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 (12) (B1)

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 (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) 가 2 2 - 3 가 가
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(74)

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(54)

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

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1

, p , ,

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

23 22

(「SRAM」)

, 가
 가 . , , , 가 SR
 AM 가 .
 MOS , SRAM , CMOS . CMOS , 4 n
 2 p MOS
 SRAM , 2 , 2 , 2 , 가 . CMOS
 , , , ,
 , 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) (104a, 104d) (105)
 (106a, 106b)
 ,
 (104a, 104d) (106a, 106b)
 n (109a) n (109b)
 ,
 CVD 21 (104a, 104d) (106a, 106b)
 (104a) (107a) (104d) (10)
 7b

$$+ \quad \begin{matrix} (107a, 107b) \\ (110a), n^+ \end{matrix} \quad \begin{matrix} (106a, 106b) \\ (110b) \end{matrix} \quad . \quad , \quad n \quad n$$

, 22 , (107a, 107b) (106a, 106b) ,
 (101) CVD (111) . (111)

$$(112b) \quad . \quad , n^+ \quad (110b) \quad , n^+ \quad (110a) \\ (112c)$$

$$23, \quad (112a, 112c), \quad (111) \\ (113) \quad . \quad (113)$$

(113) () . (114a, 114b, 114c) . , SRAM

SRAM 1 6 MOS 가

, , 22 (112b) , , (103) 가 . , (112b) 가 . (102) 가 . (10)

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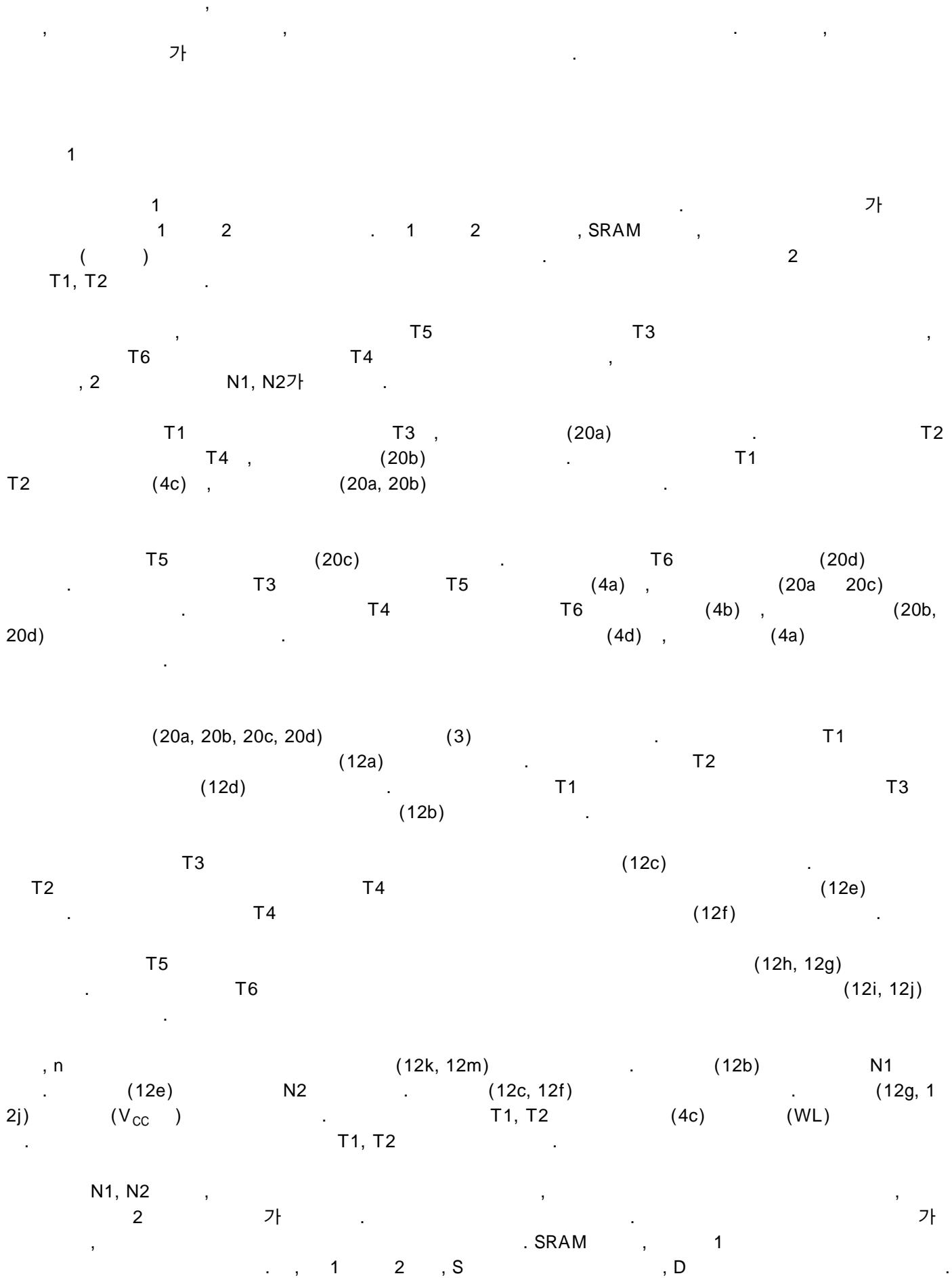
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가 . 2 , , , ,

