

(19)
(12)

(KR)
(A)

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H01L 27/108

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(43)

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2004 01 31

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(22) 2002 07 18

(71) 136-1

(72) 22 220 405

(74)

:

(54)

I (Type) 1 (Word line) , (Channel) (Line) 2
1, 2 ,
age) (Overlap) (Refresh) 가 , GIDL(Gate Induced Drain Leak) 1, 2
(Target)

4d

1

2 1 -

3a 3d

4a 4d 3a 3d - -

< >

11,31 : 12,32 :

13,33 : 15,35 :
 17 : 19,39 : /
 37 : 1 41 :
 43 : 2 43a : 2

l (Type) 1, 2 (Word line) 1 (Channel) (Line) 2
 1 , 2 1 -
 1 2 (12) (13) p (17) (11) (15) / (19) (17) (17) (11) 가
 , (13) (12) (11) 가
 , (17) (12) (11) 가
 , (17) (12)
 (Overlap)(A) .

DL(Gate Induced Drain Leakage) 가 GIDL / DRAM(Dynamic Random Access Memory) (Refresh) GI

, 1 , 2 가 l 1, 2 1

1 l 1

1 / ,
 1 ,
 1 1 ,
 1 2 , 1, 2 ,
 1, 2 , (W) (Al)
 ,
 ,
 ,
 2 | 1 1 , 1
 1, 2 GIDL
 가 .
 ,
 3a 3d , 4a
 4d 3a 3d - - .
 3a 4a , p (31) STI(Shallow Trench Isolation)
 (32) (33) .
 , (33) (32) (31) 가
 | ,
 3b 4b , (31) (35) ,
 (Al) (35) 1 (W) ,
 , 1 (3) 1
 7) (32) , (35) . 1 (37) 1
 , 1 (37) n (Drive-in)
 1 (37) (31) / (39) .
 , 1 (37) (41) , (41)
 BPSG(Boron Phosphor Silicate Glass) , LP-TEOS(Low Pressure- Tetra Ethyl Ortho Silicate) , H
 DP(High Density Plasma)
 , (41) 1 (37) . ,
 ,
 3c 4c , 1 (37) (41) 2 (43)
 . , 2 (43) (W) , (Al)

3d 4d , 2 (43)
 1 (37) 2 (43a) .
 31) , 가 1, 2 (37,43a) , (32) . (

1 2 | 1, 2 1 ,
 GIDL 가 , 1, 2
 , 가 . (Target)

(57)

1. 1 | 1
 ,
 1 / ,
 1 ,
 1 1 ,
 1 2 , 1, 2

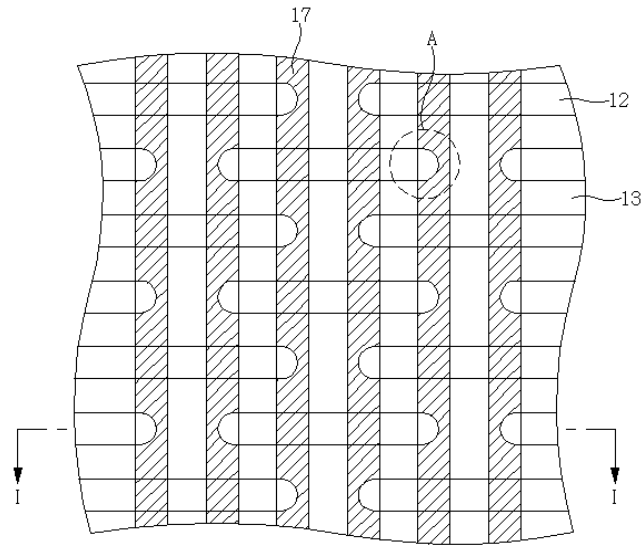
2. 1 ,
 1, 2 , (W) (AI)

