

(19) (KR)  
(12) (B1)

(51) 。 Int. Cl. <sup>7</sup> (45) 2003 03 26  
H01L 27/11 (11) 10 - 0377082  
(24) 2003 03 10

(21) 10 - 2000 - 0021602 (65) 2001 - 0039584  
(22) 2000 04 24 (43) 2001 05 15

(30) 1999 - 302270 1999 10 25 (JP)

(73) 가 가 2 2 3

(72) 2 2 - 3 가 가  
가 2 2 - 3 가 가  
2 2 - 3 가 가

(74)

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(54)

(1) p (2a) (4a) T3 . (8)  
T3 (7) . (8)  
(11) . (4a) (12c)

1	1	SRAM	가	.
2				.
3	2	III - III		.
4	,	2	SRAM	1
				III - III
5	,	4		.
6	,	5		.
7	,	6		.
8	,	7		.
9	,	8		.
10	,	9		.
11	,	10		.
12	,	11		.
13	2	SRAM		.
14	,	13		.
15	,	13	SRAM	1
16	3	SRAM		.
17	,	II - XVII		.
18	,	1	,	2
VIII				XVIII - X
19	SRAM			.
20	SRAM	1	,	19
				XX - XX
21	20			.
22	21			.

23 22

, ( 「SRAM」 )  
 ,  
 , 가  
 가 SR  
 AM 가  
 , SRAM , CMOS . CMOS , 4 n  
 MOS 2 p MOS .  
 SRAM , 2 2 가 . CMOS  
 , 2 가  
 , CMOS 19 ,  
 (103) (120a, 120b, 120c, 120d) (120a)  
 , T1, T3  
 (120b) , T2, T4가 (120c)  
 , T5가 (120d) , T6  
 (120a, 120b) (104c) , (120a, 120c)  
 (104a) (120b, 120d) (104b)  
 (120a) (112a, 112b, 112c)  
 (120b) (112d, 112e, 112f) (120c)  
 (112g, 112h) (120d) (1  
 12i, 112j)  
 , n (102b) (112k, 112m) , (104d)  
 . 1 SRAM  
 , 19 XX - XX . 20  
 , (101) p (102a) . p (102a) , (105)  
 (106a, 106b) (104a, 104d)  
 (104a, 104d) (106a, 106b)  
 n<sup>-</sup> (109a) n<sup>-</sup> (109b)  
 , 21 , (104a, 104d) (106a, 106b)  
 CVD ( )  
 (104a) (107a) , (104d) (10  
 7b)

+ (107a, 107b) (106a, 106b) , n n  
 (110a), n<sup>+</sup> (110b) .  
 , 22 (107a, 107b) (106a, 106b) ,  
 (101) CVD (111) . (111)  
 ( ) .  
 (111) , n<sup>+</sup> (110a)  
 (112b) . , n<sup>+</sup> (110b) (112c)  
 .  
 23 , (112a, 112c) , (111)  
 CVD ( ) . (113) . (113)  
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 (113) ( ) . ,  
 (114a, 114b, 114c) . , SRAM  
 .  
 SRAM , 1 6 MOS 가 . ,  
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 , 가 가 . , 가 . ,  
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 , ,  
 , , 22 (112c) (112c)  
 , (104a) 가 가 .  
 (104a) 가 .  
 , 22 (112b) , (10  
 (103) 가 가 p (102) 가 . (10  
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3 가 , 1  
가 .

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가

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1 1 2 1 2 , SRAM , 가

( ) T1, T2 2

T5 T3 ,

T6 , 2 N1, N2가 T4 ,

T1 T3 , (20a) T2

T2 T4 , (20b) T1

(4c) , (20a, 20b)

T5 (20c) T6 (20d)

T3 T5 (4a) , (20a 20c)

T4 T6 (4b) , (20b,

20d) (4d) , (4a)

(20a, 20b, 20c, 20d) (3) T1

(12a) T2

(12d) T1 T3

(12b)

T3 (12c)

T2 T4 (12f)

T4 (12e)

T5 (12h, 12g)

T6 (12i, 12j)

