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2004 02 02

(21) 10-2001-0085165
(22) 2001 12 26

(65)
(43)

10-2003-0054758
2003 07 02

(73) 가 161

(72) 103-802

99 110-1506

204-806

106-707

520-1 8 802-301

99 32 6 116-205

108-2105

(74) :

(54)

SOI

가

CMOS

2i

1
2a 2i
3
< >
1 100: 2 102: p-
3 103: n- 4 104: n-LDMOS p-
5 105: p-LDMOS n-
6 106: n- 7 107: p-
11 111: n + 12 112: p +
13 113: p + 20 120:
21, 121: 30, 130 138:
31 131: 32 132:
33 133: 34 134:
35 135: 36 136:
37 137: 40 140:
41 141: 42 142:
50, 150 152: 108:
139:

MOS) (C
(IC) (DMOS)가 (MOS) 가
MOS) VDMOS(vertical DMOS)가 , LDMOS(lateral D
OI(silicon-on-insulator) S
, LDMOS (IC) , VDMOS (IC)
LDMOS SOI LDMOS 가
LDMOS CMOS
p-n
가
SOI (IC) 1 n-LDMOS p-
LDMOS CMOS
p- (n-)
(P, As) p (B, BF₂) n
. p- n- p (2)((B, BF₂) n- (3)
(P, As)

SOI (33) p- (30) (4) (1) n- SOI (2) (5) (3) (30) p- (2) (2) (3) n- (3), p- (4), n- (5) S
 가 (21) (2) (3) (33) (CMP) (2) (3) 가
 CMOS (2) (3) 가 2 가
 가 가 가 가
 CMOS 2 가 1
 CMOS SOI
 가

SOI lar transistor) n-LDMOS (p-LDMOS (p-LIGBT(lateral insulated gate bipo CMOS
 (n-LIGBT) p-n (junction)
 P-n : dielectric isolation technology) 가 가 p-n
 n-LDMOS p- , p-LDMOS n- n-LDMOS p- n-MOSFET
 , p-LDMOS p-MOSFET n- , n- (drift), p- SOI
 (photo) (photoresist) (etch-back) (CMP)
 n- (p-) 가 가 가 가
 가 가 가 가 2

(CMP)

가 가 가 가 가 가 가 가

2a 2i , n-LDMOS , p-LDMOS , CMOS
 n (p) (100), 1 5mm (130) 가
 n (p) SOI 가 0.01 100 cm 가 0.5 20μm (102)
 (102) 2000 10000 (135) (135) (150) (150)

2b , 1 3μm가 (150) (135) (135) (130)
 (102) (150) (135) (108)

2c , (108) (133) (134)
 (108)가 (151)
 (133) 1000 10000 100 1000
 , 1000 10000
 (151) 1000 10000

2d , (102) (CMP) (15)
 (134) (108) LD MOS
 CMOS (102) (buffer) (136) (136) (152) (152)
 n- (152) , (152)

2e , p- (102) n- (103)
 (152)

2f , n (P, As) p ()
 B, BF₂) n-LDMOS (104), p-LDMOS (105), n-
 (106) p- (107) (136) (102) 100 1000 (1)
 2g , (136) (102) 100 1000 p-LDMOS
 38) , p + (113) p (B BF₂) (137)
 500 3000 (137) (137)

. n-LDMOS CMOS 가
 p (B BF₂) 1.0x10¹³ 1.0x10¹⁴ cm⁻² L
 OCOS(local oxidation of silicon) 3000 10000 (131)

2h , (137) , () 100
 1000 p (B, BF₂) 5.0x10¹¹
 1.0x10¹³ cm⁻² ,
 (139) 100 1000 2000 6000 (120)
) , POCl₃ (120) (P), (B), (As)
 (120)

() LDD(Lightly Doped Drain)
 LDD 1.0x10¹² 1.0x10¹⁴ cm⁻² n-MOSFET n-LDMOS
 BF₂) LDD LDD p-MOSFET p-LDMOS ()
 LDD 1.0x10¹² 1.0x10¹⁴ cm⁻²

(spacer) (120)
 1.0×10^{15} $1.0 \times 10^{16} \text{ cm}^{-2}$ n + /
 (111) F₂) 1.0×10^{15} $1.0 \times 10^{16} \text{ cm}^{-2}$, 3000 10000 / (112) (B
 2i , () (132)
 (140) , (141) , (142) (132)
 3 , 2c (108) (134) (133) (121) (142) (134)
 ,

CMOS

, 가 가

(57)

1.

