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(43)

10-2004-0074836
2004 08 26

(73) 416

(72) 1029-15 203

() 704-304

() @303-104

() 112-906

2 90-20

(74)
:

(54)

· , , LDD ,
, , 가 ,
, , / , .

1
2
3 14

50 ; 52 ;
54 ; 56 ;
58 ; 1 60 ; 1
62 ; 1 64 ; 1
66 ; 2 68 ;
72 ; 74a, 74b ; 2
76 ; 2 78 ;
80 ; 82 ; 3
84 ; 3

effect; SCE) (MOS) / (pocket region) (short channel
가 가 가
가 가 가
1 5,733,792
1 (1) (2) (1)
(3) (1) (3) (4) (4)
(4) (3) (4)
(1) (5) (4) (5) (4)
(7) (5) (5) /
(7) (8) (8) (8) (5)
(9) 가 (9) (5) (8) (10)
(7) (5) 가 (8) (11) (11)
(8) (9) (11) (7) 가 (11)
(10) (9) (10) 가 (8) (9)
가 (4) (5)가 (5)
가 (9) (8) (8) (11) (5)
가 가 (11)

LDD(Lightly Doped Drain)

가
(Deep Source/Drain)

LDD

가

SOI(Silicon On Insulator)

1

1

1

2

2

1

1

1

1

2

SiON

SiBN

2

1

1

가

가

가

'(on)'

'(directly on)'

가

(20)

(22)

(24)

(20)

(20)

(22)

(24)

(26)

(22)

(24)

(22)

(28)

(26)

(design rule)

'c'

(22)

(24)

(24)

(26)

2

'b'

'd'

'd'

" (28) (tilting) , 'Rp'
 (projected range)
 2 (20) (26) (28) (r)
 (26)
 $(r) = d'/d = [c - b/\tan(90 -) - Rp \sin] / d$
 , Rp가 600 (22) (24) 가 1500 , 가 ,
 (26) (24) 30. 가 (28) 50% 가 ,
 $c - b/ 3 = 1050$
 (26) 'b' (24) (26) 'c'가
 (26) (28) (26) 50% .
 3 14 ,
 3 , (50) (LOCOS) (50) (54)
 (56) , (52)
 (52) (50) (56) (56) 1 (58)
 (54) (SiO₂) (Si₃N₄), (SiO
 N), ZrO₂, HfO₂, Ta₂O₅, Al₂O₃ (56)
 (50) , SOI(Silicon On Insulator)
 4 , 1 (58) (50) (56) 1
 (60) LDD(Lightly Doped Drain) (62) LDD
 (hot carrier effect) keV
 5 , 1 (62) , 1 (64)
 , 1 (64) 2 (66) (66) (50)
 가 , 1 (64) 2 (66) (shadowing)
 3 , 1 (64) 2 (66)
 SiON SiBN (64)
 6 , 2 (66) (68)
 (68) 가
 7 , (68) , 2 (66) 1 (64)
 (64) 가 , (64a)가 (56) 1 (58) 1
 8 , 1 (64a) 2 (66) 1 ()
 64) 가 , 가
 가 40 : 1 , 8 , 1 (64)
 (64) 1 (64a)가 (66) 1
 (72)가 , 2 (66)
 9 , (68)
 (68)
 10 , (76) (56) 1 2 (74a, 74b)
 (50) , (76) 2 (74b) (62)
 (50) (76) 10 2 (74a)
 2 (74b) (78)
 (76)

3. SOI(Silicon On Insulator)

4.

5.

1 2 ;
 1 2 ;
 ;
 2 1 ;

6.

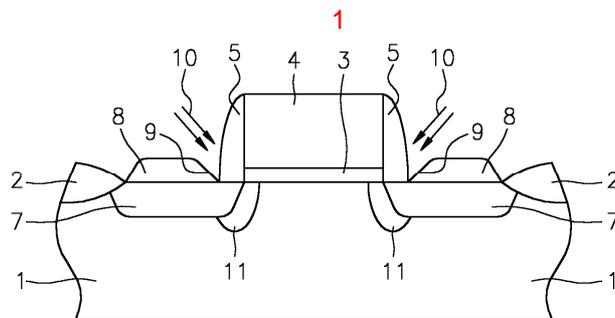
7.

8. SiON SiBN

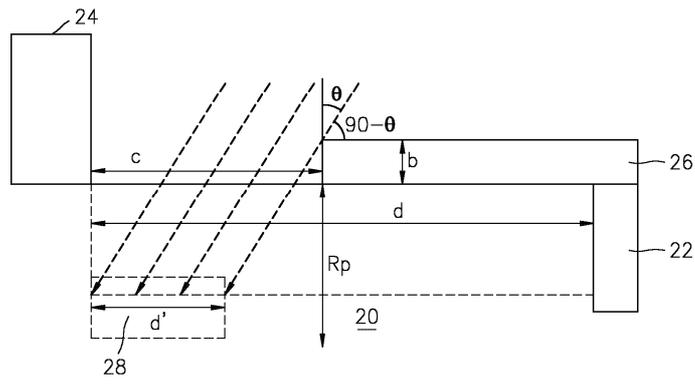
9. 가

10.