, n (12k, 12m) (12b) N1

(12e) N2 (12c, 12f) T1, T2 (4c) (WL) (12g, 1

2j) ( $V_{CC}$ ) T1, T2

N1, N2 , 가 , 가

2 , SRAM , 1

, 1 2 , S , D



, (WL) , T1, T2 , , 가 , 2 , N1, N2 가, , 가 , T1, T2 , N1, N2 가 , , 가 , , SRAM , 2 III - III . 3 , (1) p (2a) . p (2a) (5) (4a) (6a) . 가 , (4d) (6 b) . (4a) p (2a) , n<sup>-</sup> (9a) n<sup>-</sup> (9b) (4a, 4d) (7) (8) . (8) , (11) (11), (8) (7) , (3) n<sup>-</sup> (9a) (12b) . , n<sup>-</sup> (9b) (12c) . (12b) , (3) . (12c) , (4a) (4d) n<sup>+</sup> (10a) . (12b) , (12c) n<sup>+</sup> (10b) . , (12c) (12b, 12c) , , . , SRAM , 2 III - III . 4 , (1) (3) . , p (2a) n ( ) . p (2a) (5) (4a, 4d) (6a, 6b) . , n<sup>-</sup> (9a), n<sup>-</sup> (9b) . n (6a, 6b) . 5 (4a, 4d) (6a, 6b) , CVD CVD 1 50nm (7) (7) , CVD 1 50nm (8) . (8) , CVD 100 1000nm (8) , (11) (7) . , 6 C<sub>4</sub>F<sub>8</sub> , (11) , (50) . (50) , (8) , (11) 10 1 .

7, (50),  $\text{CH}_2\text{F}_2$  가  
 (8) (7)  
 (7) (8) 10 1  
 (4a, 4d) (8a, 8b)

8, (50),  $\text{CHF}_3$  가  
 (7) (9a)  
 (12b) 가, n<sup>-</sup> (9b) (12c)  
 (50)

9, (12b), n n<sup>+</sup>  
 (10a) 가, (12c) n n<sup>+</sup>  
 (10b)

10, (12b, 12c), (11),  
 30nm ( )  
 50nm (13) (1  
 3) CVD (14)

11, (14) (51) (51),  
 (14) (13) (14a, 14b, 14c)  
 (51)

12, (14a, 14b, 14c), (11)  
 (15) , SRAM

SRAM, 6 8, (12c), (4a,  
 4d) (4a, 4d)  
 (7) (8) (4a, 4d)  
 , n<sup>-</sup> (9b)  
 (12c) (14b) (4a, 4d) SRAM

(12b), (3), (8)  
 (7) (3)

(12b) n n<sup>+</sup> (10a)  
 (3)  
 (14a) (1)

(7) (8), 5, t가  
 (4a, 4d) (6a, 6b) H  
 (4a, 4d) D, t<sup>2</sup> 8, (12c)  
 n<sup>-</sup> (9b)

6, 7 8 가, (11)  
 (8) 10 1 가

가 (8) , (8) (7) 10 1

(11) , 가 (11)  
(8) 가

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(11) 2 SRAM 13 ,  
(14d) , (12b)  
(14e) , (12c)

(14d) , (12b) (11)  
가 , (14e) , (12c) 1 12  
(11) ,

(12b, 12c) (16a, 16b)가 , (1  
15 , 10

4) (52)

(52) , (14) (13)  
(11) (11)

(12b, 12c) (14) (13) (16a,  
16b)가 (52) (14d, 14e, 14f)

(14d, 14e, 14f)

14 15 , L o ,  
(14e) (12b) L1

가 , (14f) (12c) (14)  
L2 가 (11)

가

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3 SRAM 16 17 ,  
(4e 4f) (4e) , 17 (20c)  
가