SOI

가

2.

1 , 2000 10000

3.

1 , 1 3 μm

4.

1 , , 1000 10000

5.

1 , , 1000 10000

6.

1 ,

7.

1 ,

8.

7

2

9.

8

1

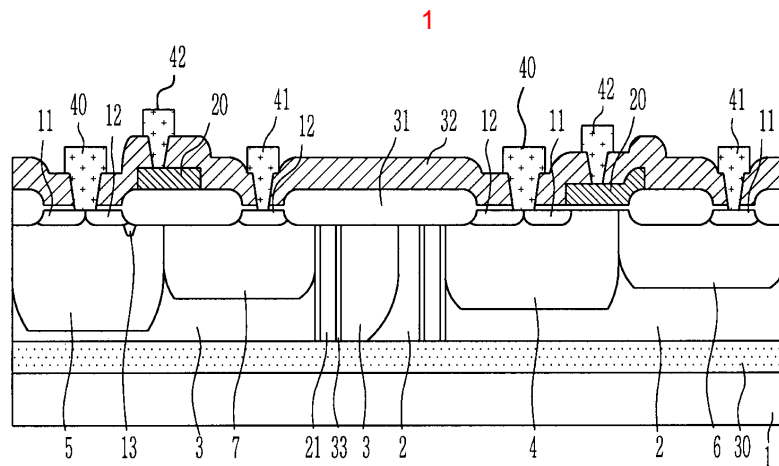
100

1000

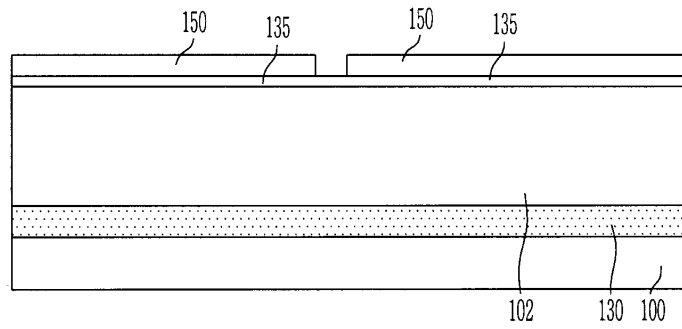
2

1000

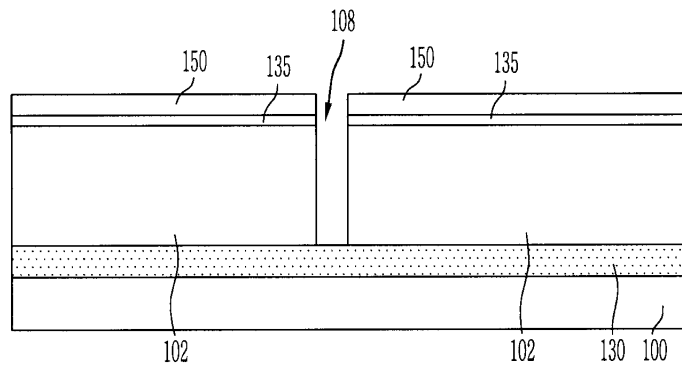
5000



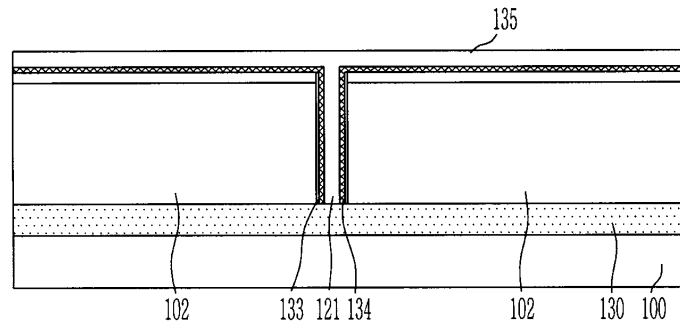
