

(19)
(12)

(KR)
(A)

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(43)

2002 - 0065795
2002 08 14

(21) 10 - 2001 - 0005979
(22) 2001 02 07

(71) 3 416

(72) 905 1804
151 1004

(74)

:

(54)

, COB

가

가

가

가

가

1

2

3 9

(Peripheral/Core)

10 9

(DRAM:Dynamic Random Access Memory)
가

DRAM
MOS(Metal Oxide Silicate)

COB(Capacitor On Bit line)

가 .가

가
HSG(Hemispherical grain)

, HSG , 가

/ (peripheral/core)

가

1 2

2

1 2 , (10)

1) (11) LDD(lightly doped drain) (1)
/ 가 1 (15)

(13)가 CMP

8) (13) 2 (17) (1)

(19'), (19), (21) (20) (23)

(25)가 (23) (25)

/ (29) 3 (27) 3 (27) (29) (27)

(35) (31) (31) (33)
(39) CVD (37) 4 (39) (41) 4 (37)

/ (10) (37) (41) 가

(33) 가 가 (41) 가 가 (23) 가

/ 가

가 가 가

3 9 , (P
 eripheral/Core)

3 , (10)

(11) LDD / 가 가

1 (15) 1 (15)

CMP (12)

가 2 (17) 2 (

17) (122) (122)

(122) 2 (17) (12)

/

(19') CVD (20) (19') / (19') (2

0) (114)가 CMP

3 / 가

4 , / (114) (122) 3

(19)

(21) (17) (231)

(19) (21) 400 1000 HDP(High Density Plasma)

PE - TEOS(Plasma Enhanced Tetra Ethylen Ortho Silicate) (232)

500 (231)

2000 (231) (232)

(231) (21) (19) (232)

3 (271) , CMP(Chemical Mechanical

Polishing) (232)

5 (232) (232) 가 50:1 (232)

(232) (231) (21) 1 가 (231) 1 2 (230)

230) 3 (271) (231) (21),

6 (230) (230) (271) () (123) (125)가 (123)

30% M 25 30 fF(25~30 × 10⁻¹⁵ F) 가, 5fF 가 DRA 가

7 가 (272) (29) (123) (131)가 가 (272) (123) (123) (131)

8 (33) (131) (33)가 (131) (33) (37) (35) (37) (35) (29) 4 (37), (35) (29)

39) .

9 , (141,142,143) . (37)

3 (271) 가 4 (39)

(141,142,143) , 4 CVD (39)

10 , 9 / 가 , (114)가 가

(142)가 (122) (122)

(11) 가 (125)

가가 (21) (143)

(57)

1.

MOS ,

MOS ,

/ ,

, , ,

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2.

1 ,

, , ,

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,

,

,

,

,

,

,

3.

2 ,

가

가 ,

가

4.

3 ,

5.

1 ,

MOS ,

MOS 1 ,

1 ,

1 ,

가 2 /

2 ,

6.

5 ,

7.

6 ,

8.

COB(capacitor over bit line) ,

/ ,

가

가

가

가

9.

8 ,

10.

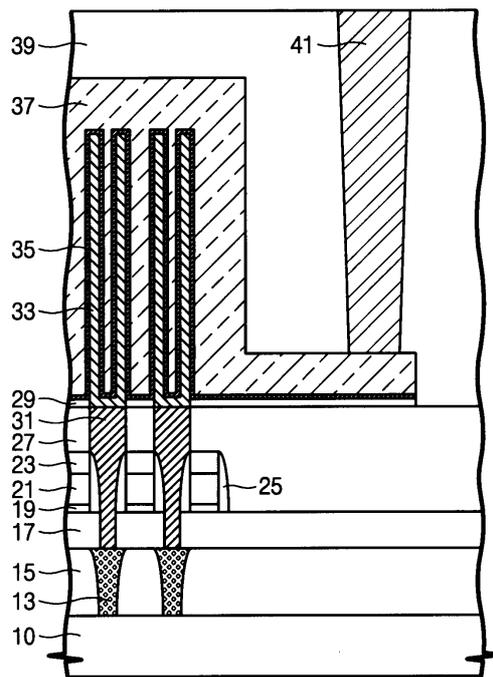
8 ,

가

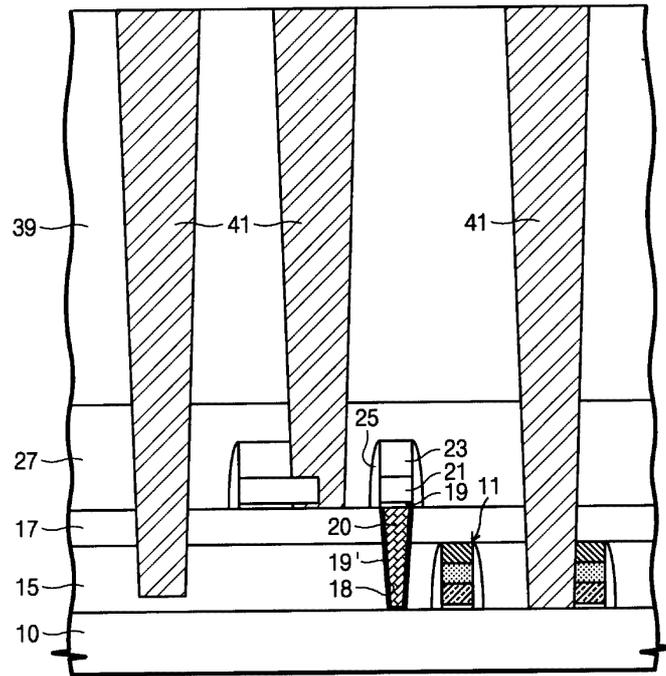
11.