(4f) 가 , (20d) 가  
1 2 가

(10c) , 17 T5 , n<sup>+</sup> (10c) n<sup>+</sup>  
 (10d) n<sup>+</sup> (10d) (4e) (1) S<sub>1</sub> , n<sup>+</sup>  
 S<sub>2</sub> . (1)  
 , 1 SRAM , 18 S<sub>1</sub>  
 S<sub>2</sub> , T5 , 18 p<sup>-</sup> (9c)  
 R .  
 SRAM , T5, T6 , R  
 , .  
 , T1, T2 , . ,  
 T3, T4 , .  
 , 16 , T3, T4 , (12b,  
 12c) , .  
 T1, T2 , .  
 T3, T4 , , .  
 , T1, T2 T3, T4 ( ,  
 ) , SRAM .  
 , , SRAM ,  
 SRAM , DRAM  
 가 .  
 , 가 p n  
 (12k, 12m) , (3)  
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T3 , (1) p (2a) (4a)  
 . T3 (7) (8)  
 (8) (11) . (4a)  
 (12c) . (4a)

(57)

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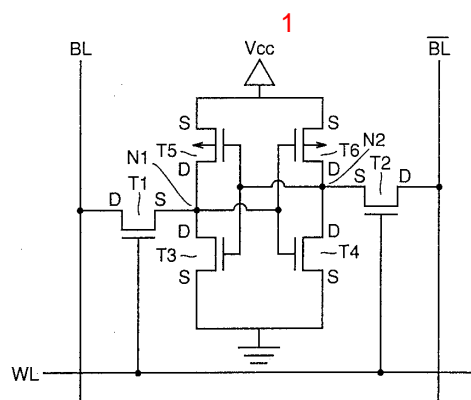
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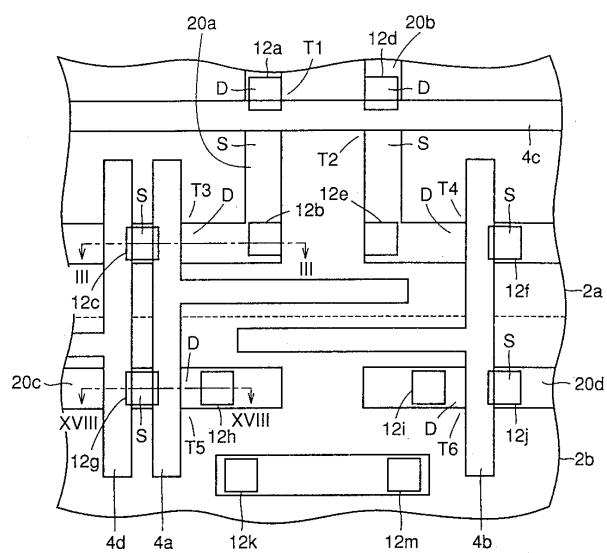
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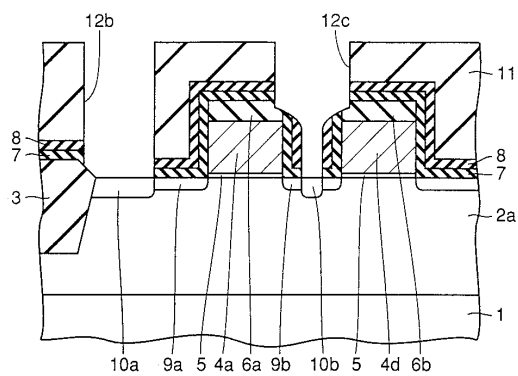
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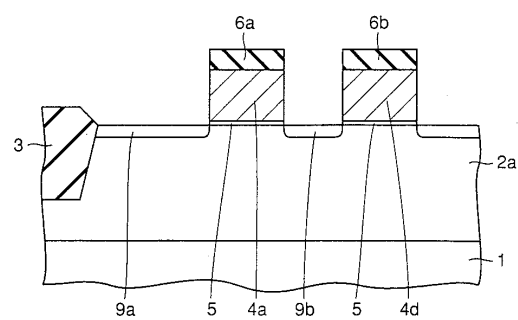
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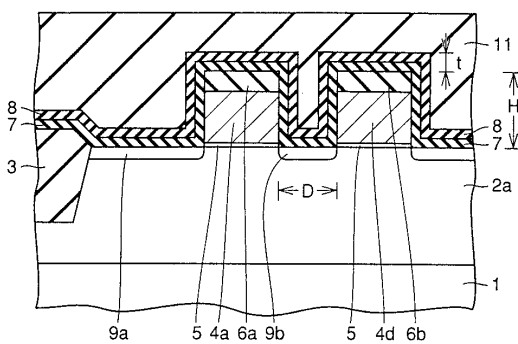
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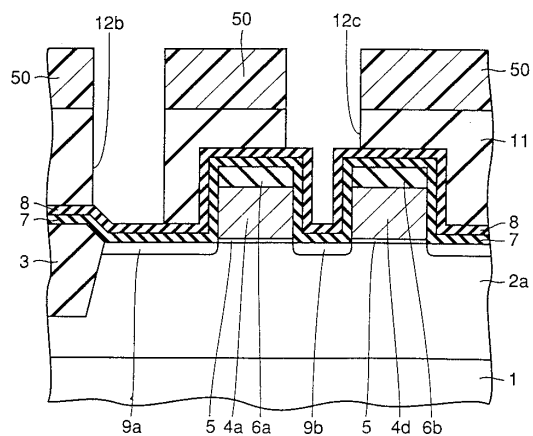
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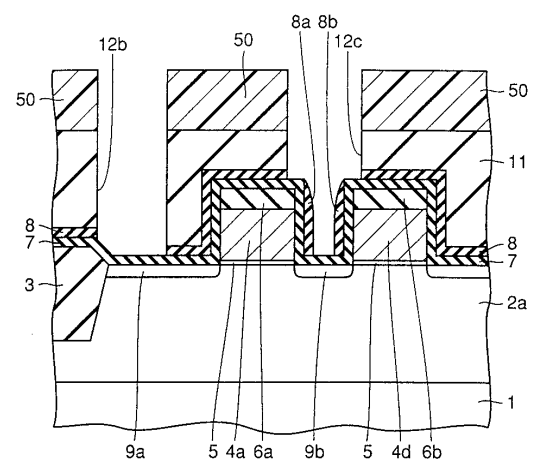
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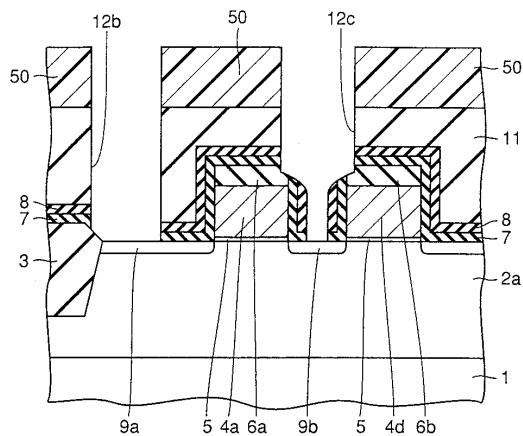