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,	(WL)	,	가	,	T1, T2	,	2	,	N1, N2	,	가,
,	,	가	,	,	T1, T2	,	,	,	N1, N2	,	가
,	SRAM	,		,	2	,		III - III	,	3	,
	(1)		p (2a)			.	p (2a)		가 ,		(5)
	(4a)		(6a)			.			(4d)		(6)
b)
	(4a)		p (2a)		,	n -		(9a)	n -	(9b)	,
	(4a, 4d)				.	.	.			(7)	

	(8)	,									.
(11),		(8)									.
	(12b)		.	,	n -	,	(3)	n -		(9a)	,
	.	.	.	.	.	.	.	.	.	(12c)	.
	(12b)	,									.
	(4d)										.
	n ⁺										.
	(10a)										.

	,	(12c)						n ⁺		(10b)	,
	(12b, 12c)	,						.	.	.	,

	,	SRAM	,		2	,		III - III	,		4
	,		(1)			.					.
p (2a)	n ()				.					.
p (2a)											.
	(5)										.
	(4a, 4d)										.
, n ⁻											.
	(9a), n ⁻										.
	(9b)										.

	5	,									CVD
1 50nm											1
50nm											.
	(4a, 4d)										.
	(7)										.
	(8)										.
	(11)										.
	(11)	,									.
	C ₄ F ₈	,									.
											.
	6	,									.
											.
	(11)	,									.
	가	,									.
											.
	(50)										.
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7	,	(50)	,	CH ₂ F ₂	가
,	(8)		(7)	(7)	.
,	(7)	,	(8)	10 1	.
,	(4a, 4d)			(8a, 8b)	.
8	,	(50)	,	CHF ₃	가
(12b)	가	(7)	, n ⁻	(9a)	.
(50)		(9b)		(12c)	.
9	,	(12b)	,	n	n ⁺
(10a)	.	가	,	n	n ⁺
(10b)	.		(12c)		.
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	,	6 8	,	(12c)	(4a,
4d)	,		(4a, 4d)		
(7)	(8)	,	,	(4a, 4d)	.
, n ⁻	(9b)		.		.
,	(12c)		(14b)	(4a, 4d)	SRAM
,					.
,	(12b)	,	(3)	,	(8)
(7)			(3)	.	.
,	(12b)	n		n ⁺	(10a)
,	(3)			.	.
,	(14a)		(1)	.	.
,			.	.	.
,	(4a, 4d)	(7)	(8) 5	,	t가
(4a, 4d)	D ,	(6a, 6b)	H	,	.
n ⁻	t 2			,	.
	(9b)	.	.	,	.
,	6, 7 8		10 1 가	,	(11)
		(8)		.	.

