

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

(21) 10 - 1993 - 0007400 (65) 0000 - 0000000
(22) 1993 04 30 (43) 0000 00 00

(30) 07/877,287 1992 05 01 (US)

(73)

75265 13500

(72) .
75243 2911 9350

(74)

(54)

$$(34) \quad , \quad (32)$$

[]

[]

1 Ge

2 Ge

3 Ge

4 Ge

< >

10 : 12 :

14 : 16 :

18 : , 20 :

22 : 24 :

[]

, , MOS , , ,

- SiO₂ (non - SiO₂)

가

- SiO₂

SiO₂

Si,

)

가

(High Dielectric Constant : HDC)
(spontaneous polarization),

가

" (inert)"

(

)

†
 (non - volatile, non - destructive read out, field effect memory)
 $(\text{Ba}, \text{Mg})\text{F}_2$,
 SiO_2 ,
 †

, (grain boundary) Si GaAs
 , Si GaAs, Si
 $\text{GaAs} \uparrow$ 450 - 700

),

3

†

†

GaAs

GaAs

, GaAs
 (450 - 700) $\text{GaAs} \uparrow$
 GaAs

(non - ge

rmanium)

† 1, (gallium arsenide)
 (2, (barium strontium titanate))

SiO₂, HDC (epitaxy) SiO₂ SiO₂ 가 , , ()

- SiO₂,
(Si process technology)
4% Ge 1 (, , 가 ,
(Ge).

(Ba_{1-x}, Sr_x)TiO₃ (BST) BaTiO₃ (BT) SrTiO₃ (ST) 가 Si
BT ST 가
GeO₂ 가 BT ST 가 H₂ O₂ 가 BT ST
(PbO) 가 , Pb(Ti,Zr)O (PZT)
). , SrTiO
3
) SrTiO₃ (Perovskite) (Pyrochlore
(100) , BST , BST (110) BST (100) Si

SiO₂ 가 (- MFS) MOS MOS /
MFS MOS (remnant pol
DRAM arization) 가
MBE (Ba, Mg)F₂ PZT
가
SrTiO₃ BaTiO₃ 2 가 RAM
M 3 - 5 GaAs GA
GaAs MFS RA

1 가 (, , MOS ,
1 (10) (12)
(14)

barium strontium titanate layer) (16) (16) . (18) , , , (ferroelectric

$$2 \quad (20) \quad (16), \quad (12), \quad (24) \quad (16) \quad (22) \quad (26) \quad (24) \quad (14), \quad (22) \quad (24)$$

3
(30) , (28) (28) (32) (Pb, Mg)
NbO₃ (34) . (18) ()
,

$$4 \quad (28) \quad , \quad (32) \quad , \quad (42) \quad 2 \quad (40) \quad . \quad 2 \quad (40)$$

(57)

1.

(a high - dielectric constant oxide)

2.

1

3.

1

(non - single crystal)

4.

1 , 가 1

5.

6.

5

7.

5

8.

7

1

9.

5 , (gallium arsenide)

10.

5 , 2

11.

10 , 2

12.

10 , 2

13.

12 , 2

14.

5 , (titанат)

15.

14 , (барий стронций титанат)

16.

14 , (lead-containing) ,
(non-lead-containing)

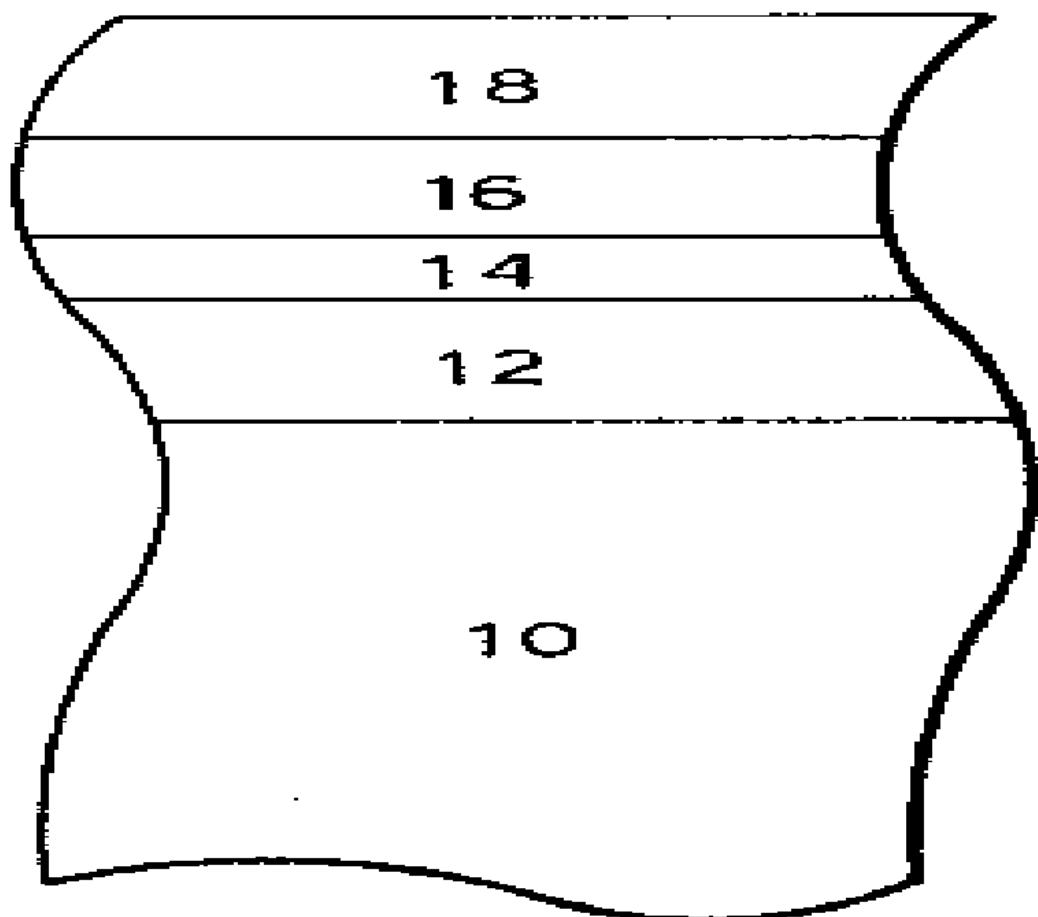
17.