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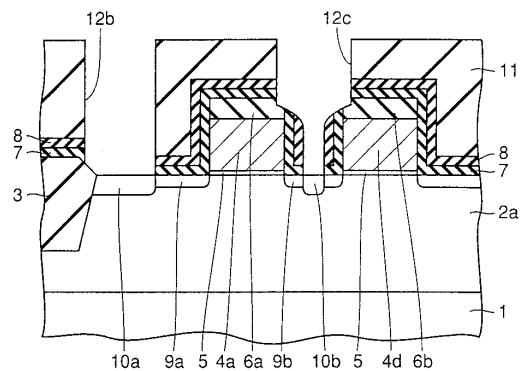




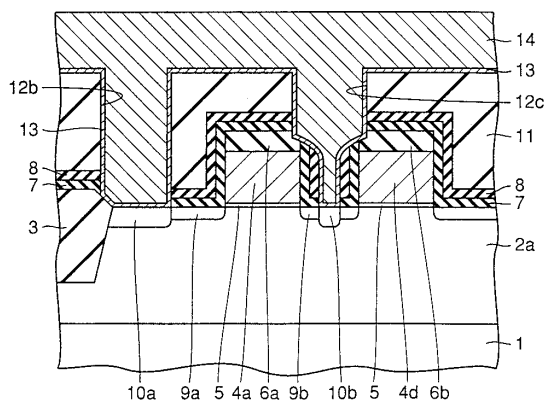
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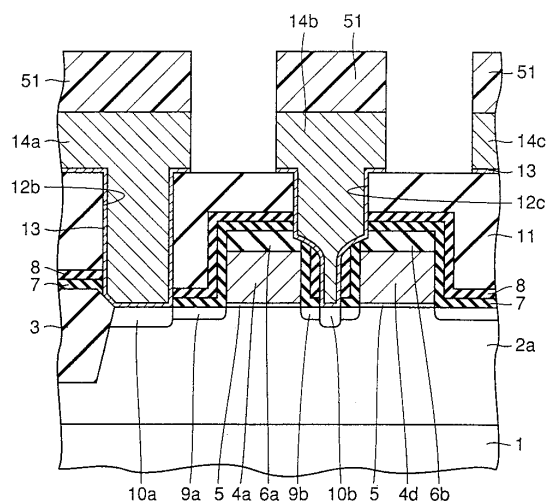
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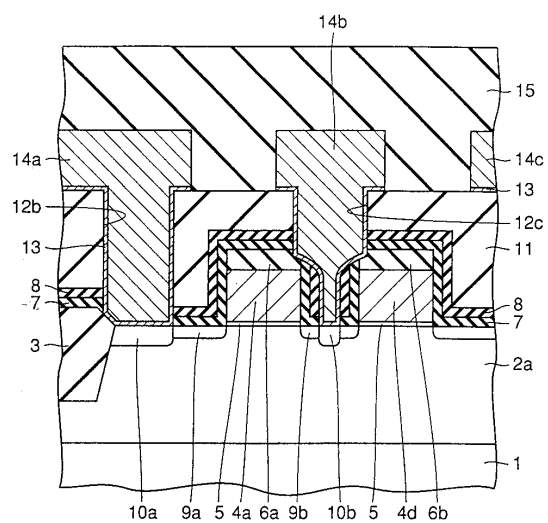
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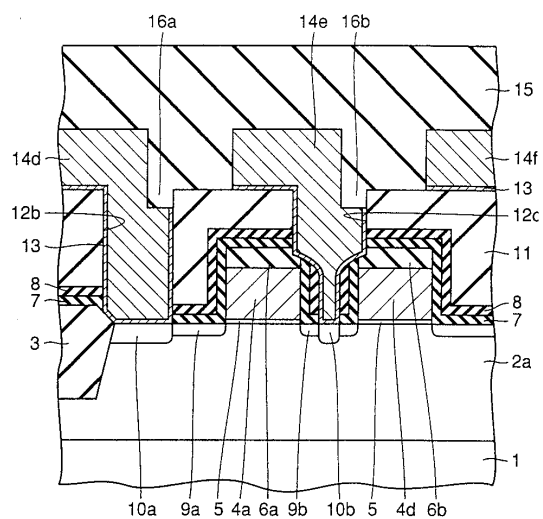
