



21 40 DRAM .

1 : 4 :

5 : , ( 1 )

8 : , ( 1 )

9 :

10a, 10b, 10c, 10d : / ( )

11 : 11a : (side wall)

14 : , ( 2 )

15 : 18 : , (18),

19 : , 20 : .

21 : 24 :

25 : 26 :

A : B :

, 가

(SAC : Self Alligned Contact)  
(劣化) 가 (自己整合的)

SAC 21 40 DRAM , 0.3 $\mu$ m DRAM .

(2) 21 , CVD 500 (1) 100  
(3) (3) . ,

, 22 (3) 3000 (4)  
, (3) . , A ,  
B .

10<sup>20</sup> /cm<sup>3</sup> (5) 90 (P) 5 ×  
 7) CVD 500 (phosphorus - doped polysilicon) (6) (WSi<sub>2</sub>) (8) ( )  
 CVD (27) 1000 (27)  
 , SAC (stopper) , 22  
 (1)  
 23 , (27) , (27)  
 (8) 0.3μm (8)  
 (5)  
 13 /cm<sup>2</sup> , MOS (8) (4) (燐) 1 × 10<sup>15</sup>  
 c, 10d) / (10a) / n<sup>-</sup> / (10a, 10b, 10  
 / (10b)  
 24 , CVD (11) 800 (11) LDD  
 (side wall)  
 25 , (8) (11a)  
 W1 800 , (5)  
 / (10a, 10b)  
 26 , A (12) , (8),  
 (4) (11a) n<sup>+</sup> / (13) 5 × 10<sup>15</sup> /cm<sup>2</sup> MO  
 S / A (12) n<sup>+</sup> / A n<sup>+</sup>  
 / 가 가 ,  
 - /  
 27 , A (12) CVD ( , BPSG  
 ) 4000 (14)  
 , TEOS SAC 가  
 28 , 850 20 BPSG (sag)  
 (14) , (8) SAC (14) t1  
 6000  
 29 , (anisotropic oxide film - dry etching)  
 A / (10a) , B / (10c) , 0.  
 3μm (15) , 30% 9000 BPSG ,  
 BPSG 1/20 , / (10a) (27) 250  
 t2가

30 , (8) 가 , (16) (WSi<sub>2</sub>)(17)  
 (18) CVD ,  
 . (18) W2 0.3 0.5 $\mu$ m , DRAM  
 , (15) / (10a, 10c) .

31 , CVD 3000 (19) .

32 , / (10b) , 0.3 $\mu$ m  
 . (20) . ( , ) (10b)  
 0b) .

33 , 5 × 10<sup>20</sup> /cm<sup>3</sup> 7000 CVD ,  
 (21) W3 (21) 가 (21) .  
 , (21) (20) A n - / (10b) .

34 , CVD (22) , ( , (cell  
 plate) ) (23) , 5 × 10<sup>20</sup> /cm<sup>3</sup> 60 /1000  
 . A (23)  
 (23) 가 .

35 , CVD BPSG 5000 (24) .

36 , (14) 가 , 850 30  
 (24) .

37 , B / (10d)  
 B B (18) , 0.3 0.4 $\mu$ m (25a) . ,  
 (8) (8) (27) (27)

38 , B (8) (25b) .  
 (27) .

39 , (25b) (27) ,  
 (8) .

40 , (26) 5000 (25a, 25b) ,  
 0.4 $\mu$ m (26) .

SAC DRAM . 25 (11a)  
 , A , (20) , (21)  
 가 / (10b) , .

, B , (8) (27) , / (10d)  
 (18) (25a) , (8) (25b) ,



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( 1)

1 DRAM, 0.3 $\mu$ m DRAM, 1, 20, DRAM, DRAM.

(2), 1, (1) 100, CVD, 500, (3).

2, (3).

3, 3000, (4), (3).

A, B.

4, (5)(1) 90, 500, 5 $\times 10^{20}$  /cm<sup>3</sup>, (6) (WSi<sub>2</sub>)(7) CVD, (8)(1)(, 4), (9) 1000, (1) CVD.

5, (9), (8), 0.3 $\mu$ m, (8), (5).

(9), (8), (4), /, 1 $\times 10^{13}$  /cm<sup>2</sup>, MOS, A / (10a), (10a, 10b, 10c, 10d), /, (10b).

6, CVD, (11) 800, (11) LDD, MOS.