3. 1 ,

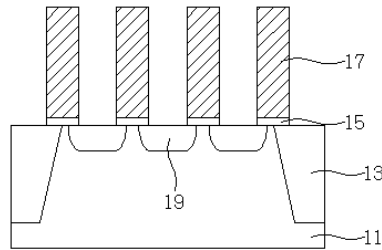
4. 1 ,

5. 1 ,

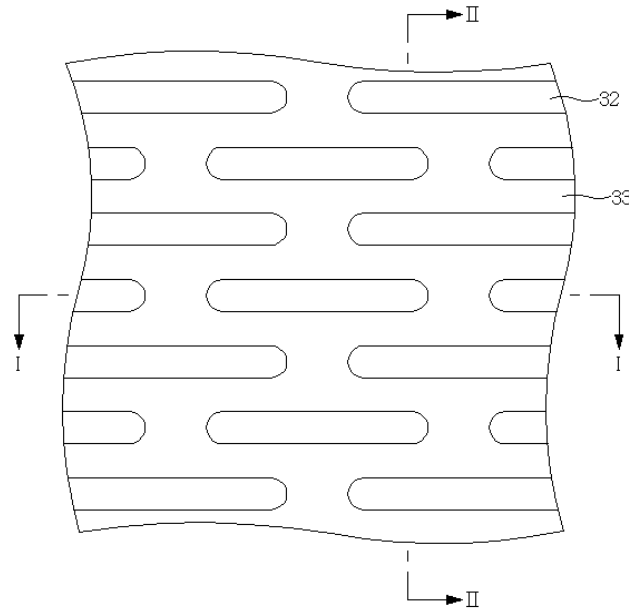
1



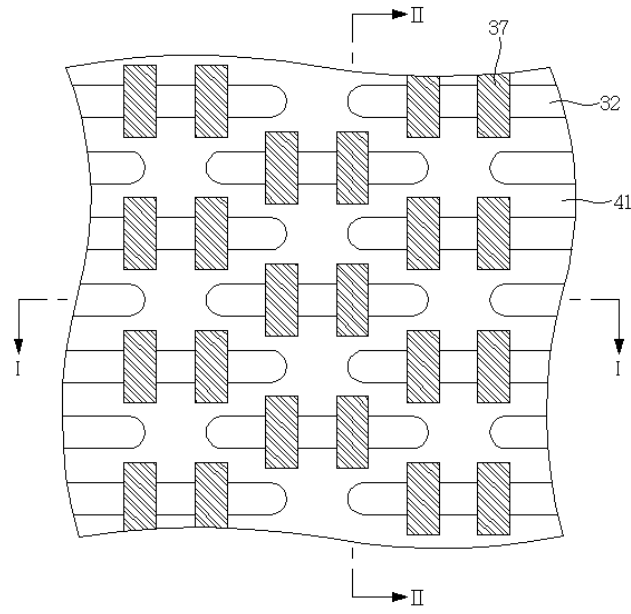
2



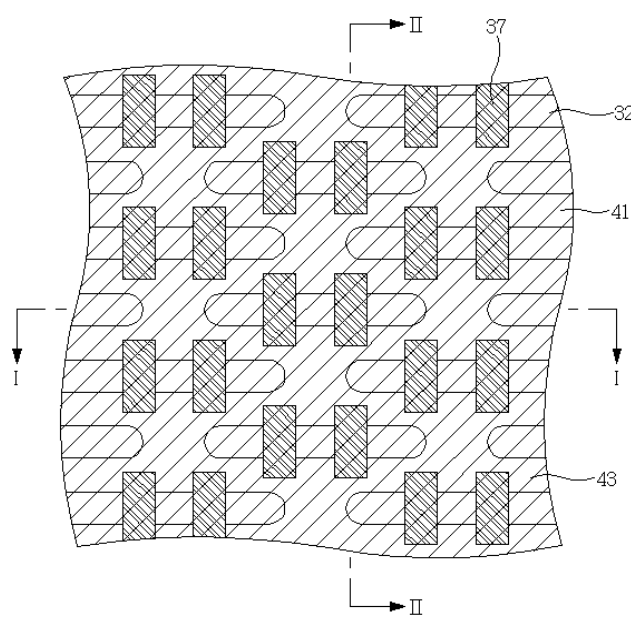
3a



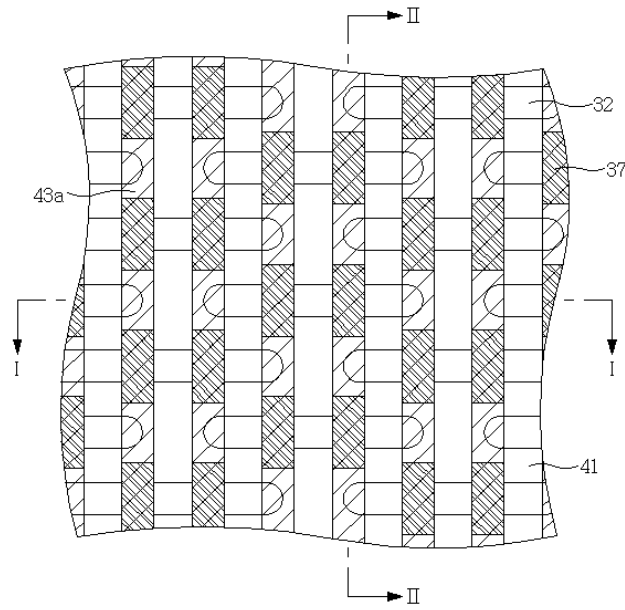
3b



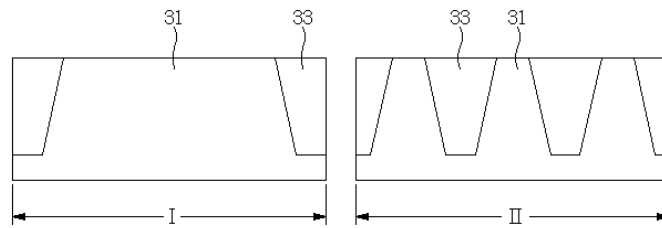
3c



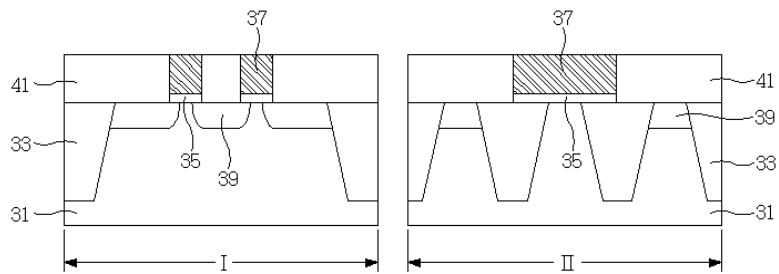
3d



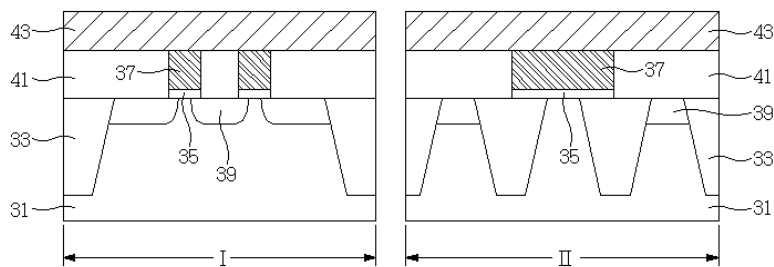
4a



4b



4c



4d

