

(19)
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2002 04 16(21) 10 - 1999 - 0009747
(22) 1999 03 22(65) 2000 - 0005616
(43) 2000 01 25

(30) 1998 - 173120 1998 06 19 (JP)

(73) 가 가

2 2 3

(72)

2 - 2 - 3 가 가

2 - 2 - 3 가 가

가

2 - 2 - 3 가 가

2 - 2 - 3 가 가

2 - 2 - 3 가 가

가

2 - 2 - 3 가 가

가 가

2 - 2 - 3 가 가

2 - 2 - 3 가 가

2 - 2 - 3 가 가

(74)

:

(54)

(2) , (2)
 (3) , (2) (3)
 (7) , (3) (7) (4) , (4) (3)
 (6a) (6) . , (3) 4 μ m , 4.5 μ m 5.5 μ m
 가

4

, , ,

1

2 1 A - A'

3 2 B

4 1

5 ()

6 5 B - B'

7

8 ()

9 (blow trace)

10 ()

11

12a (3) (5) , 12b 2
 (3t) (5)

13 (3)

14 13 A - A'

15 14 E

16	.
17	(6) (6a) (L2) (7) (3)
	(L1) .
18	(3) (μm) (%) .
19	DRAM(Dynamic Random Access Memory) .
20	.
21	1 .
22	2 .

1 :

2 :

3 :

3a :

3b :

3c :

3t :

4 :

4a :

5 :

6a :

6 :

7 :

7t :

9 :

5,589,706

19, DRAM(Dynamic Random Access Memory)

(20), (21), (22)

WL, WL, BL, WL, BL, MC가

WL, (24), (25), SWL

SWL, BL, SMC가

SMC, (24), (25)가

(24), (26)가, (26)

가, (26)가, 20

20, (1), (2), (3), (3)

(4)

(3), 가, (3)

(3)

20, (5), (3), (5), (3)

(3)가, (3)

(3), (4)가, (4), (9)

(3), 22, (3)

(3), (4)가, (4a)

가

가, 가

가

(厚膜化)

가

가

가 . ,

가 . ,

2

3

가 . ,

2

가 . ,

가 . ,

1 4 , .

(1) (2) (2) (3)

(3) , 3 (1) (3) (3c)

(3a), (3b)

(3) (3) (4) (4) (3)

(6a)가 (6) .

(3) , 4 (5) (4) (3)

(5) (3) 가 (3)

(3) (4) 가 (3) 가

(3) (3)

(3) 3 가 가 . (3)

가 , (3)

, 5 11 , (電場) .

(3) $m(=n-i \times k)$ n^2 k^2 $(n^2 - k^2)$ 가
(3) (矩形) .

, 5 6 , (3) (5:)
(3) () , 8 , (3) (C
) (5) .

, (3) ,
(3) , 5 (5) , 7 ,
, $1/e^2$ 가 .

, (3) , , 10ns
(4a) , 9 , (3) (4)
, (6) (6a) . (3)

, (3) (5:) (3)
() , 10 , (3) (D
) (5) . , (3)

, (3) (4) , (3) (4)
(4a) , (3) , , (6)
(6a) .

, (3) (3) (5) , (3) (5)
5) .

, (3) , , (6) (6a)
가 가 . (3) (5)

, 3000K (3) ,
(3) , , (4a) (5) 가 .

, (3) (5) , 가 .
(3) (4a) , 11 , (6a)
(3) , (3) (4a) ,
(3) (4a) , .

, (3) $1.0\mu\text{m}$, (3) $4\mu\text{m}$, (3)
(4a) , $8\mu\text{m}$ $10\mu\text{m}$. (3) (6a)
 $10\mu\text{m}$ 가 . (6a) ,
가 .

, (3) (4a) .