7, A, (12), B, (8) W1가 800, (11a), (8), (4) MOS, (11a), 5 $\times 10^{15}$  /cm<sup>2</sup>, n<sup>+</sup> /, (13).

, A n<sup>+</sup> /, 가 가, A /, n<sup>-</sup> /.

8, A, (12), BPSG, 4000, CVD, (14)(2), (, , TEOS, SAC, 가.

9 , 850 20 , BPSG (sag)  
 (14) . (8) SAC t1 60  
 00 가 .

10 , / (10a) , A , (8)  
 0.3 $\mu$ m (15) B / (10c) , (14)  
 (11) . (14) A / (10a)  
 BPSG 1/20 30% 9000 BPSG  
 t2가 (11) 250 .

11 , A / (10a) , (15) ,  
 (5) (11) (5) / (10a)  
 .

12 , (8) 가 ,  $5 \times 10^{20}$  /cm<sup>3</sup> (16)  
 (WSi<sub>2</sub>) (17) CVD 500 , (18)( )  
 (18) W2 0.3 0.5 $\mu$ m  
 , DRAM , (15) / (10a, 10c) .

13 , CVD 3000 (19) .

14 , A  
 (8) , / (10b) (19 14)  
 , (5) (11) , / (10b) 0.  
 3 $\mu$ m (20) . (10b)

14 , (20) (8) (11)  
 , (8) (8) , 10 (15) 가  
 , (8) (11) SAC .

15 , (P)  $5 \times 10^{20}$  /cm<sup>3</sup> 7000 CVD  
 (20) ,  
 (21) . (21) W3 (21)  
 가 0.25 $\mu$ m , (21) (20) A  
 n<sup>-</sup> / (10b) .

16 , CVD (22) , (23) ,  $5 \times 1$   
 0<sup>20</sup> /cm<sup>3</sup> (23) , 60 /1000 .  
 가 A (23) (23)

17 , CVD BPSG 5000 (24) .

18 , (14) 가 850 30  
 (24) .



19 , B , / (10d) ,  
 (8) , (18) , 0.3 0.4 $\mu\text{m}$  (25) ,  
 (8) (9) , (9, 14, 19, 24) ,  
 (25) .

20 , (26) 5000 (25) ,  
 0.4 0.5 $\mu\text{m}$  (26) .  
 , A / (10b) , 14  
 (11) , ,  
 . (8) ,  
 19 (25) 가 .

DRAM 20  
 .

DRAM (1) (4) , A B .  
 (1) , MOS , (10a, 10b, 10c, 10d) (10c, 10d)  
 / ) B (10a) (10b) , (13) ( / ) . (5) ( 1 ) (5) ,  
 10c) (10d) (6) (7) ( ) (8) ( 1 )  
 , (8) (9) .

, A , (9) (8)  
 (11) . , (11) (14) ( 2 )

, (10a) , (8) (8)  
 (11) , (14) , (5) (11) , (5)  
 (10a) ( 18 ) )가 .

, (10b) , (8) (8)  
 (11) , (14) , (5) (11) , (5)  
 (10b) ( 21 ) )가 .

, (14) (18) , (19) . ,  
 (19) (21)가 , (22) (23)가  
 , 가 . (23) (24) ,  
 (26) .

, B , (8) ( 1 ) (11a)  
 . , (9) (11a) (14) ( 2 ) .

, (8) , (14) (9) (8)  
 가 .

, (10d) , (14) (5) (10d)  
가 .

, (14) , (18) , (10c)  
.

(18) , (19) , (24)  
(24, 19) , (18) (26) 가 .  
(10d) , (8) (24 19)  
(26) 가 .

DRAM , , A / (10b)  
(8) , (25) . ,  
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(57)