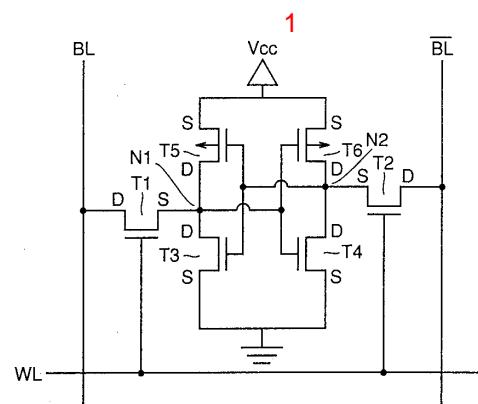
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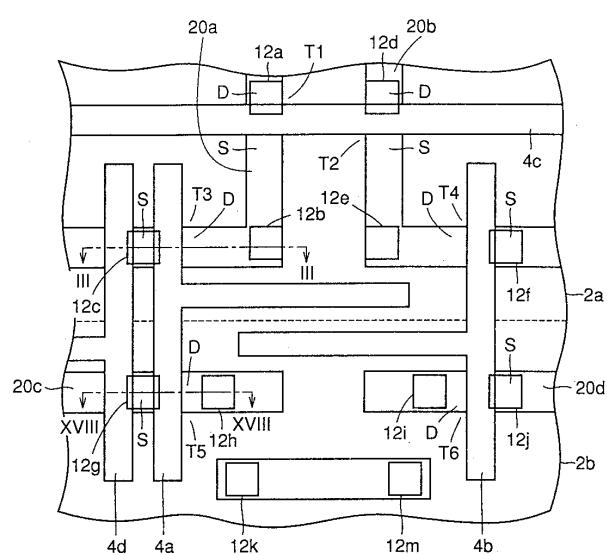
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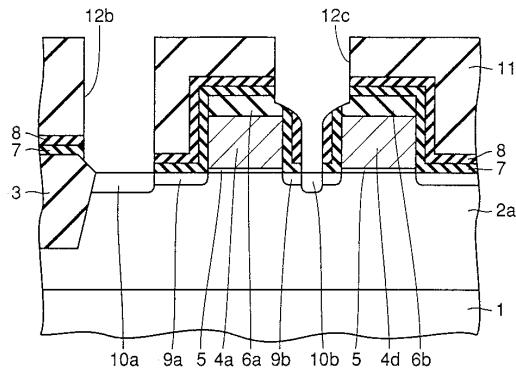
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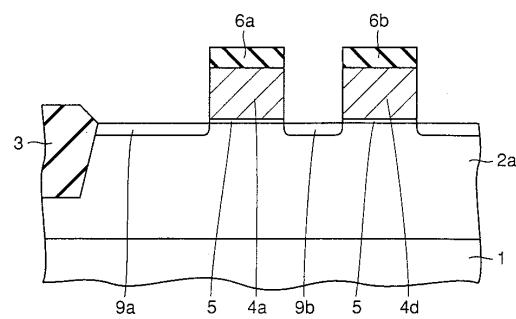
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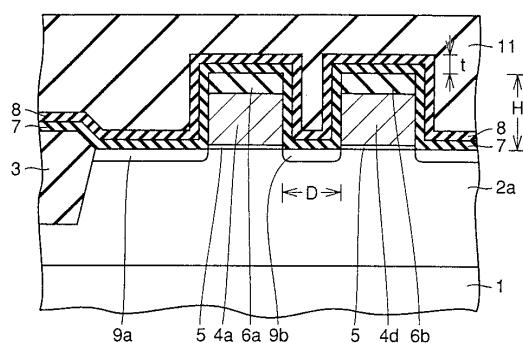
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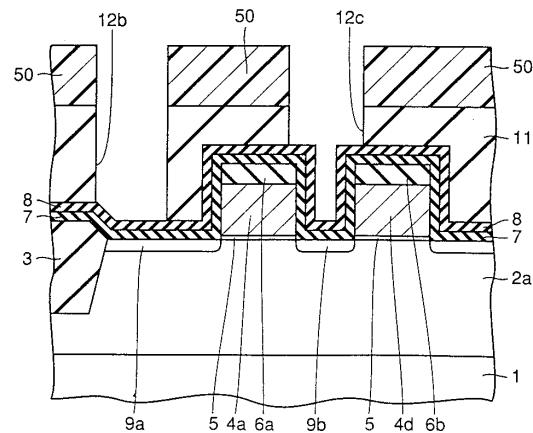
