

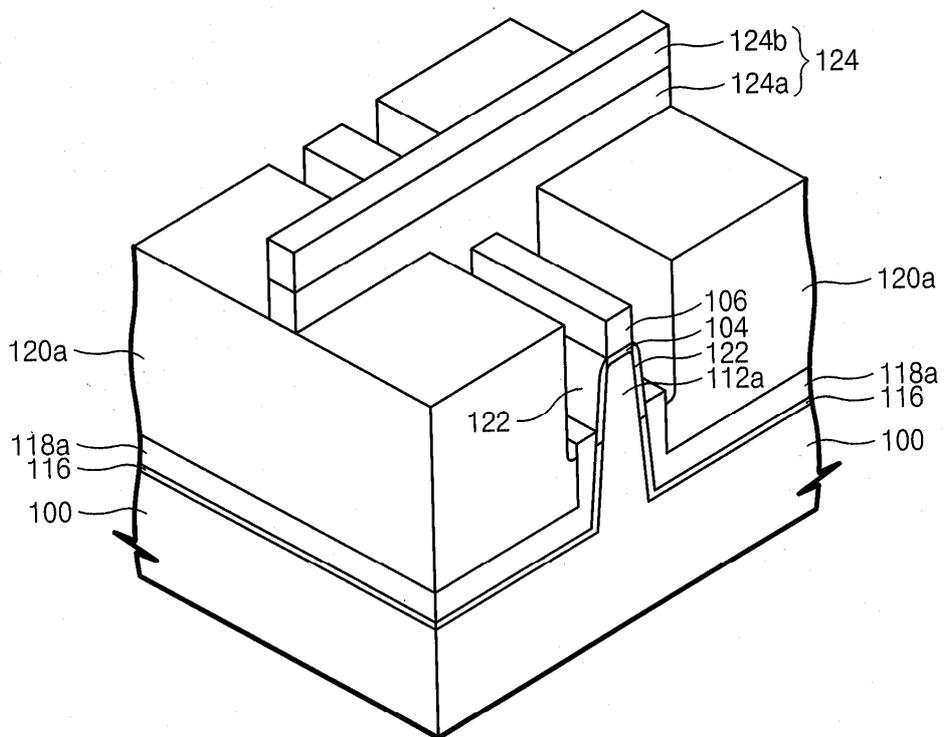




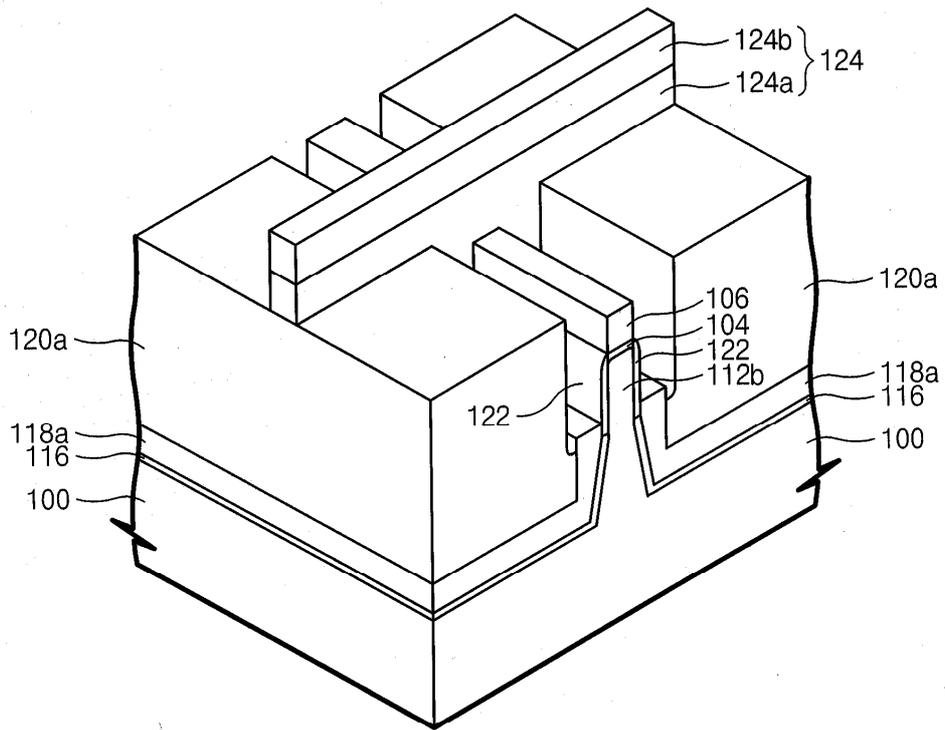
15a



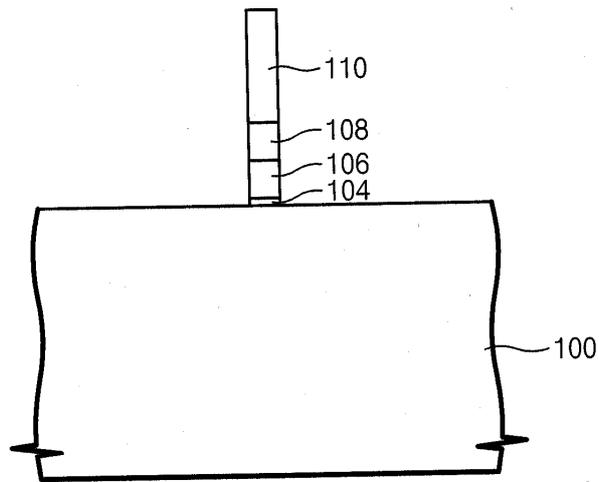
15b



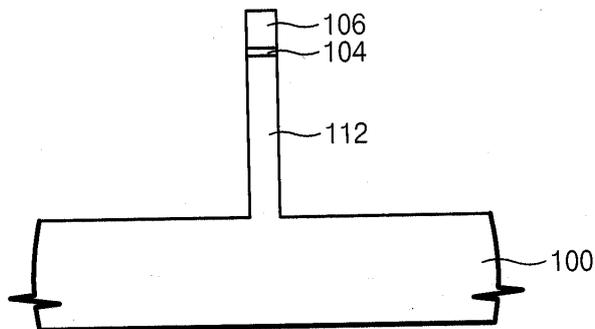
15c



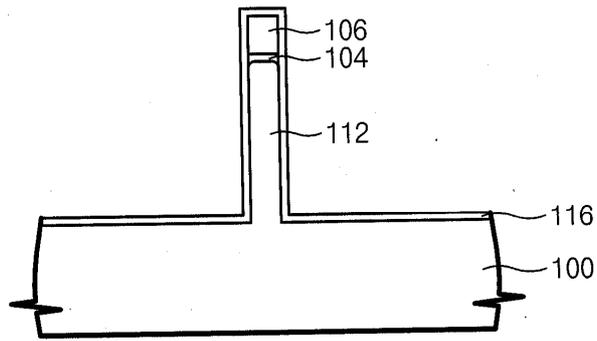