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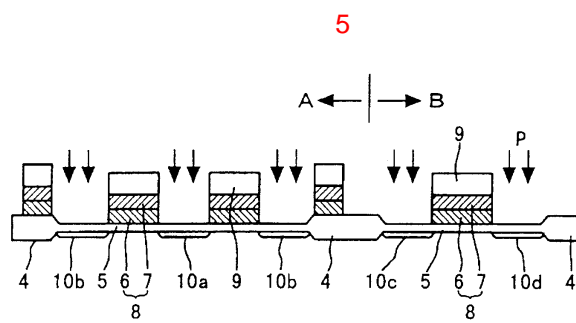
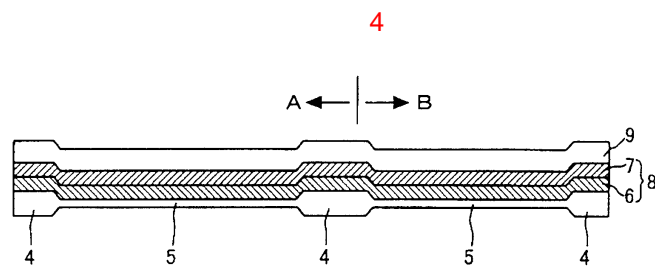
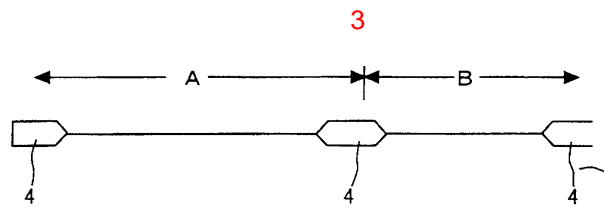
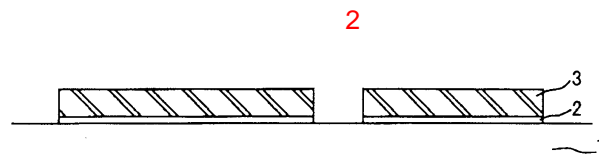
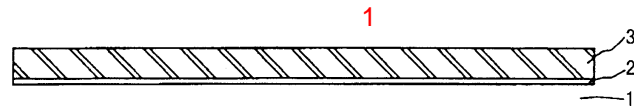
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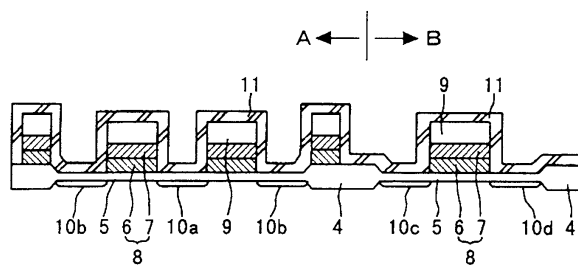
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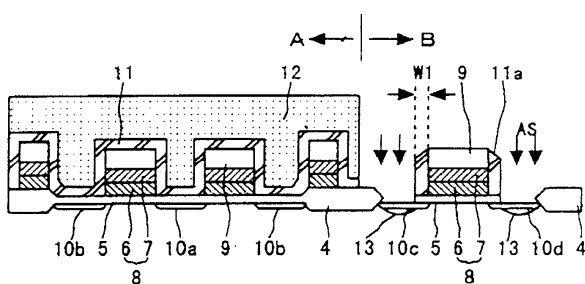
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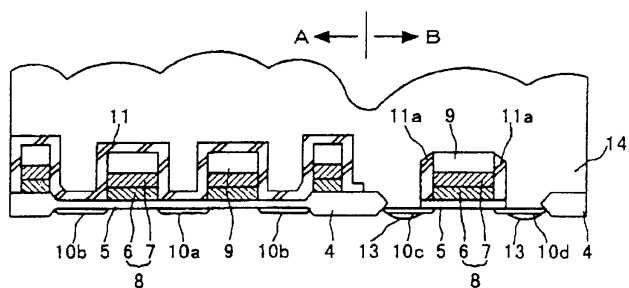