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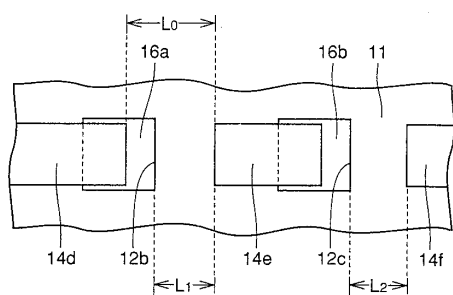
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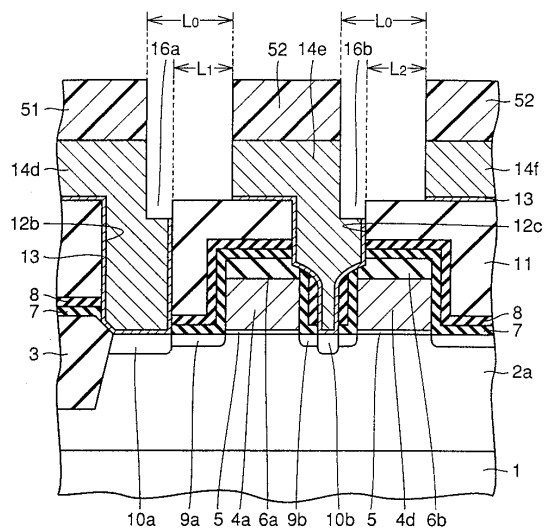
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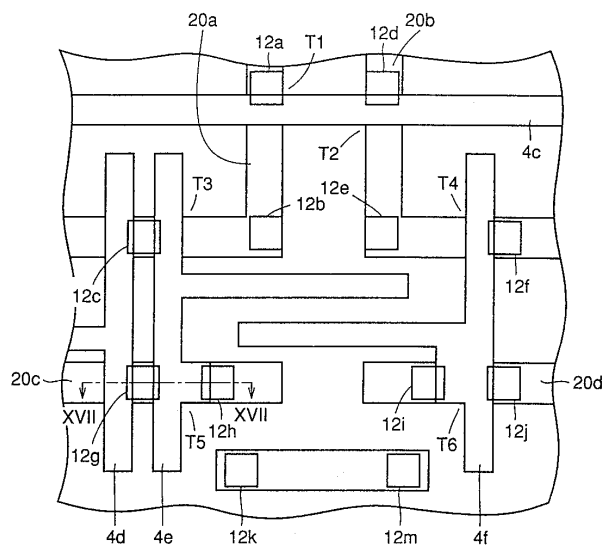
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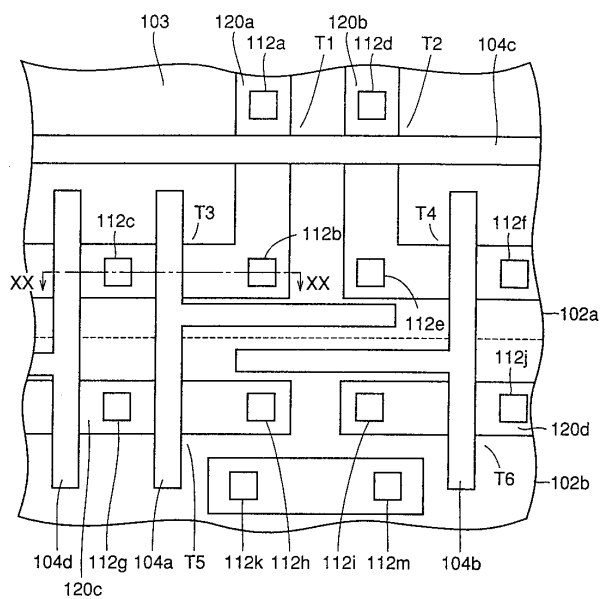