9 ,

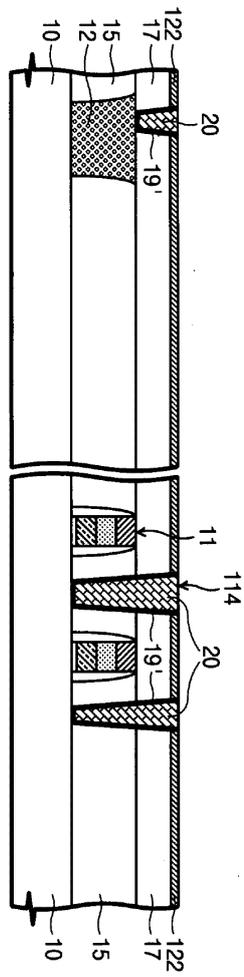
1



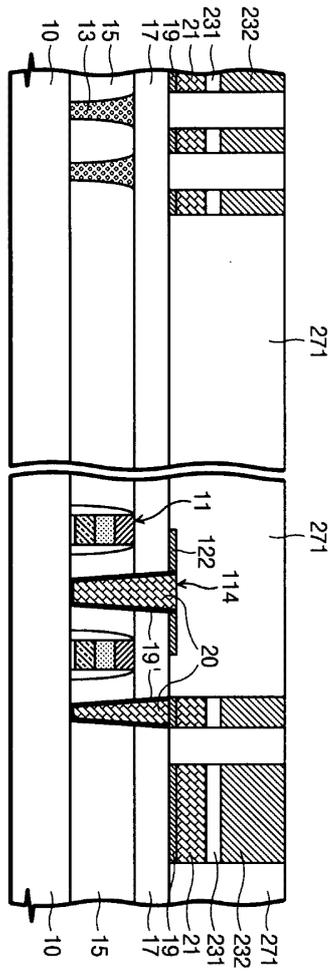
2



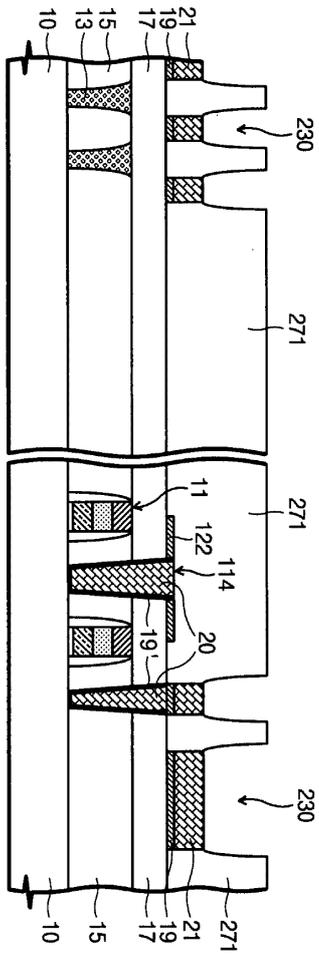
3



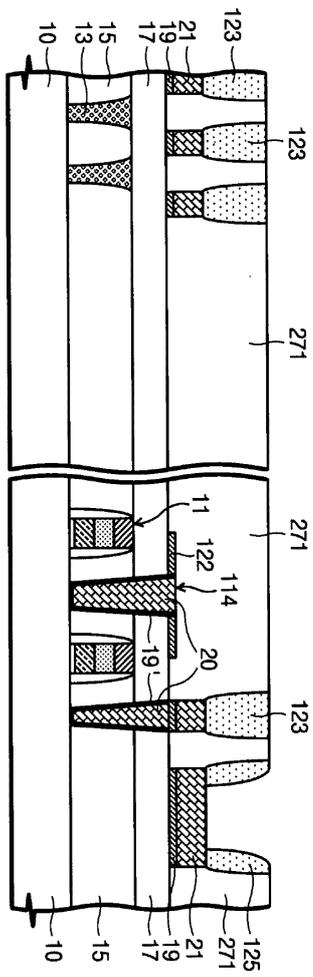
