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(72)

7 - 47 301

1235 301 1102

(74)

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(54)

SOI	가	MOS		MOS		1	MOS	, 1
	1 /	MOS	.	MOS		2	, 1	
	2 /	2 /	.	MOS				
			.	MOS		1		2

3a

1 SOI MOS .

2a SOI MOS .

2b SOI MOS .

3a 3d , 3a 3b 3a b - b , 3c 3

a c - c , 3d 3a d - d .

4a 4d , 4a 4b 4a b - b , 4c

4a c - c , 4d 4a d - d .

5a 5d , 5a 5b 5a b - b , 5c 5

a c - c , 5d 5a d - d .

6 .

7 .

<

100: MOS , 102: , 104: , 106: , 107: 1 , 108

: , 109: , 110: , 112: H , 122: 1 / , 130: 1

, 140: , 150: MOS , 157: 2 , 162: , 17

2: 2 / , 180: 2 .

uctor) , SOI(silicon on insulator) 가 MOS(metal oxide semicond

CPU(central processing unit) SOI MOS 가 , SOI MOS 가 , SOI MOS 가

1 SOI MOS .

1 SOI MOS (10) (buried o
oxide layer)(12) (12) / (22) (24)
(20) (24) (30) (30)
(40)

1 가 NMOS / (22) n⁺
PMOS () / (22) p⁺ / (22)

가 SOI MOS 가 가 가
, NMOS PMOS (body)가
NMOS
(floating body effect)가
(dynamic leakage current)

가 H T H- T-
(channel potential fixation structure)

2a 2b H T 가 SOI MOS

2a (50) H (52) 2 / (54) 2 (58)
4 (56) H (52) / (54) / (54)

2b (60) T (62) 2 / (64) 1 ()
68) 3 (66) T (62) / (64) / (64)

2a 2b SOI MOS (58, 68)

가 가 가 가 가 가 가

가 SOI MOS

SOI MOS SOI MOS 가 SOI MOS
가 가

1 2 2 /

1 MOS 가 MOS MOS 가 가 MOS MOS 가 1 1 MOS

2 MOS CPU(central processing unit) , CPU CPU 1 MOS CPU 1 MOS CPU 1 MOS

2 MOS CMOS MOS CPU MOS MOS MOS

MOS 가 MOS 가 MOS 가 MOS 가 MOS 가 MOS 가 MOS 가

3a (main) MOS 3d (100)가 H (112) 3a 3b 3c 3a c - c 3d 3a d - d

3a (102) MOS (107) SOI (100) (104) NOS (106) (100) (108) 1 (150) (assistance) MOS

H (108), 2 1 / (122) (長方形) MOS (110) (150) MOS (100) (162) (172) 5 (172) 2 / (172) 가 M

OS MOS (100) (150) (108)

1 / MOS (100) H (112) (108) 2
 (122) 1 (107) . MOS (150)
 , (162) 2 2 / (172) 2 (15)
 7)

MOS (100) MOS (150) 가 MOS
 . MOS (100)가 NMOS MOS
 (150) PMOS , 1 / (122) n +
 , 2 / (172) p + , MOS (100)가 PMOS
 (122) p + , (150) NMOS , 1 /
 2 / (172) n + .

MOS (100) H (112) MOS (150)
 (162) (140) . (140) H
 (112) 1 (130) (162) 2
 (180) , (140)
 (162) . (140)
 H (112) 1 (130) , H (112)
 (162) 2 (180) . 3a , H (112)
 2 1 (130) , (162) 2 2
 (180) , 2 (140)
 . (140) .

(140) 1 (14)
 0) 1
 . , (140) 1 .

, 1 (130) 2 (180) H (112)
 (162) , (112) (122,
 172) (109) H (112) (162) ,
 가 , (140) 1 2 / (122, 172) (162) .