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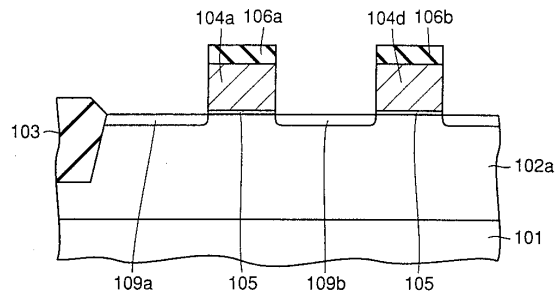




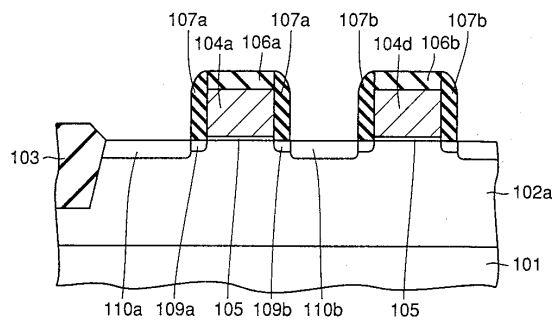
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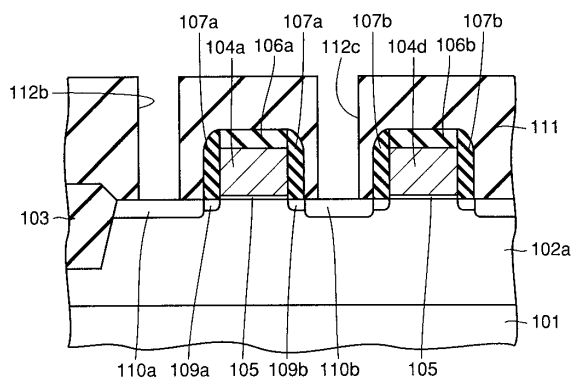
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