3) (3) , 가 , (3) , 가 , (3) , 3 , (3) , (3t)가 , . , (3) (3t) (5) , 12a 12b . 12a , (3) (5) 1 (5) (3t) 2 가 , (3) , 12b , 2 (3t) (5) 가 , (5) , 2가 . (5) , 2가 80 ° , 2가 60 ° , (5) . t) , (3t) (5) , 가 , (3) (3) , (3) , (4) (3) (3t) (4) (4a) . , 13 15 . , (1) (2) (2) (3) , 15 (3a), (3b) (1) (3) (3c) . (3) (3) (4) . (4) , (3) (6a)가 (6) . (6) (6a) (3) , (7) . (7) , (3) (7) , 15 가 , (7) (7t) . , (3) 가 (4a) , (3) 가 , (3) 16 가 . , (7) (5) (7) (6) (6a) (L2) (7) (3) (L1) (7) .

, (6a) , (7) (3) 가 ,
(6a) , 가 .

, (6a) 가 ,
, 가 .

, (7) (3) ,
(4a) , (3) (16 P1) 6. 5 μ m , (7)
, (4a) (, .) 0.65
% , (7) 0.15% , (7)
, 1/4 .

, 18 (3) (μ m) (%) .
, (3) (μ m) 4 μ m 0.025% , (3)
(μ m) 4.5 μ m 5.5 μ m 0.04% 가 ,
(3) , 4 μ m 4.5 μ m 5. 5 μ m가 .

, (7) , ,
, (7) (3) , ,
, .

, (7) , (3) ,
, (7) , (3) 가 .

, (3) (7) DRAM , DRAM
ERAM 가 .

,
, 가 .

(57)

1.

,

1 (2) ,

1 (2) ,
(3) ,

1 (2) , (3) (3) (7) ,

(3) (7) 2 (4) ,

2 (4) , (3) (6a) (6) ,

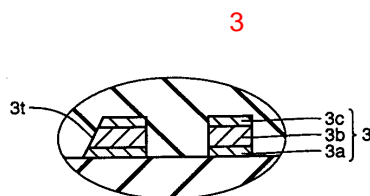
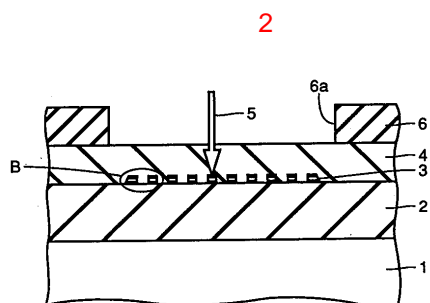
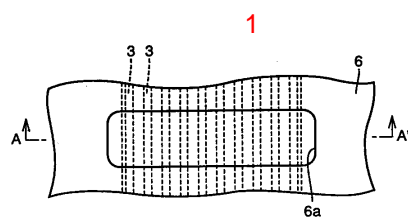
(3) $4.5\mu\text{m}$ $5.5\mu\text{m}$.

2.

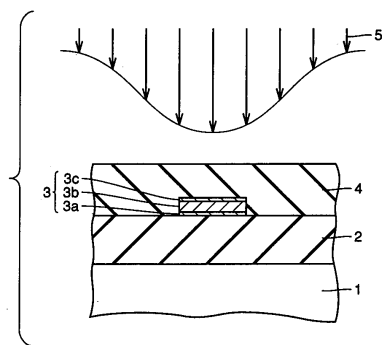
1 , (7) (3) (7) (7t)가 (7) .

3.

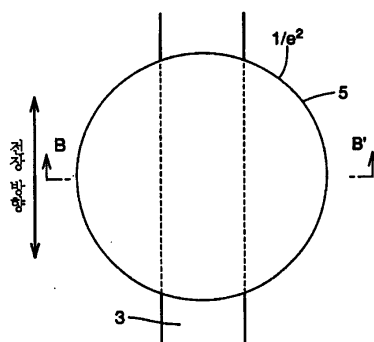
1 , (3) (7) (3) , 2 .