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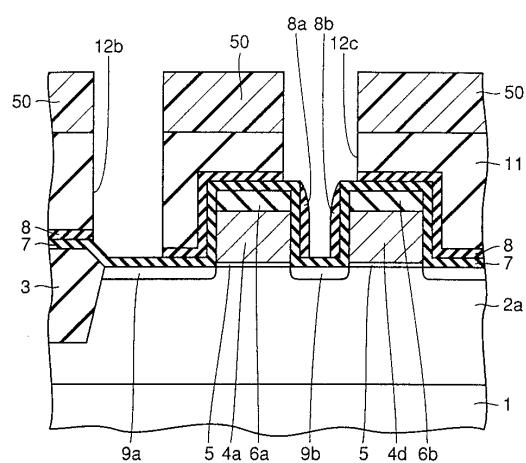
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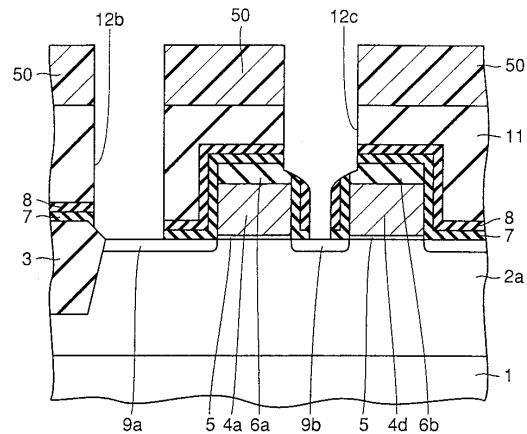
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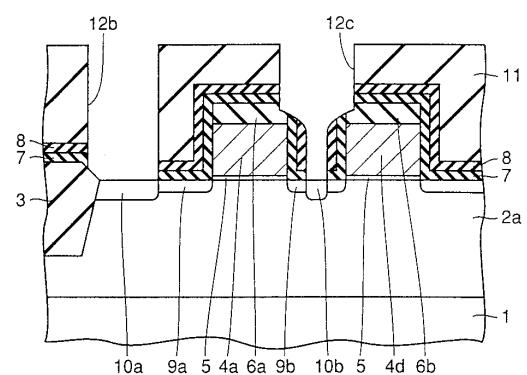
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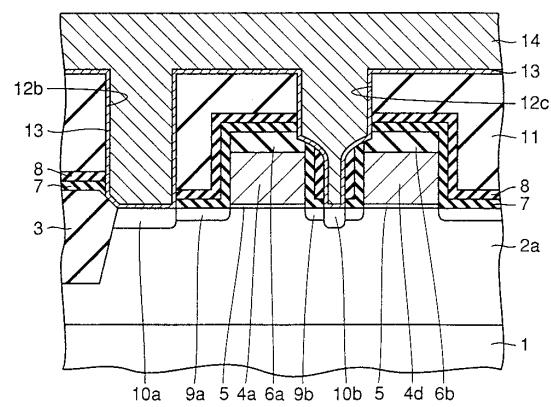
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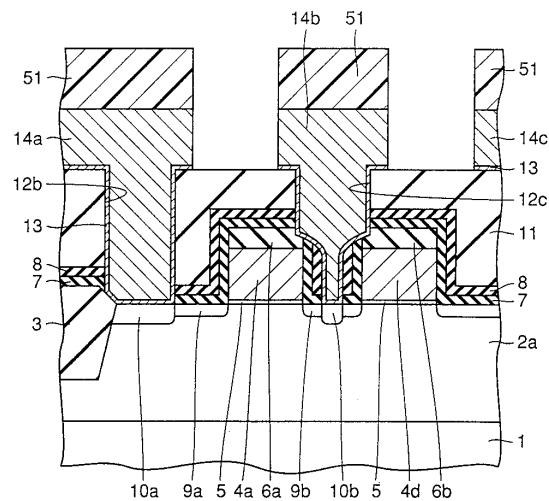
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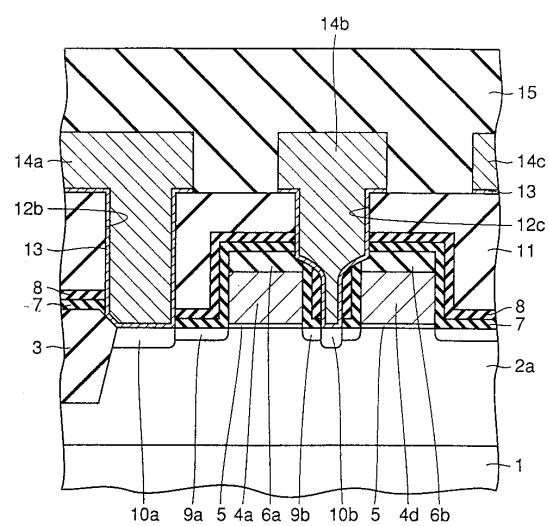