16



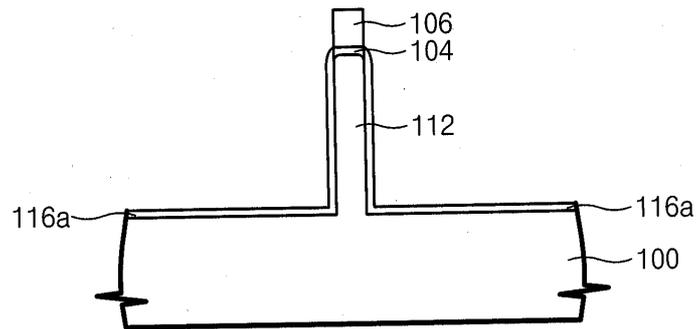
17



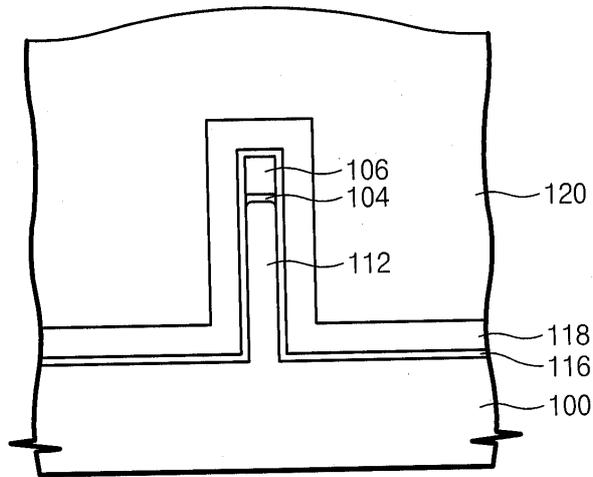
18



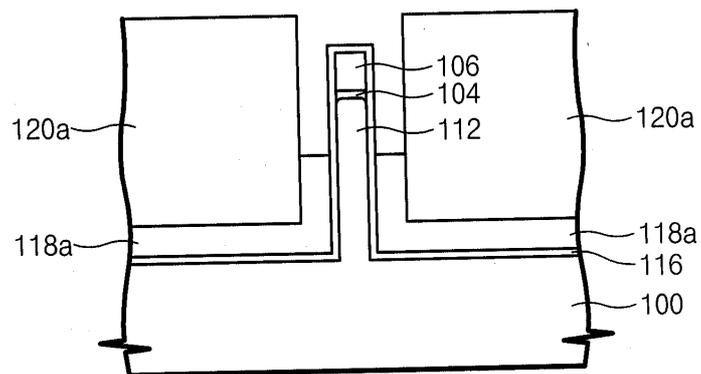
19



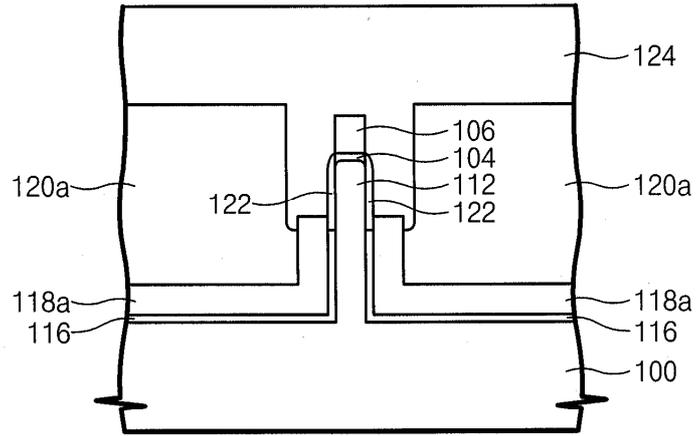
20



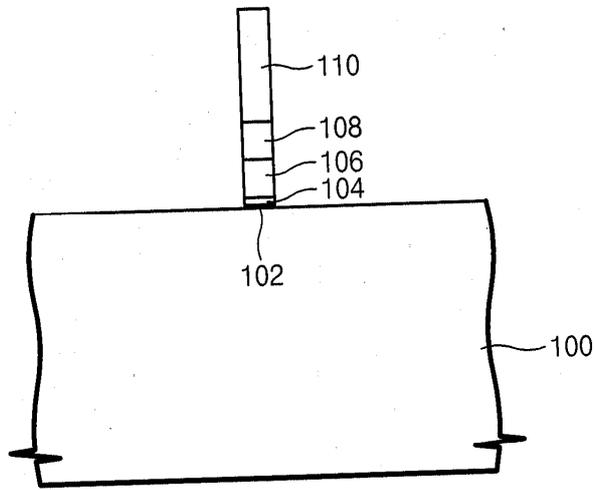