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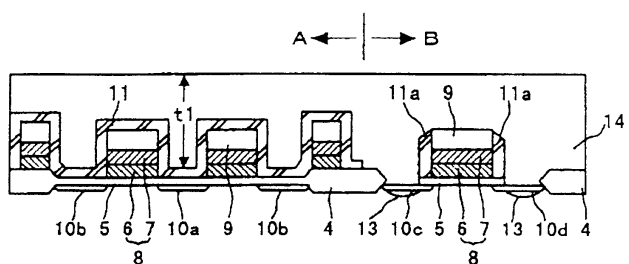
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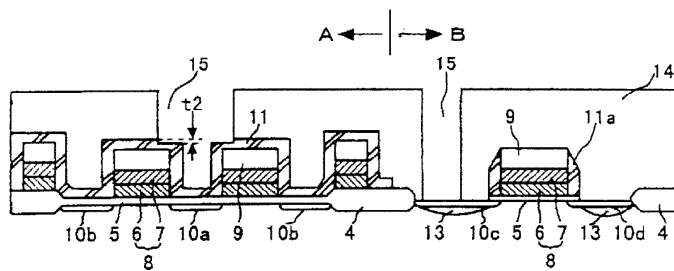
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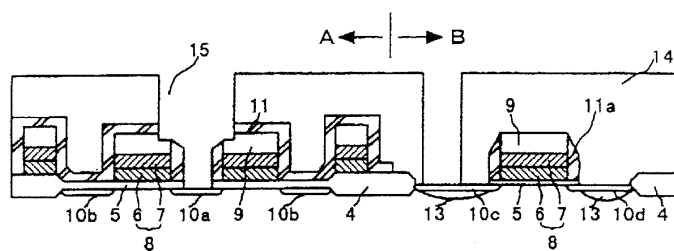
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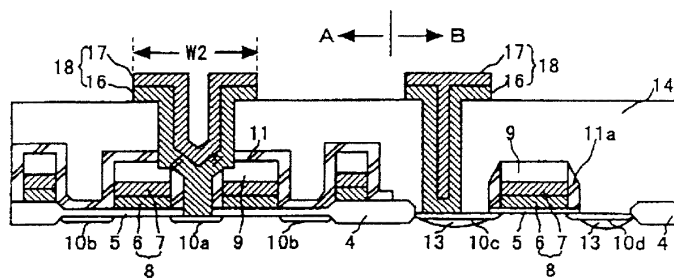
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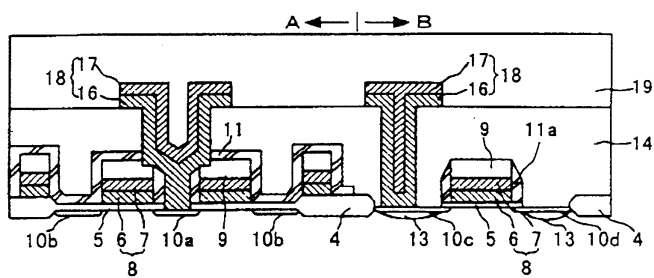