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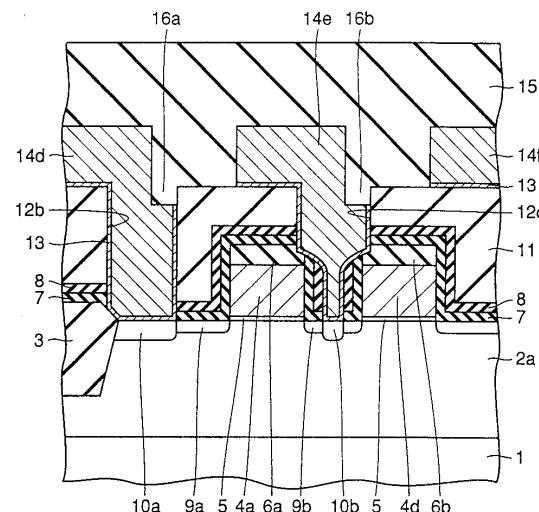
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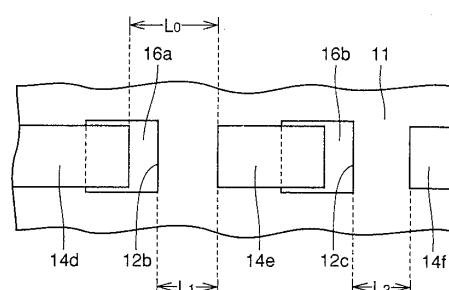
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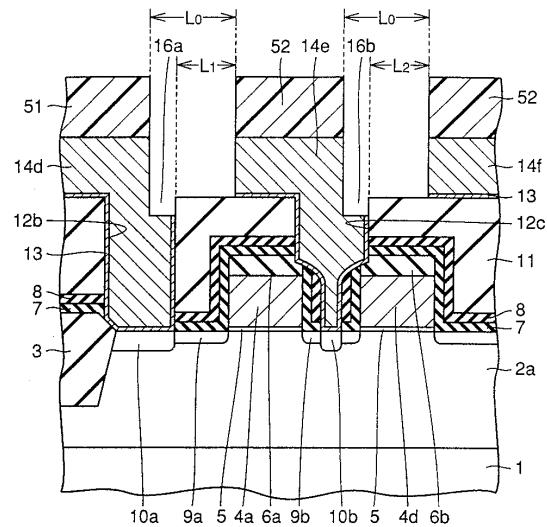
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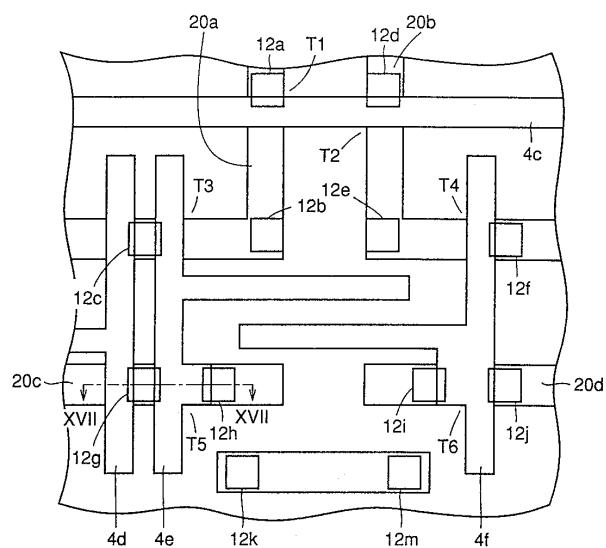
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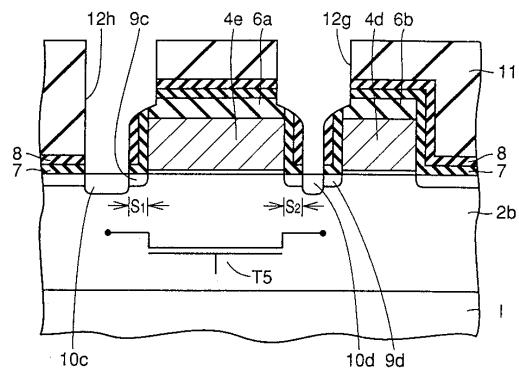
