

(19)
(12)

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(A)

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(43)

2003 - 0003906
2003 01 14

(21) 10 - 2001 - 0039762
(22) 2001 07 04

(71) 3 416

(72) 3 503

5 513 901

(74)

:

(54)

가 .
1 , 1 , 1
1 , 1 ,
1 1 , . ,
1 1 . ,

8

, COB

1 3 (self - aligned)

4 13

14 6 12 13

SAC

(Self - Aligned Contact)

(Capacitor Over Bitline; COB)

(DRAM) 가 $1.5\mu\text{m}^2$

(design rule) (minimum feature size) 가

SAC(Self - Aligned Contact)

가
(aspect ratio)가 가
(photolithography)

1 3 (self - aligned)

1 (10) LOCOS
(12) (10) (14), (16),
(18) (20)

(10) , (22) .

2 , (22)가 (10) (24)

(20) (Chemical Mechanical Polishing;CMP) (26)

3 , (26) (24) SAC

(22) (22) (24)

(22) (10) (10) (28)

CMP , (10) (28) (DRAM) (20)

, DRAM (Ca

pacitor Over Bitline; COB) 가 , COB (, " "

(Direct Contact; DC)) , (, " " (Buried Contact;BC) SAC

) ,

, SAC (22) (24) (10)

etch) , (charge trap) , 가 (over

, 가 (Hot Ca

rier Effect;HCE) 가 (Gate Induced Drain Leakage; GIDL)

, SAC 가

, (trade - off) 가

, 가 가

가 .

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1 , 1 , 1
1 가 , 1 , 1
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가
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2
T
가
1 가 SOG(Spin - On Glass)
(Oligomer Polysilazane)
SAC
가
가
가 가
" 3
4 13 14 6 12 13
4 1 (40)

(40) LOCOS (42) (40)
 N P 가 ,
 (40) , 14 (41) (12)

(42) (40)
 (44) (44) (46)
 (48) PCVD) (Plasma Enhanced CVD; PECVD) (Low Pressure CVD;L
 (50) (40)

4 (40) / (B) (40) (A)

(40)

(52)

5 (52)가 (40)
 (54) (coater)

6 (54') (54')

6 / (B) (A)

14 (A) (54')
 (54') DRAM T T COB(Capacitor Over Bitline)
 (54') (A) (62) (54') 가 (66)
 가

7 (54') (40)
 (54') 가 (56) 가 (56)
 (56) SOG(Spin On Glass) 가
 TOSZ (CLARIANT) (Oligomer Polysila

zane) 200 400 (56) (soft bake) (56)

8 (54') 가 (56)

(54') 9 (54') (ashing) (56')

(54') (54') (56')

ard bake) 800 (56') (shrink) 가 (56') (wet oxidation) 600 (h)

10 (54') 11 (58), (58)

(56') (50) (58')

12 (58') (40) 1 (60)

14 T (54') (6)

2) 1 (58') (62) (60)

(64) 12 14 A - A' (64)

13 (64) (40) 2 (65)

T (54') (65) 1 (60) 14 (58')

(65) (66) (66) 2 (68)

13 14 B - B' (62) (64)

(66) (62) (68)

(68) ()

가

가
TOSZ
(62)

(54')

(66)

SAC

(charge trap)

(Ga

te Induced Drain Leakage; GIDL)

(trade - off)

가

가

가

가

(57)

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16.

14 , 가 T , T

17.

13 , / ,

18.

13 , 1 가 SOG(Spin - On Glass) (Oligomer Polysilazane)

19.

13 , 1 , 1 1 ; 1 ; 1 1 1 2

20.