2a



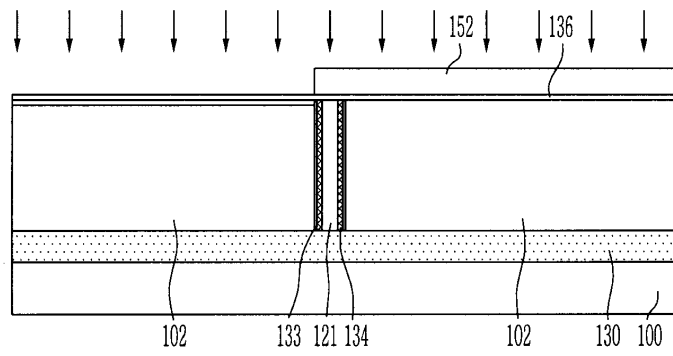
2b



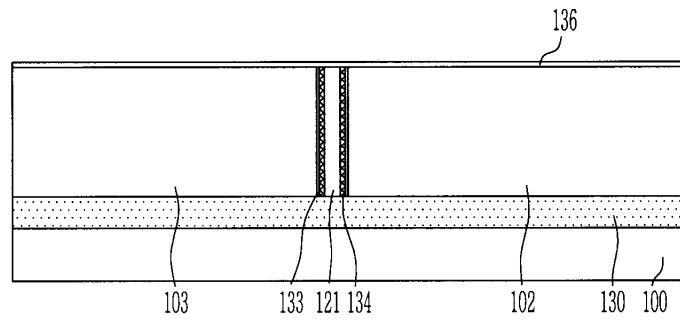
2c



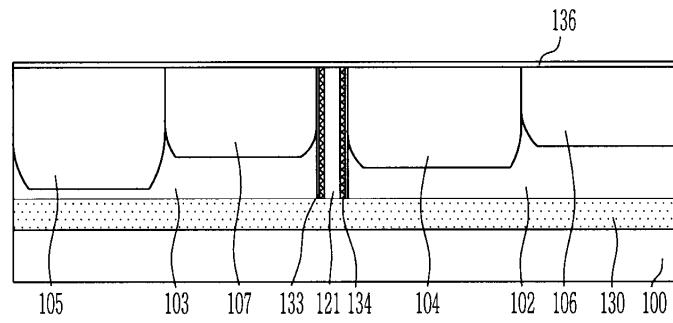
2d



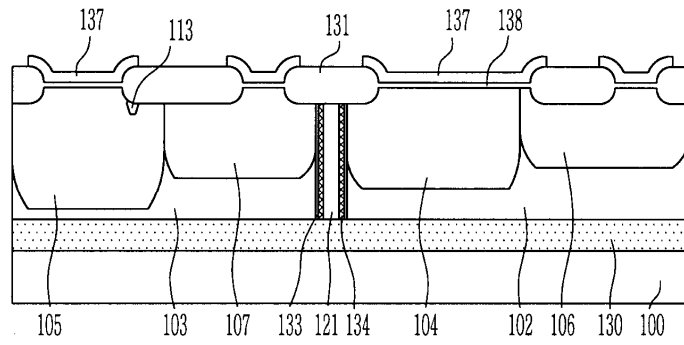
2e



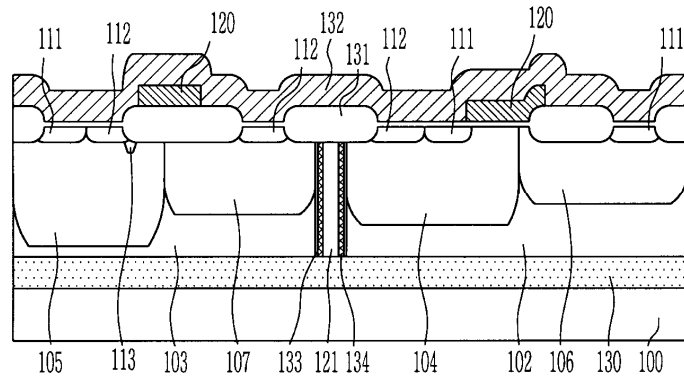
2f



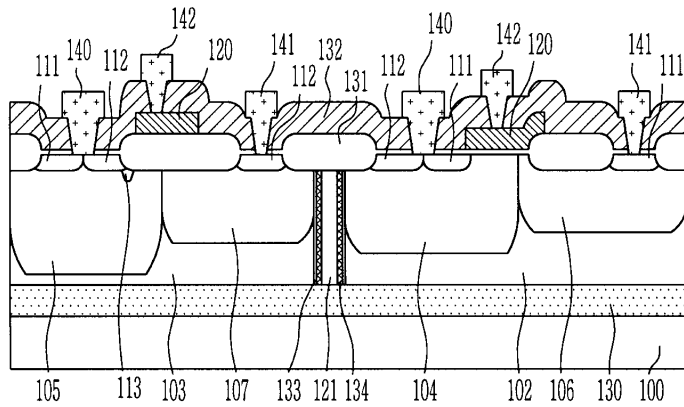
2g



2h



2i



3