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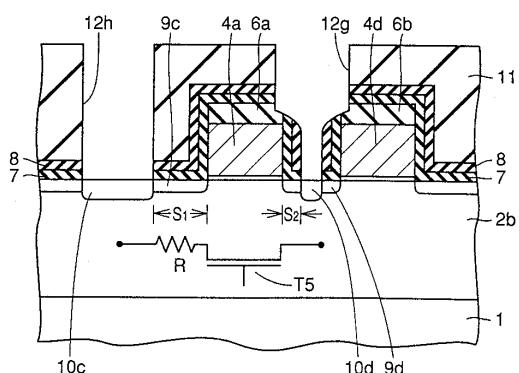
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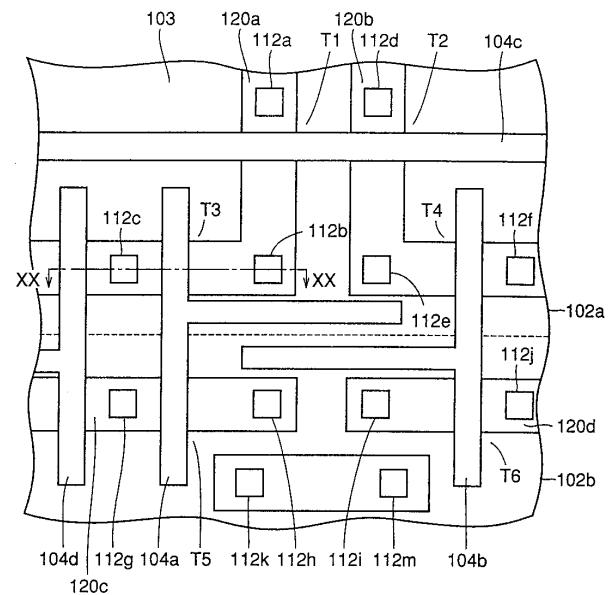
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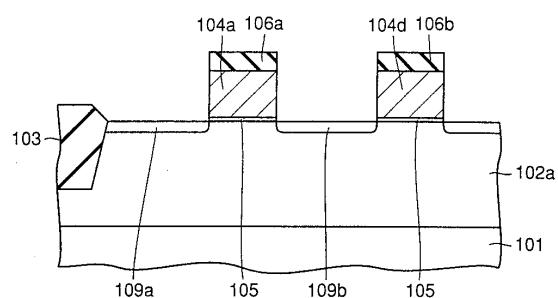
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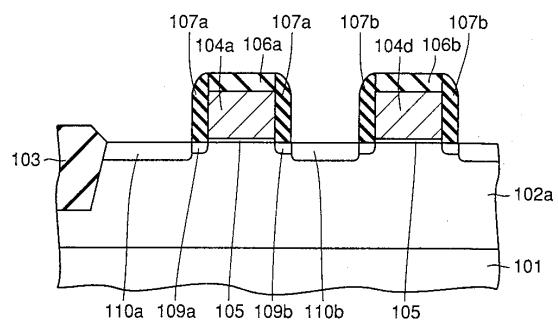
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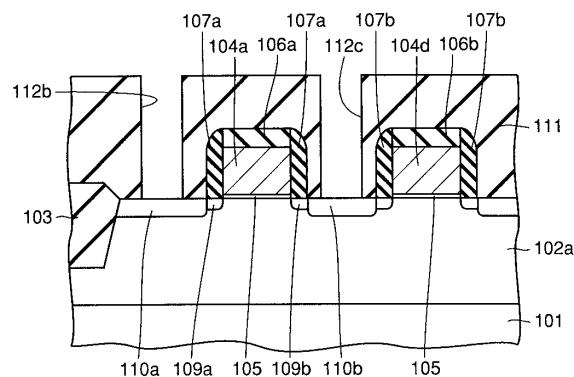
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