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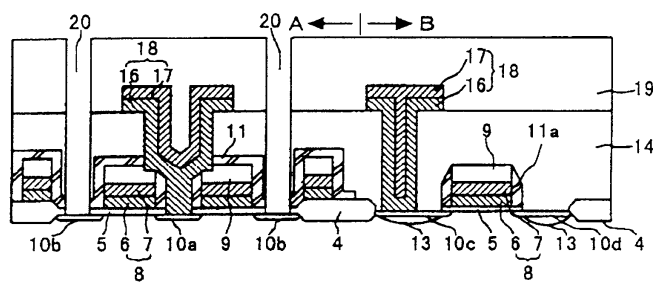
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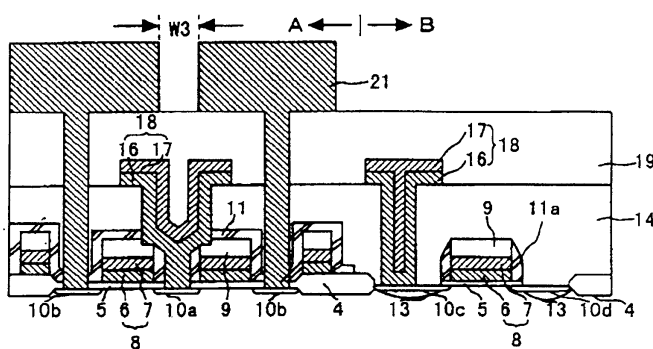
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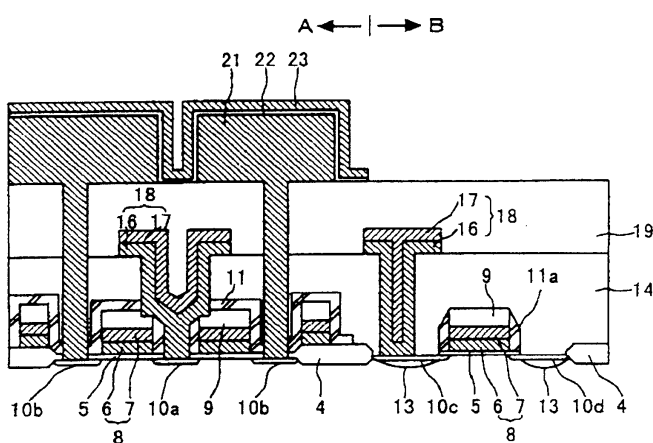
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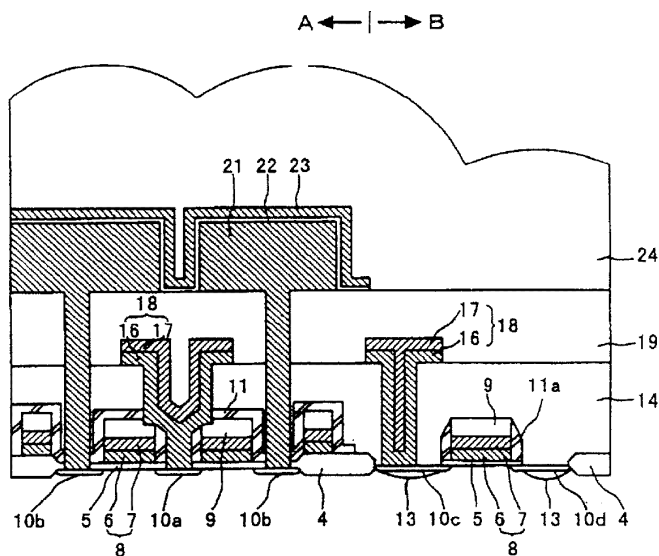
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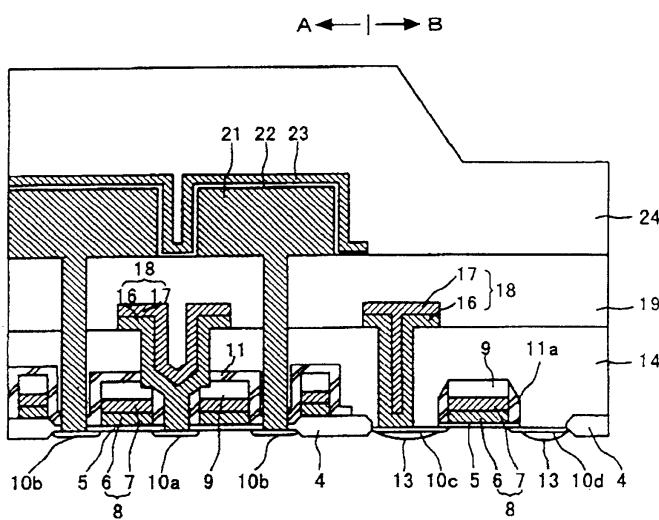
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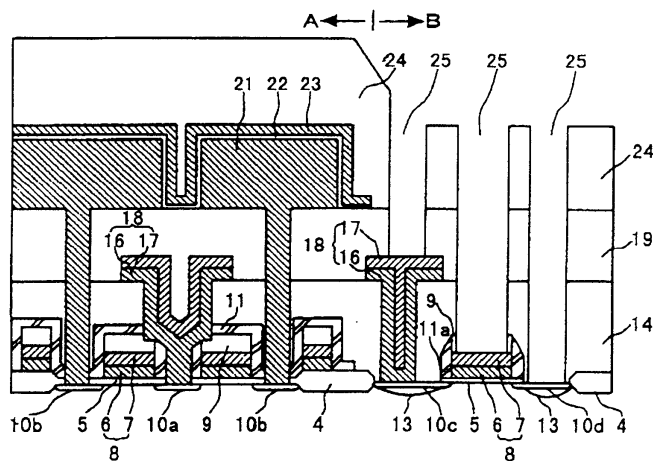