4



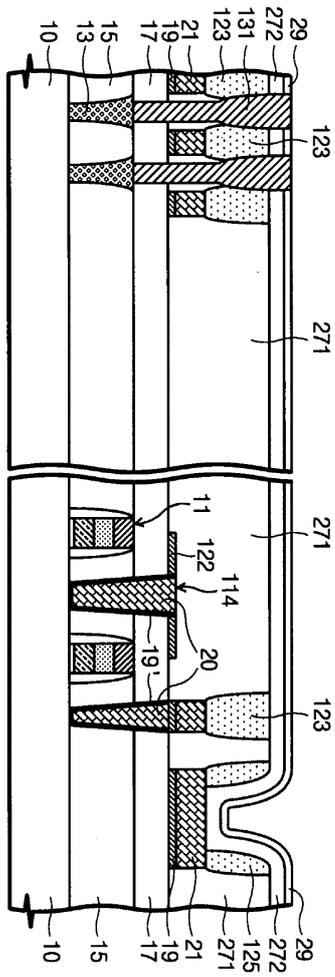
5



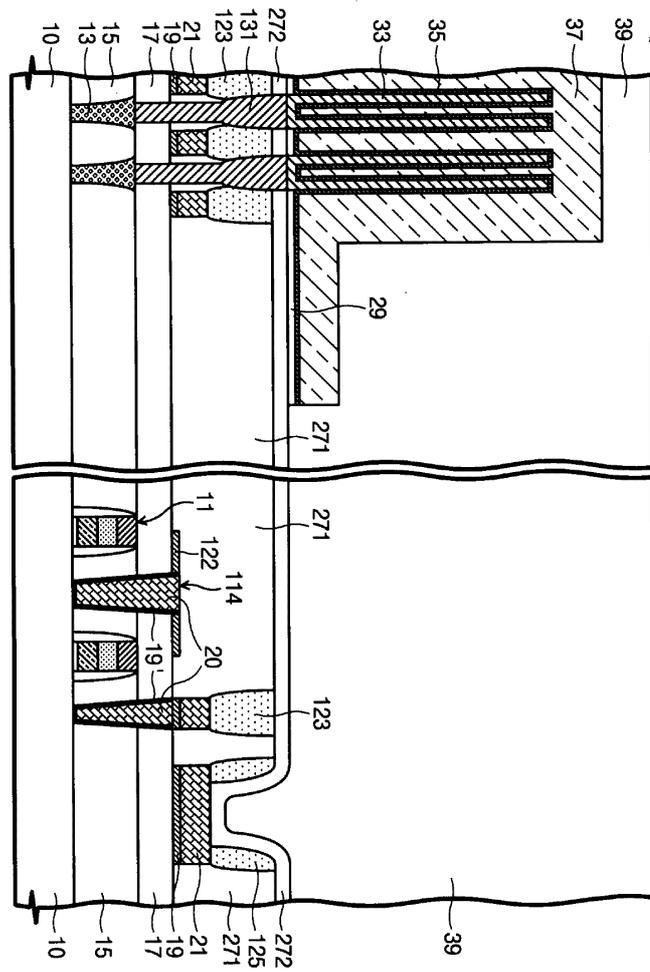
9



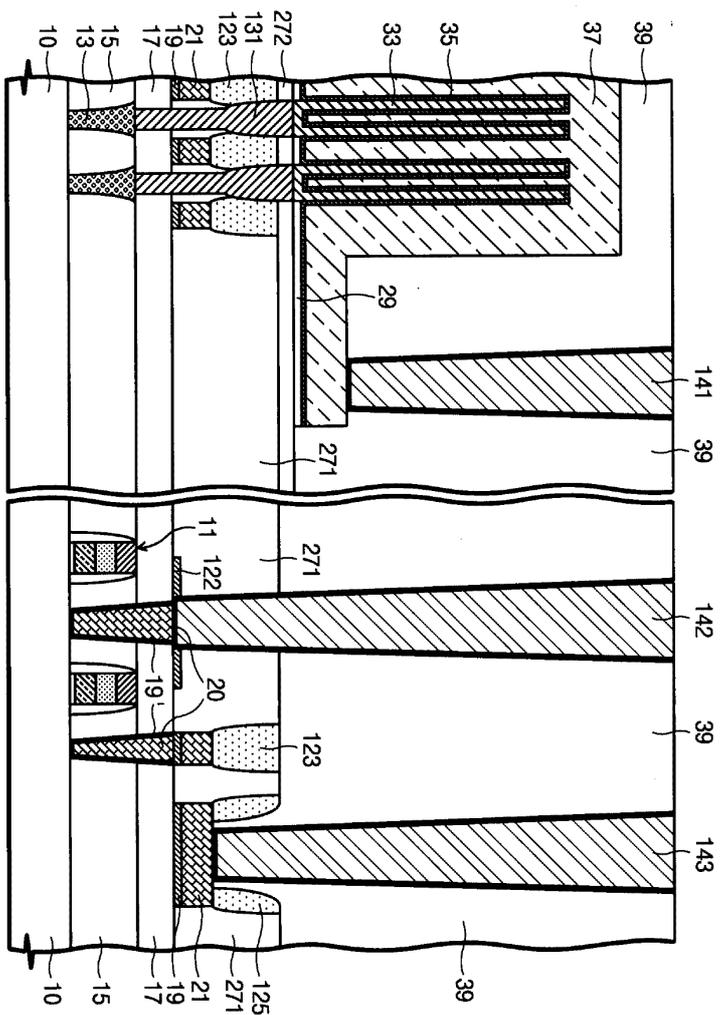
7



8



6



10