3a 3d 가 MOS (100)
 1 (107) (108)가 MOS (150) 가

, (off) 가 MOS (100)
 MOS (100)가 (turn off) , MOS MO
 (108) (potential) 가 , SOI MOS
 S (150)가 (100) (108) 가 , SOI MOS
 (150) MOS (100) MOS (100) (108)가 , MOS

(262) 2 1 (280) 2 (280) 4a T (212)
 (280) (230) (262) 2 (240) 2

3a 3d 가 (240)
 1 T (212) (230) 2 (280)
 (240) 1 2 (262) 4a 4d
 (230, 280) 1 2 / (222, 2)
 72)

4a 4d 3a 3d 가 MOS (200)
 1 (207) (208)가 MOS (250) 가

가 MOS (200) MOS (208) MOS (20)
 0)가 (250)가 (208) 가
 MOS (200) MOS (250)
 MOS (200) (208)가 MOS (250)
 가

가 MOS (200) MOS (200)가 (200)
 MOS (250) MOS (207) MOS (208)
 MOS (200) 가 가

5a 5d (dog bone) (elongated gate) 5a
 (310) 5b 5a b - b (312) 5a
 c - c 5d 5a d - d

5a 5d (304) (306)
 (302) SOI

MOS (300) (308) 1 MOS (307) (300)
 MOS (350)

(310) MOS (350) MOS (300) (312)
 (310) (312) 1 / (362) (322)
 (362) 2 / (372) 1 /
 (322) MOS (300) 2 / (372) MOS (300)
 (350) 2 / (372) 가 MOS (300)

(308) .

MOS (300) , (312) (308)
 2 1 / (322) 1 (307) . MOS
 (350) , (362) 2 2 / (372) 2
 (357) .

MOS (300) MOS (350) 가 MOS
 (350) PMOS , MOS (300)가 NMOS MOS
 , 2 / (372) p⁺ , 1 / (322) n⁺ (300)가 PMOS
 (322) p⁺ , MOS (350) NMOS , 1 /
 2 / (372) n⁺ .

MOS (300) (312) MOS (350)
 (362) (340) (340)
 2 (312) (380) 1 (330) (362)
 (312) , (362) , (340)
 , T (212) 1 (330)
 , (362) 2 (380) . 5a
 , (312) 1 1 (330) ,
 (362) 1 2 (380) , 1
 (340) .

3a 3d 가 , (340)
 1 (330) 2 (380)
 (312) (362) . 5a
 5d (340) , 1 2 (330, 380) 1 2 /
 (322, 372) , (309) .

5a 5d 3a 3d 4a 4d 가 MO
 S (300) 1 (307) (308)가 MOS (350)
 가 .

0)가 , 가 MOS (300) MOS (30)
 , MOS (350)가 (300) (308) 가
 . MOS (300) (308) MOS (350)
 MOS (300) (308)가 ,
 가 .

가 MOS (300) MOS (300)가 (300)가
 MOS (350) MOS (307)
 MOS (300) 가 가

6

NMOS (412) PMOS (422)가
 CMOS(complementary MOS) (410) , PMOS (414) NMO
 (424) CMOS (420) (412)
 PMOS (414) , PMOS (422) NM
 (424) MOS

7

(500) CPU(central processing unit) (502) (504) C
 PU(502) (500) (504) CPU(502) (504)
 MOS MOS
 CMOS

MOS MOS MO
 MOS MOS MOS
 가 MOS 가 MOS
 MOS MOS 가 (off) MOS 가 (on)
 MOS MOS 가 (on) MOS 가 (off)
 MOS MOS 가 MOS 가
 MOS 가 MOS 가

(57)

1.

1 , 1 1 / MOS(metal oxid
 e semiconductor)

2 , 1 2 2 / , (assistance) MOS

1 2

2.

1 , 2 / 가 MOS

3.

1 , 1 H , T (elongated gate)

4.

1 , MOS (長方形) MOS (dog bone) ,

5.

1 , 1 1 1 , 2 1 2 , 1 2

6.

5 , 1

7.

5 ,

8.

5 ,

9.

1 , 1 2 1 / 2 /

10.

4 , , 1
2 .

11.

1 , MOS 1
, MOS

12.

1 , MOS 가 (off)
MOS 가 (on) , MOS 가

13.

1 , MOS NMOS , MOS PMOS

14.

1 , MOS PMOS , MOS NMOS

15.

1 MOS 2 MOS CMOS
,
1 NOS 2 MOS MOS

16.

15 , MOS 1 , 1 / , ,
1 MOS 1 1 , 1 /
, MOS 2 1 2 , 2 /
2 / 1

17.