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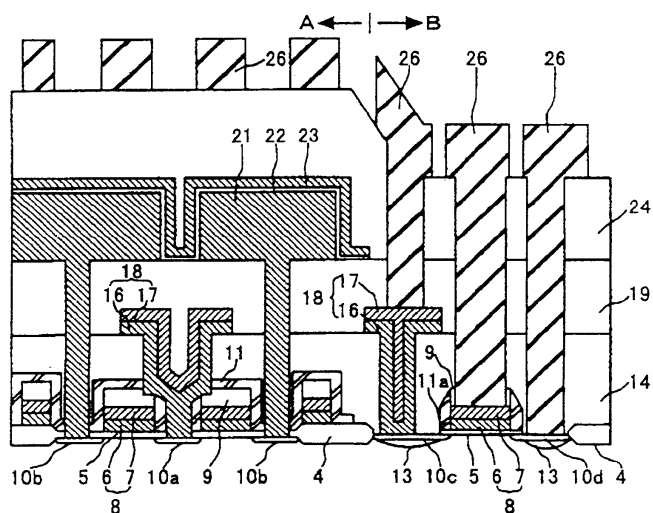




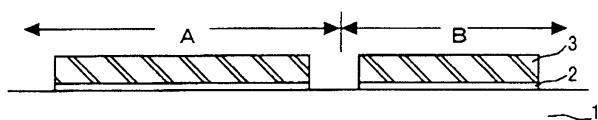
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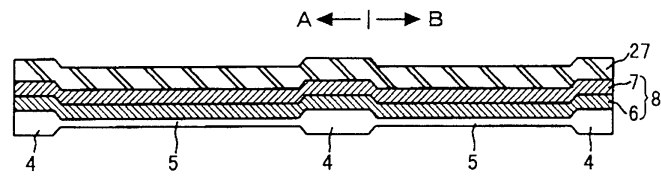
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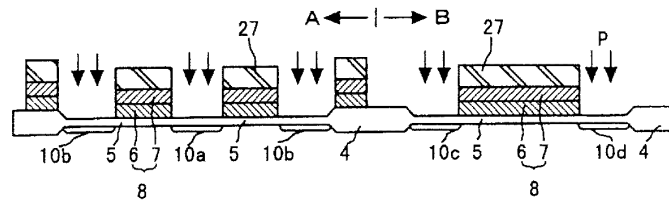
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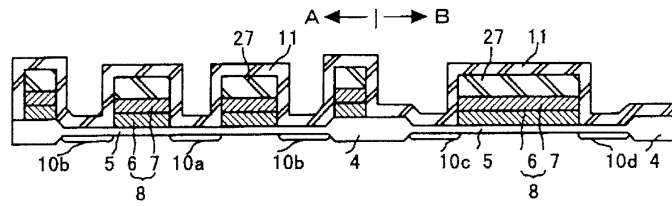
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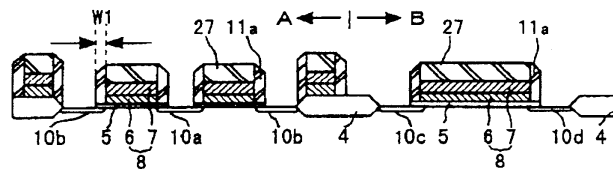
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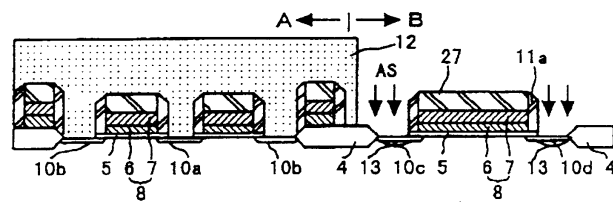
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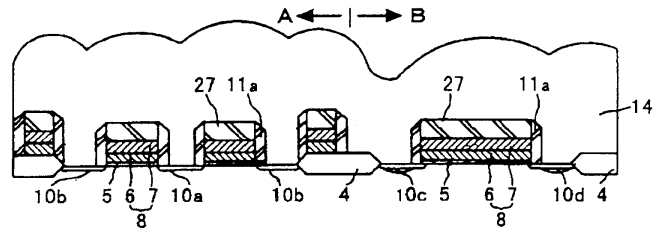
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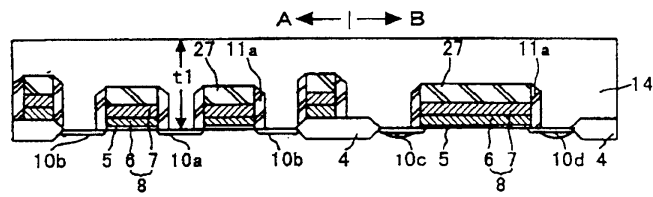