21



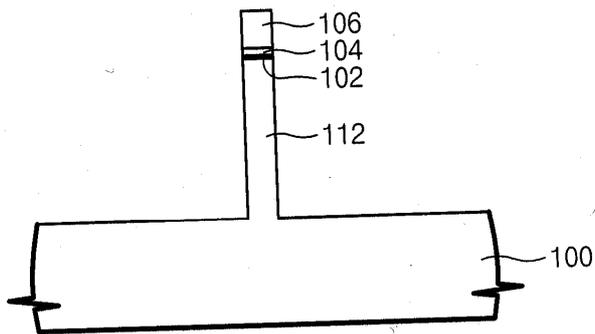
22



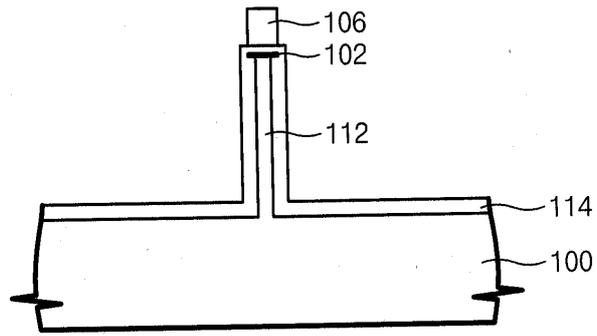
23



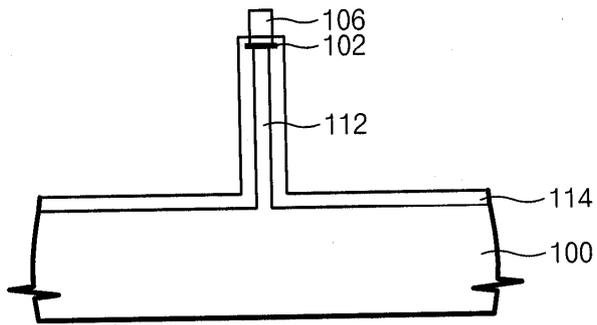
24



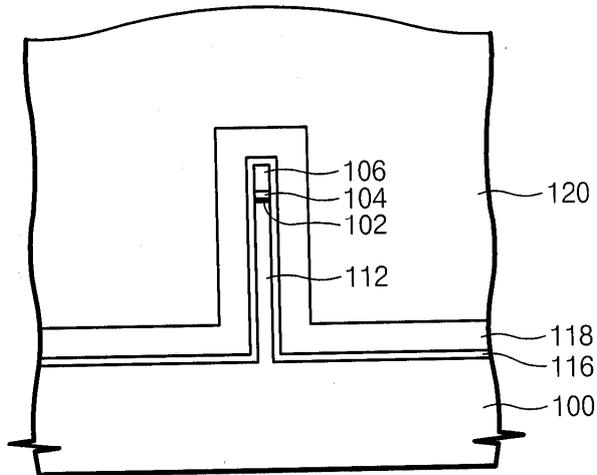
25



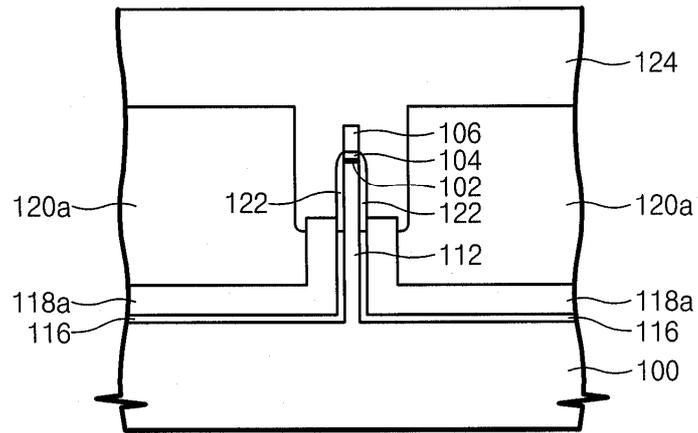