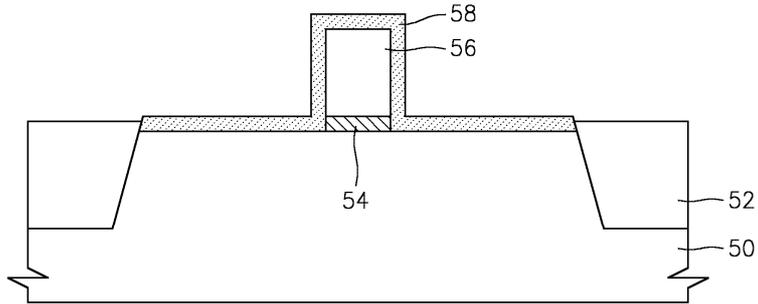
11. / /



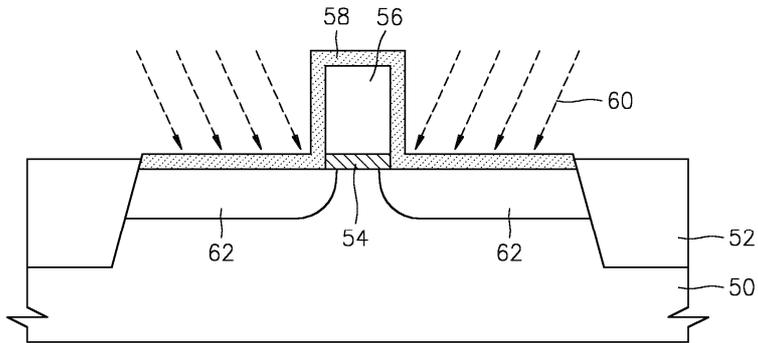
2



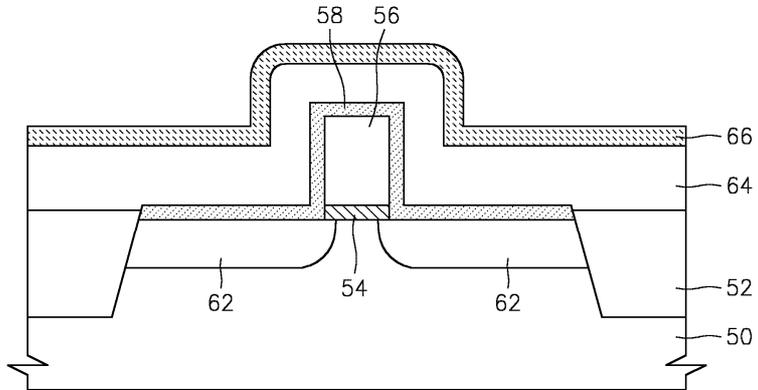
3



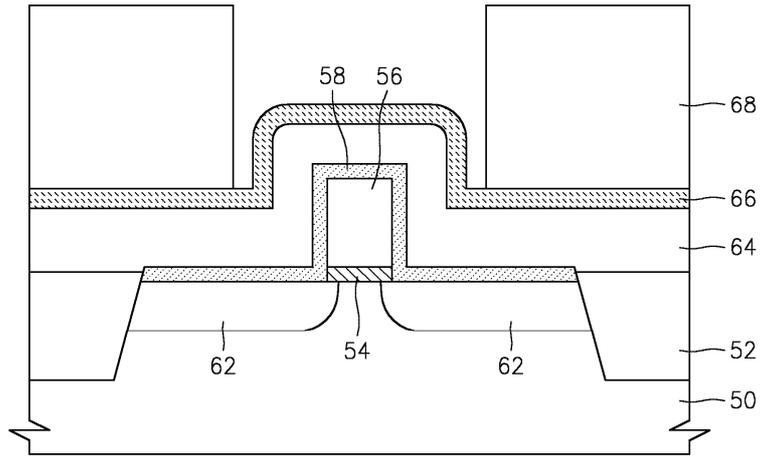
4



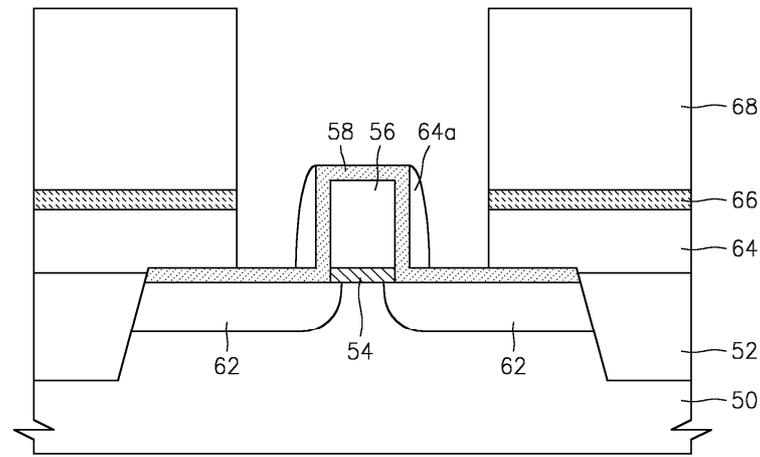
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6



7



8