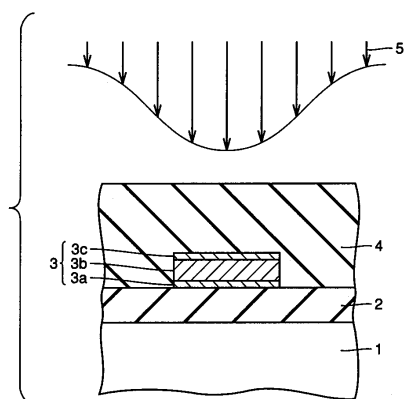
4



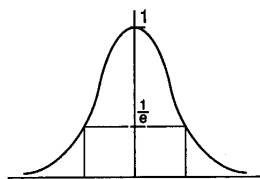
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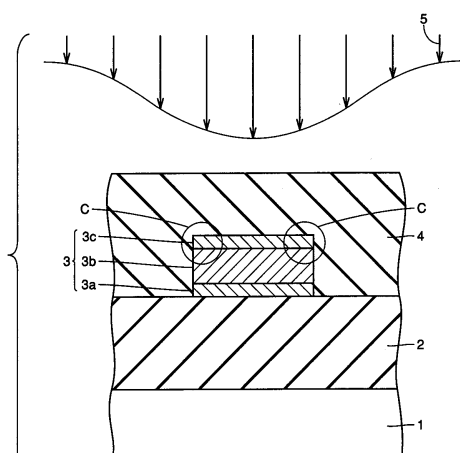
6