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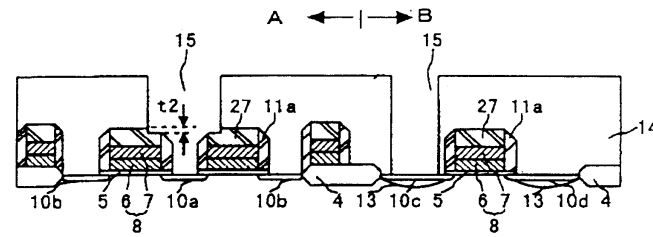
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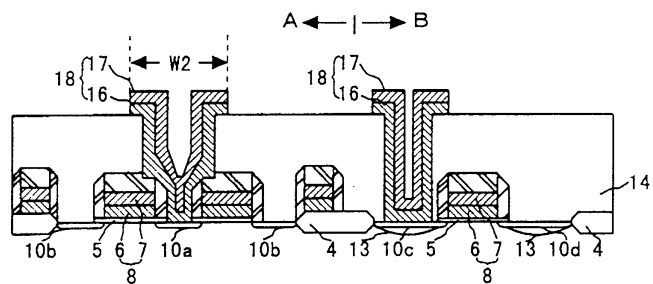
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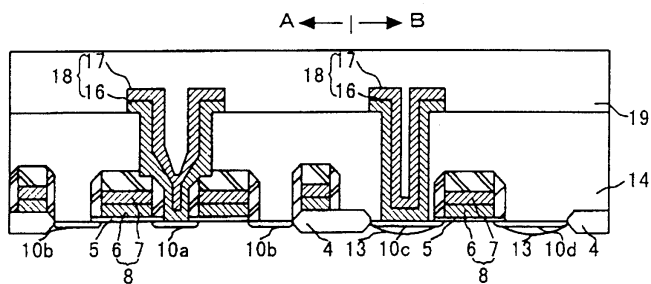
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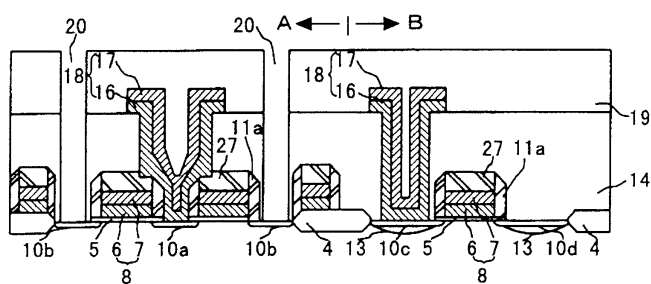
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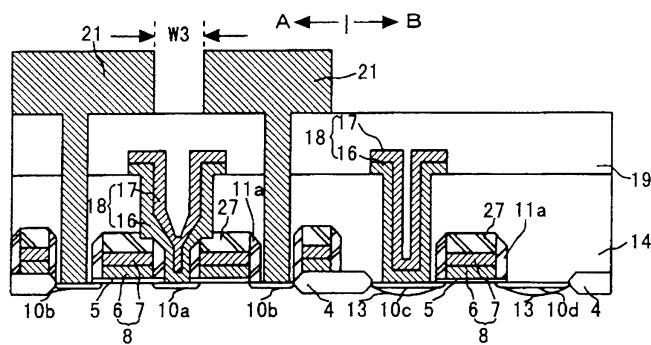
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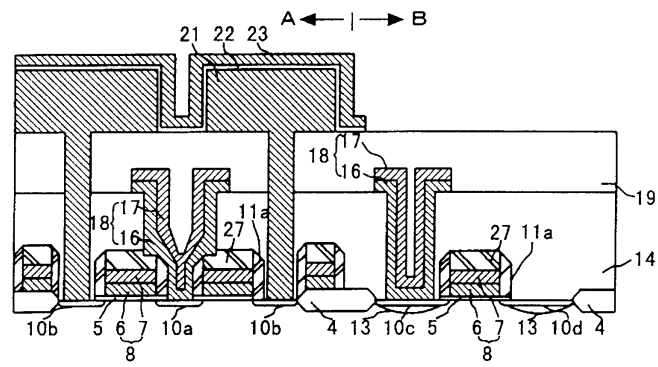
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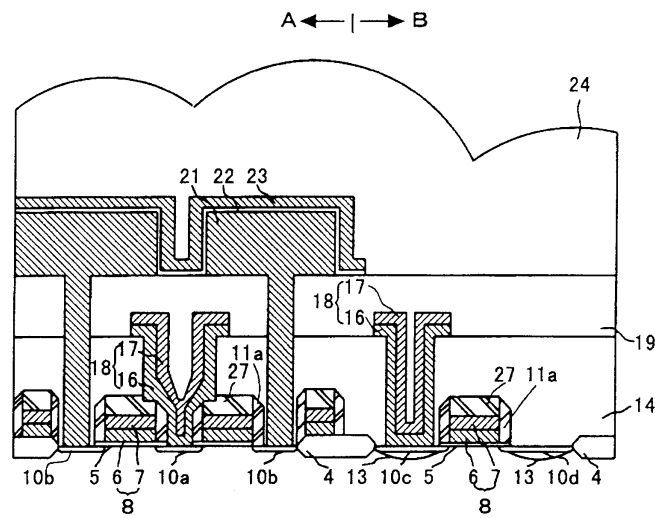
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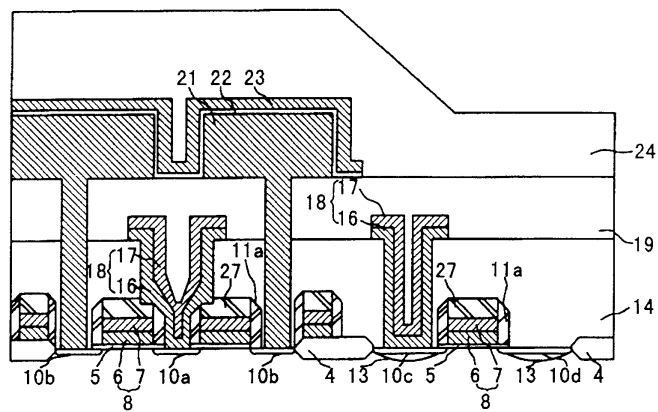


