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2003 11 10

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(22) 2001 12 29

(65) 2003-0059375  
(43) 2003 07 10

(73) 1 838

(72) 223-14

(74)  
:

(54)

1, 1, ; 1, ;  
1 ; ;  
; ;  
; 2 ; 2 ;  
; 2 ;  
가 .

2e

1  
2a 2e  
3  
-  
10: 20:  
30: 40:  
45: 1 47:

50: 60a:  
 60b: 70:  
 80: 90:  
 100a: 100b:  
 100c:

MOS MOS(metal oxide semiconductor)  
 ( )  
 FET(insulated gate field effect transistor) (carrier)가  
 (electron) N- (hole) P-  
 MOS (majority carrier)  
 (gate)가 (gate oxide)  
 (2) (1) (3) (3) 1 (4)  
 (4) (1)  
 (5) (4) (4)  
 / (7) (4) (6)  
 (device) 가 가 (junction capacitance) 가 (junction leakage current)  
 가, (isolation)  
 1 ; 1  
 ; ;  
 ; ;  
 ; 2 ; 2  
 2a 2e ; 3  
 (10) (oxide) 2a (Si) (D)  
 (20)

(20) (30) (30) (40)  
 (40) (10) 1 (45) (30) (20) (45)  
 ) (20) (d)가 (defect source) 가  
 (10) 2b 1 (45) (20)  
 (30) (30) (20)  
 1 (45) (50:epitaxial layer),  
 (in situ) 2c (hard mask) (50)  
 30) (30) (50) (30)  
 (50) (47) 1 (45)  
 (10) (30) (hot phosphoric etchant)  
 (implantation)  
 (47) (10) (60a)가  
 (50) (60b) (47) (sacrificial oxide)  
 2d (70) 가 (80) (4  
 7) (70) (50)  
 (60a) (60b) 10<sup>15</sup> (doping) (70)  
 5 (60a) (60b) (sacrificed oxidatio) 가  
 (Vt) (sacrificial oxide) PSG(phospho silicate glas  
 s) BSG(boron silicate glass) (annealing) (annealing temperatur  
 e) (annealing time) (Vt control) 가  
 PSG BSG 가 1 (pre-c  
 leaning) (thermal oxide loss) PSG BSG (C  
 MP) 2e (90) (47) (90) 2  
 2 (100a)(100b)(100c)  
 (80) (100a) (100b) (60a)  
 (100c), (60b) (100b)  
 가 3 (100a)  
 (100b)  
 가 (80) (90) (80) (active region)  
 (field region) (50)  
 (10) 가

(57)

1.

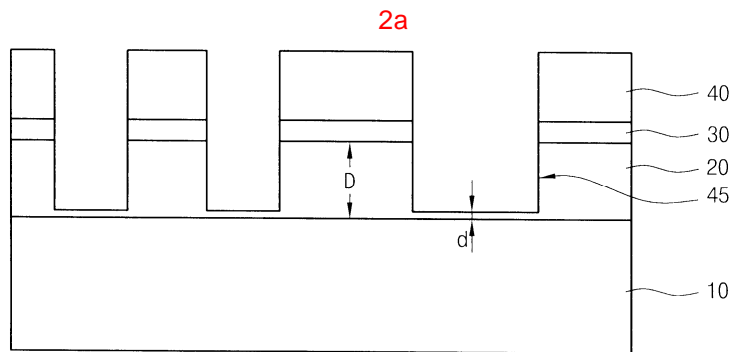
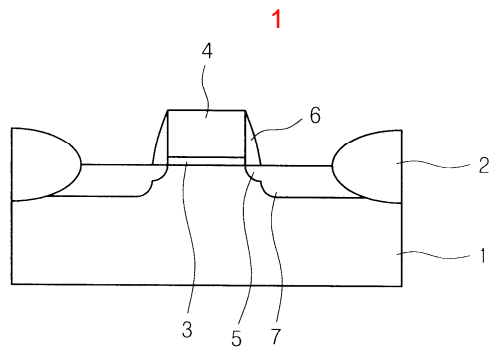
1

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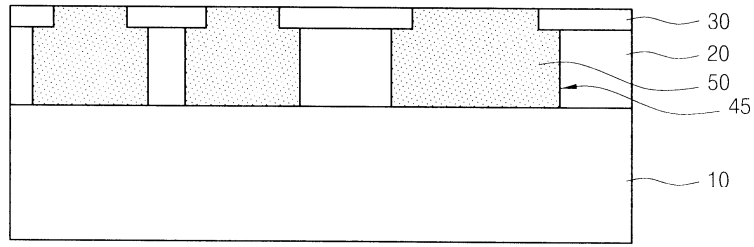
1

- 2
- 2
- 2.
- 1
- 3.
- 1
- 4.
- 3
- 1
- 5.
- 1
- 6.
- 1

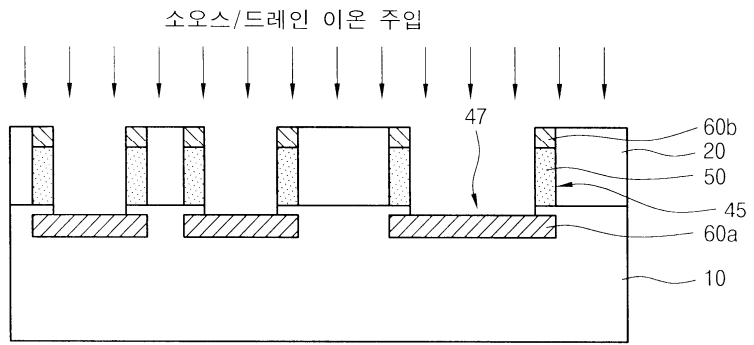
(in situ)



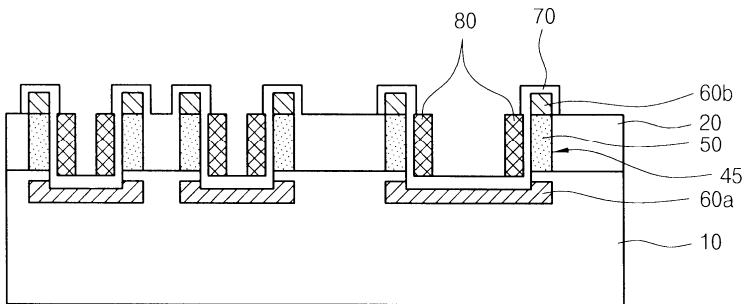
2b



2c



2d



2e