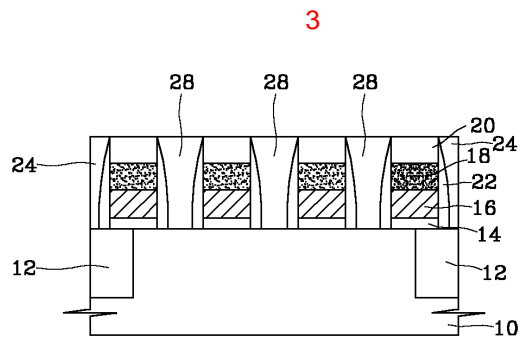
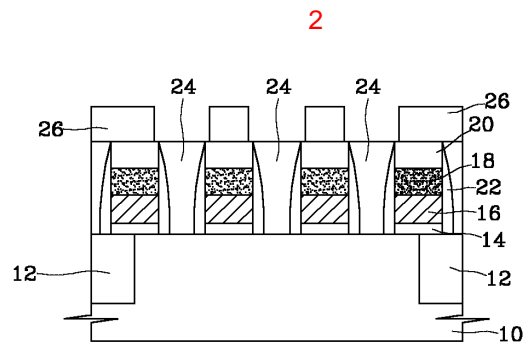
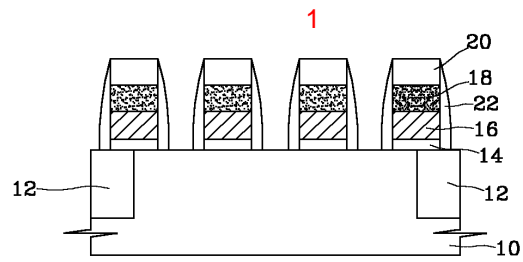
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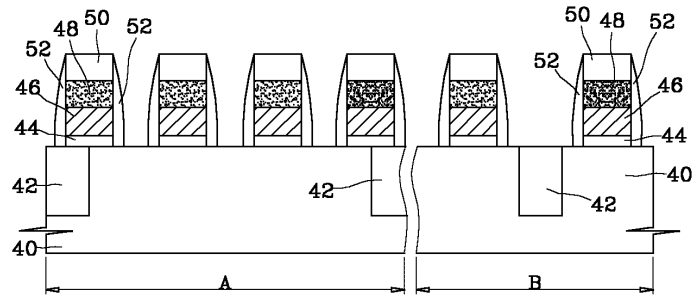
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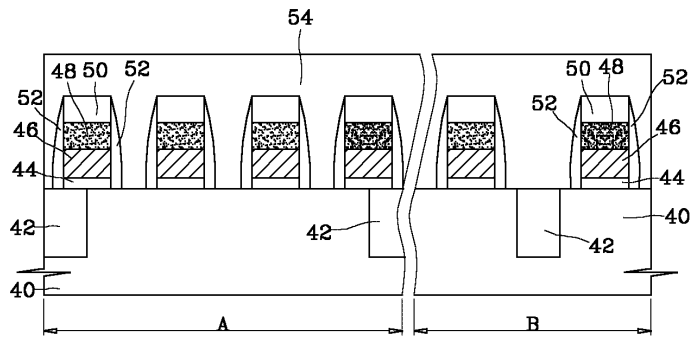
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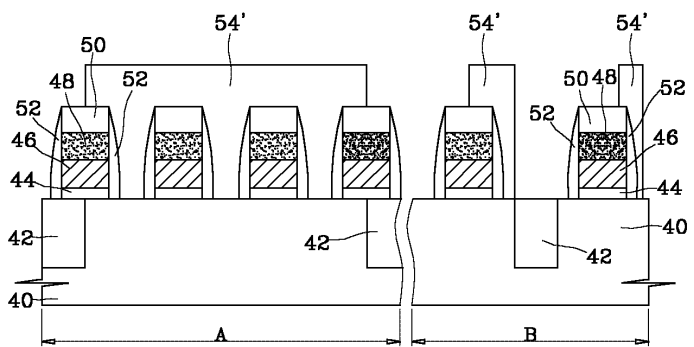
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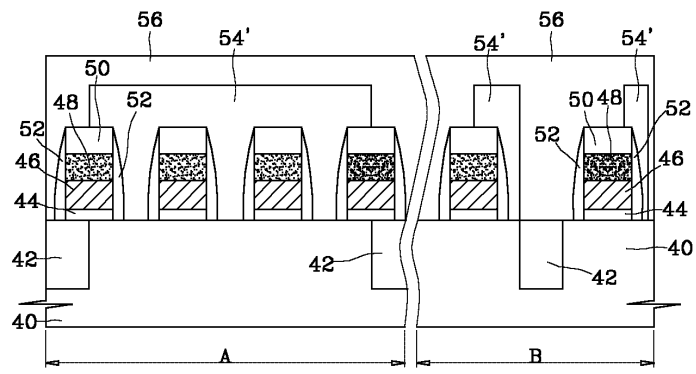
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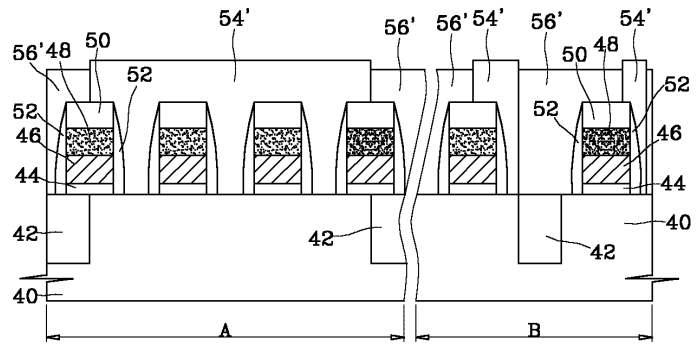