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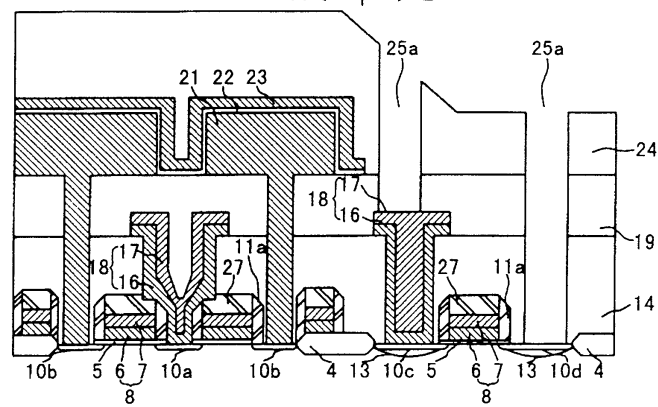
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A ← | → B

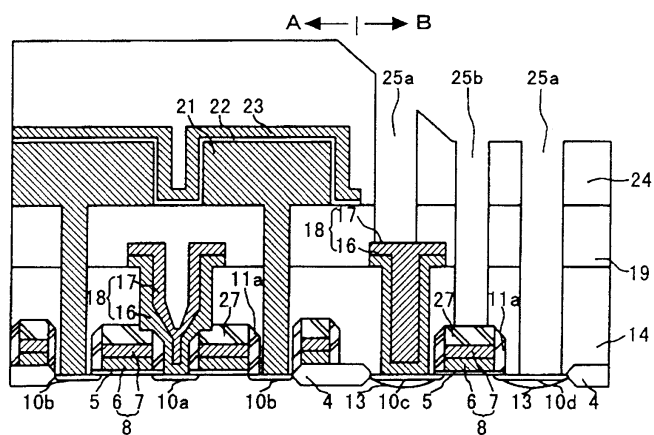


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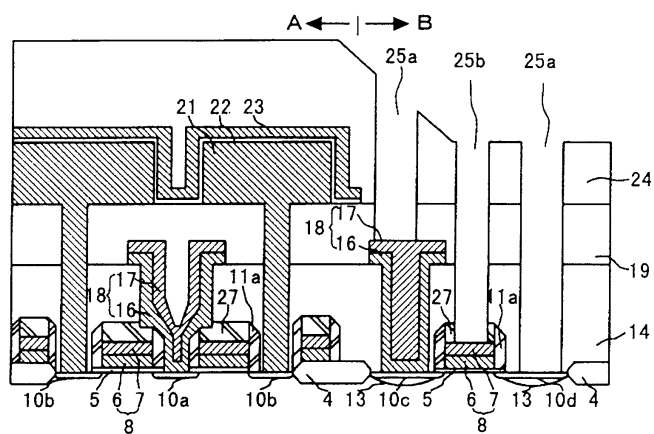
A ← | → B



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