16 , 1 H , T

18.

15 , MOS (長方形) MOS (dog bone)

19.

15 , MOS 가 MOS MOS 가 MOS MOS

20.

16 , MOS MOS 가 가 1 1

21.

CPU(central processing unit) , CPU , CPU
1 MOS 2 MOS CMOS
1 NOS 2 MOS MOS

22.

21 , MOS 1 1 1 / , ,
MOS 1 2 2 , 2 /
2 / 1

23.

22 , 1 H , T

24.

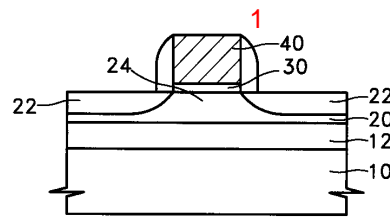
21 , MOS (長方形) MOS (dog bone)

25.

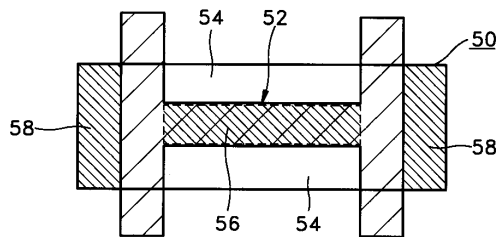
21 , MOS 가 MOS 가 MOS MOS

26.

