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(12) (B1)

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(30) 136516 1993 10 13 (US)

(73) 10013-2412 32

(72) -  
, 18106, , 1308  
-  
, 18103, , 1019

(74) :

(54)

’  
( , PETEOS ) . ( )  
.  
.

1

1 4 .  
\* \*  
13 : 27 : (stack)

(photoresist)  
(lithographic process) (smallest features) (openings)

MOSFET (metal oxide semiconductor field effect transistor) 가

2 2 1 1

1 11 (epitaxial silicon), (substrate)

(body) 13 (silicon oxynitride) (13) Silicon dioxide (thermal oxidation)

(15) (junction) 500 5000 (15)

(17) 500 5000 (17) (option layer), (sputtering) (17)

(19) (hardmask) 가 (13, 15 17)

(19) (plasma-enhanced) TEOS 1000 3000 (21) (L) 가

2 (19) (raised) (23) CF

4 O<sub>2</sub> (23) (25) (21)

3 (25)가 (L)가 0.5μm ( , (19) )가 0.25μm PETEOS (23) 2

5 100 : 1 HF (21) 0.02μm 0.054μm (25) (L)

L = M + 2 (25)

(17, 15, 13) 1 (19) (25)

(17, 15, 13) 가 (25)

3 가 (M) (25) (17, 1

4 (17, 15, 13) (gate stack)(27) HB<sub>1</sub> CL<sub>2</sub> /

(contact window opening) 가

(57)

1.

( , 11) 1 ( , 13) ;

1 ( , 13) 2 ( , 19) ;  
2 ( , 19) ;  
2 ( , 11)  
(raised topographic feature)( , 23) ;  
; ( , 23) ,  
( , 25) ;  
1 ( , 13) ( , 25)  
2.  
1 ( , li) ,  
3.  
1 ,  
1 ( , 13) (silicou dioxide) ,  
4.  
3 ,  
1 ( , 13) ,  
5.  
4 ,  
1 ( , 13) ,  
6.  
1 ,  
2 ( , 19) TEOS ,  
7.  
( , 11) (thermal) ( , 13) ;  
( , 13) ( , 15) ;  
( , 15) ( , 17) ;  
( , 17) TEOS - (plasma enhanced decomposition)  
( , 19) ;  
( , 19) ( , 21) ;  
( , 19) ( , 23)  
가 ( , 19) ,  
( , 23) , ( , 25)  
( , 17) ( , 15)