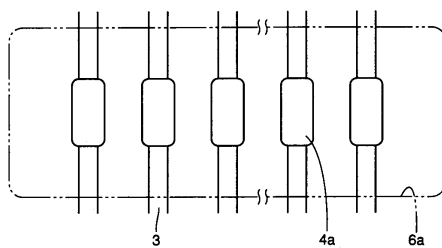
7



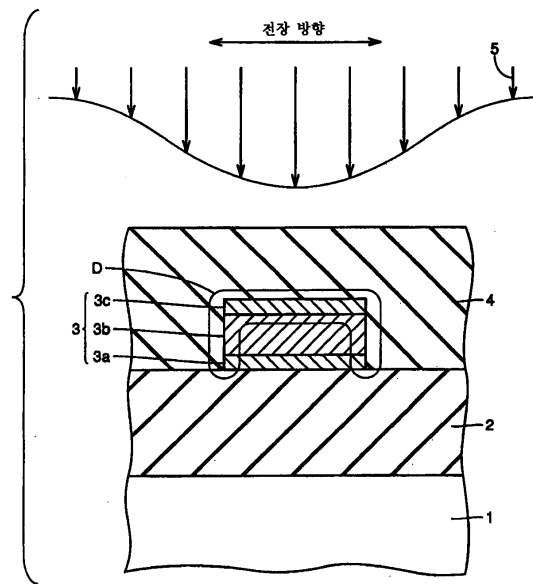
8



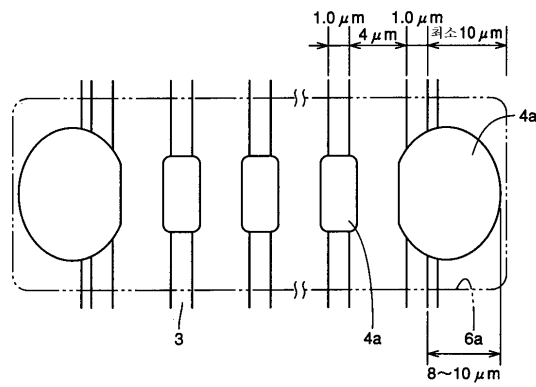
9



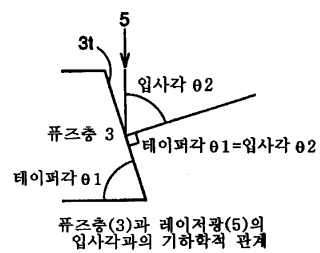
10



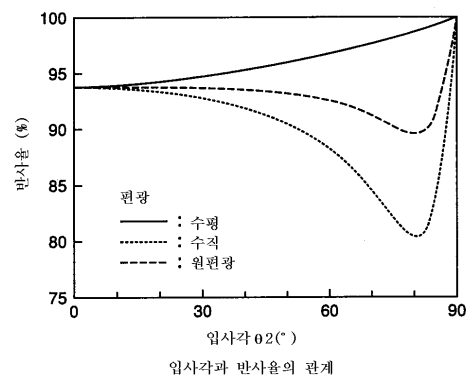
11



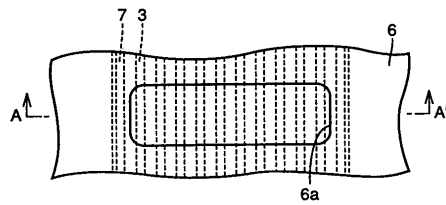
12a



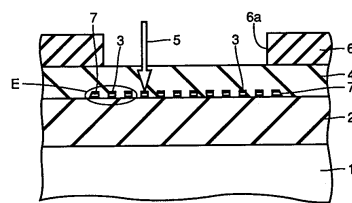
12b



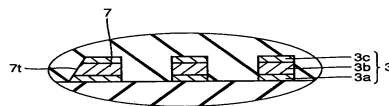
13



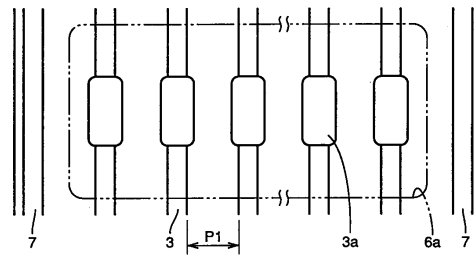
14



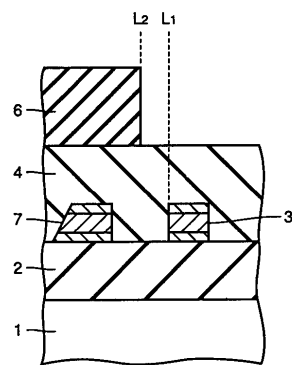
15



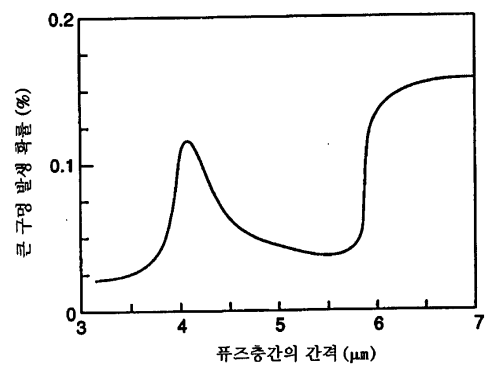
16



17

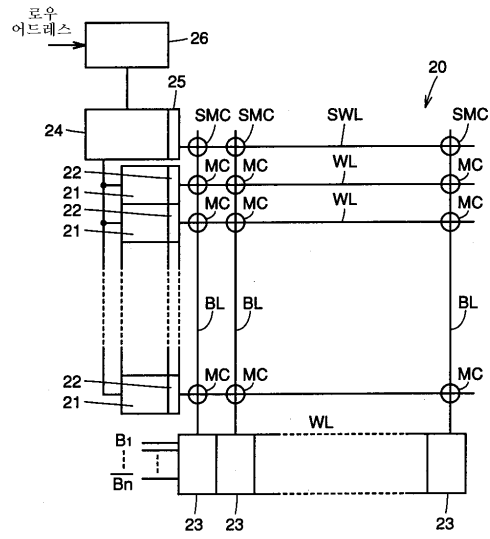


18



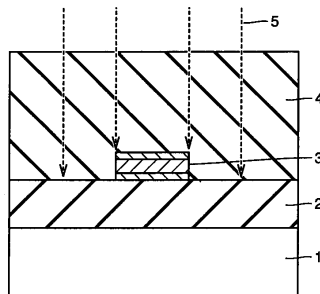
19

(종래 기술)



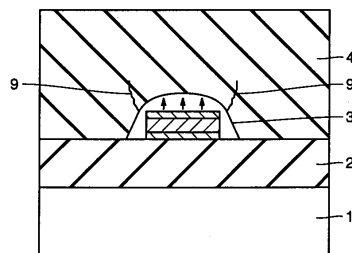
20

(종래 기술)



21

(종래 기술)



22

(종래 기술)