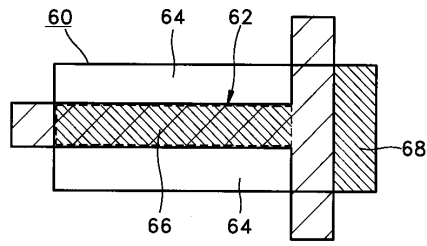
22 , MOS 가 가 1 1



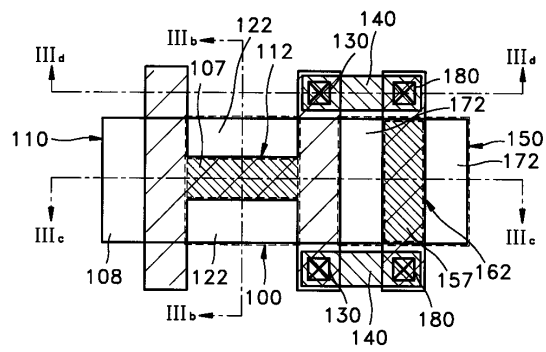
2a



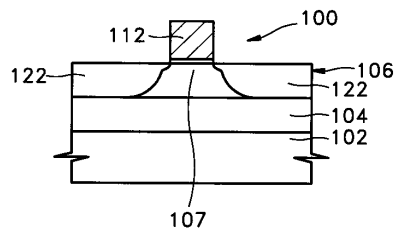
2b



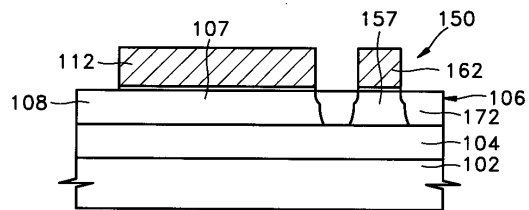
3a



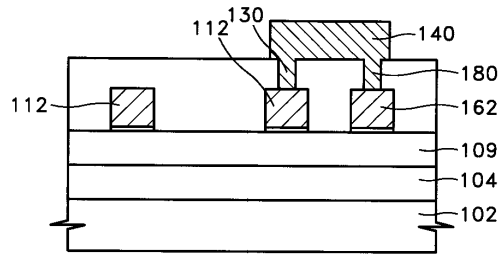
3b



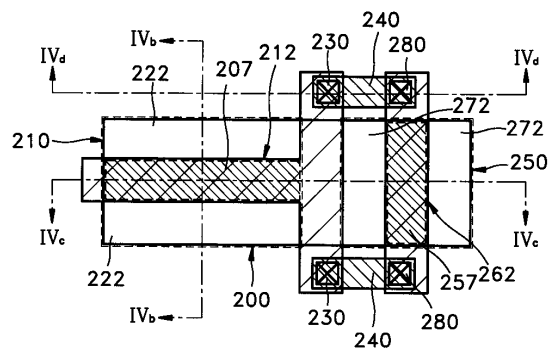
3c



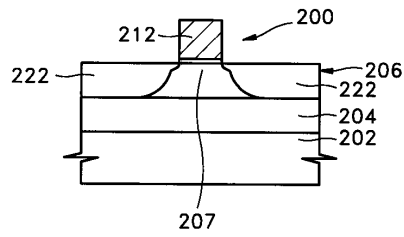
3d



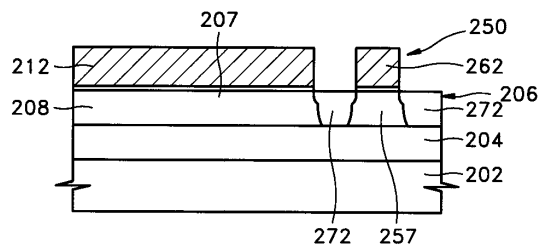
4a



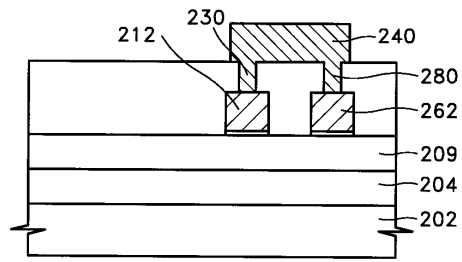
4b



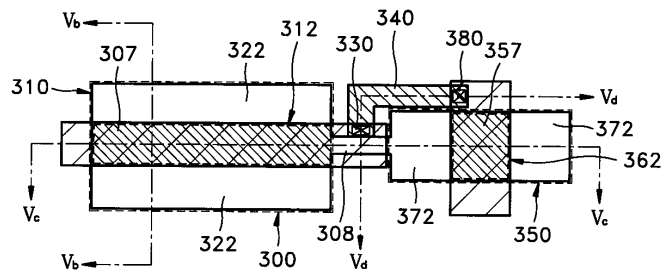
4c



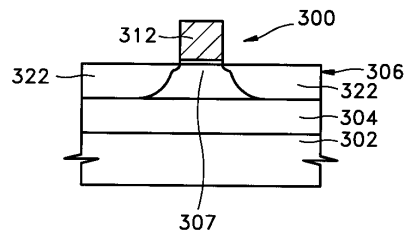
4d



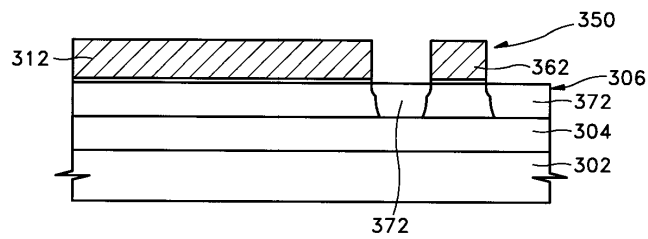
5a



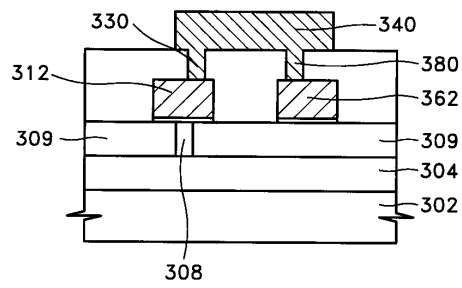
5b



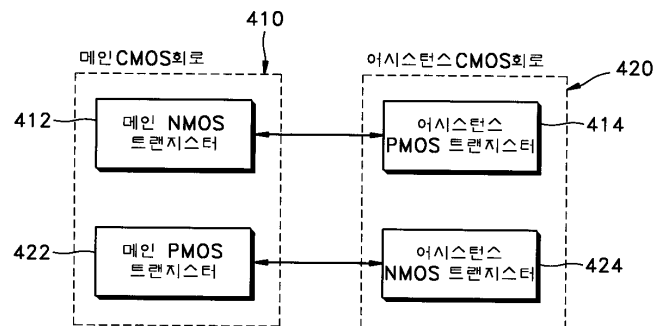
5c



5d



6



7