26



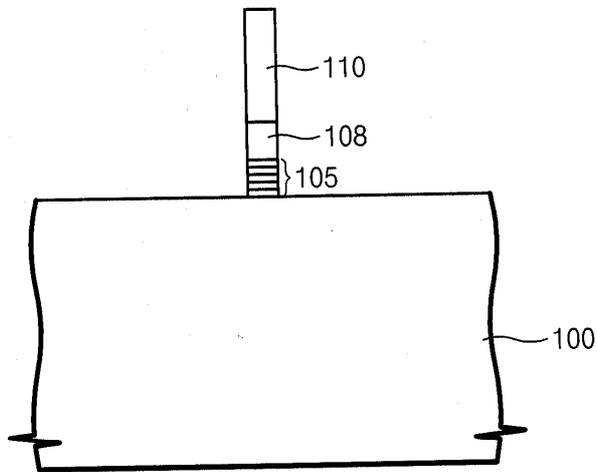
27



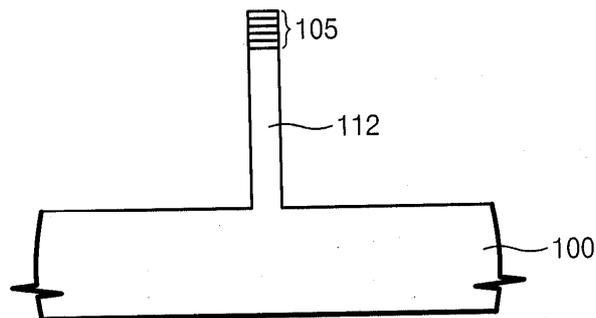
28



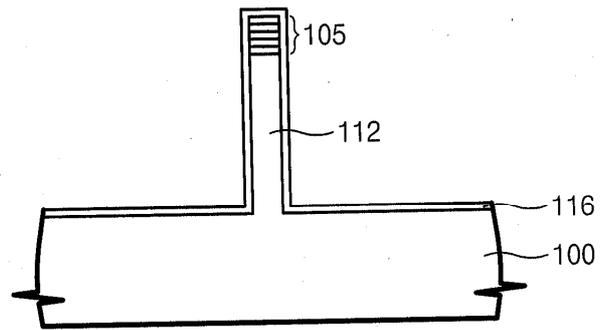
29



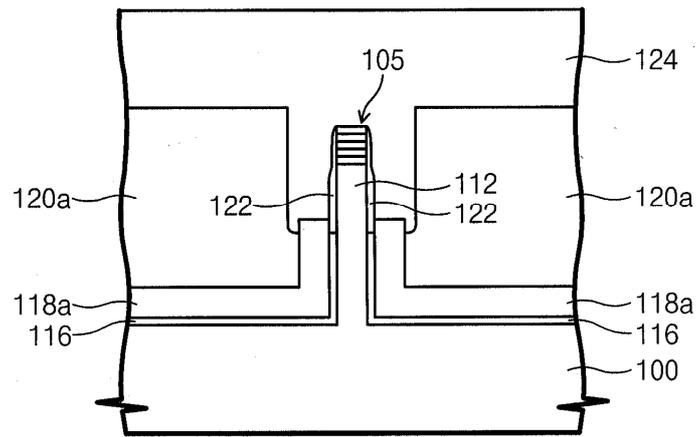
30



31



32



33