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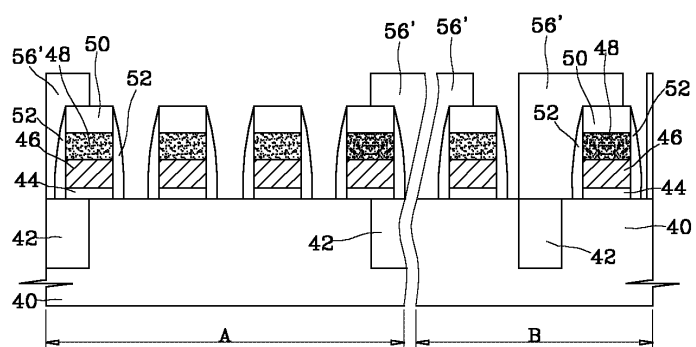
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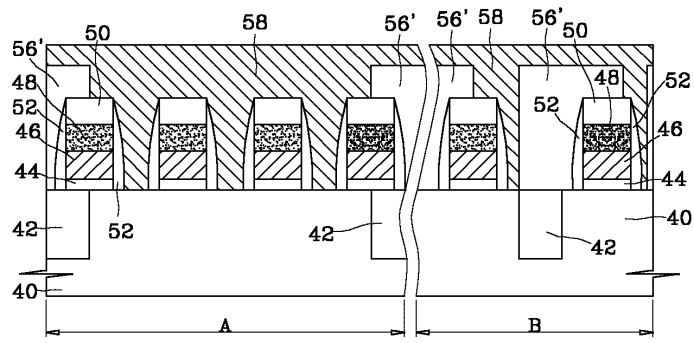
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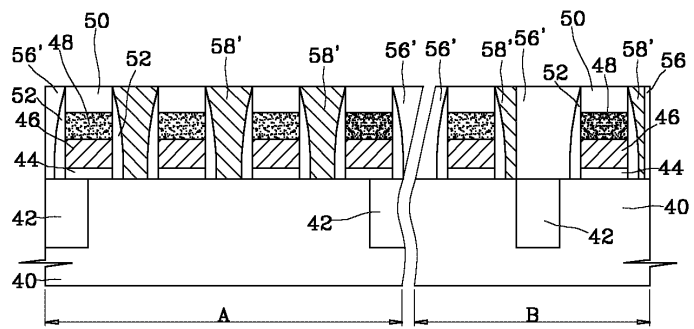
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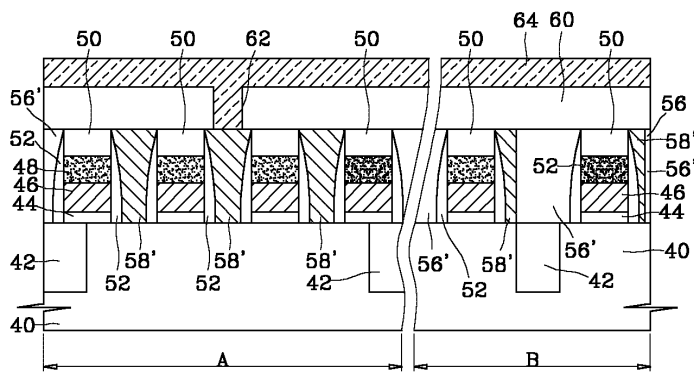
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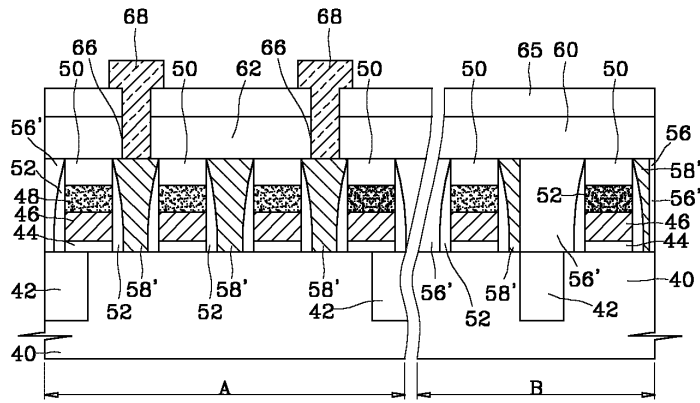
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12



13



14