5 , , , /
,

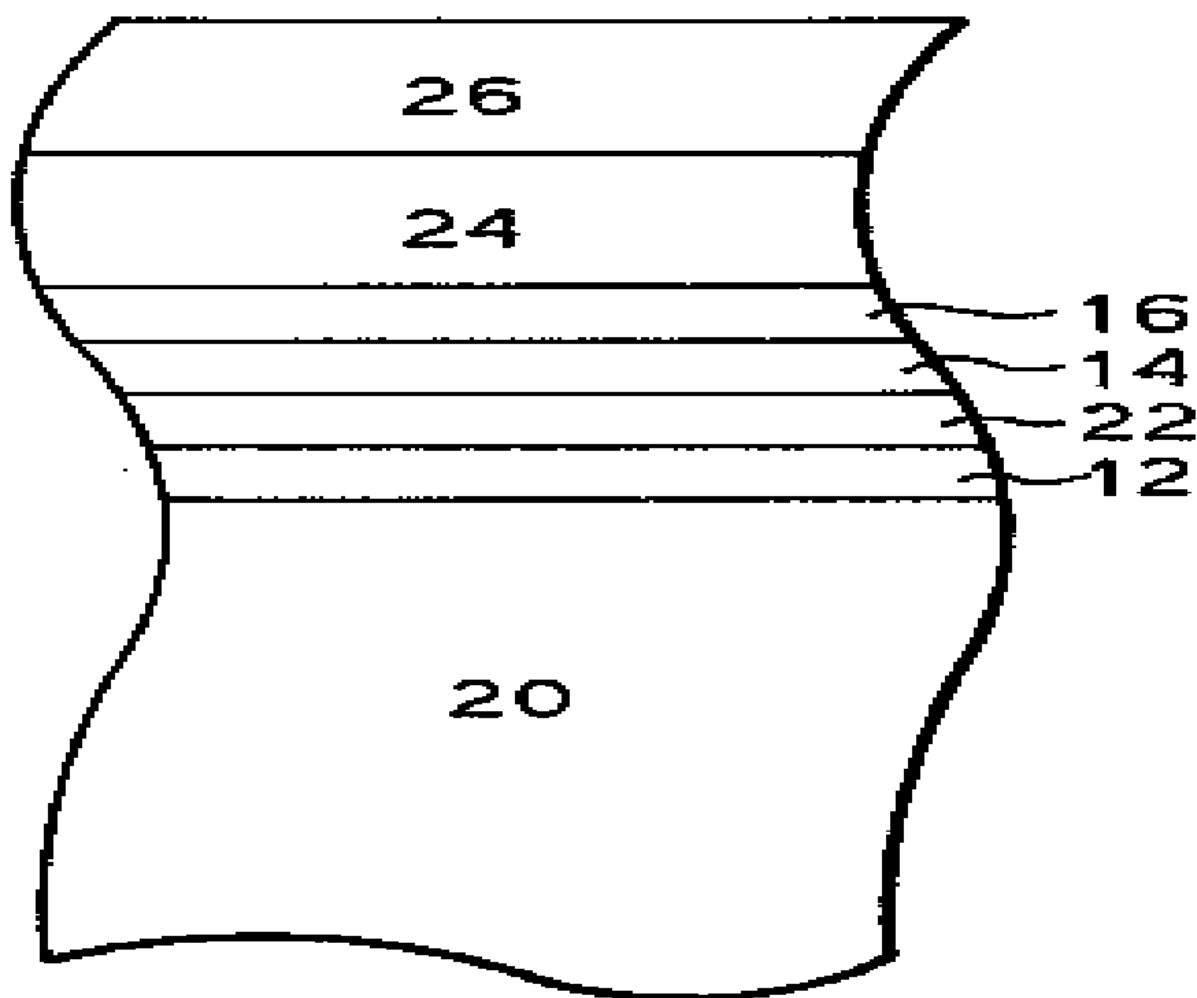
18.

1 ,

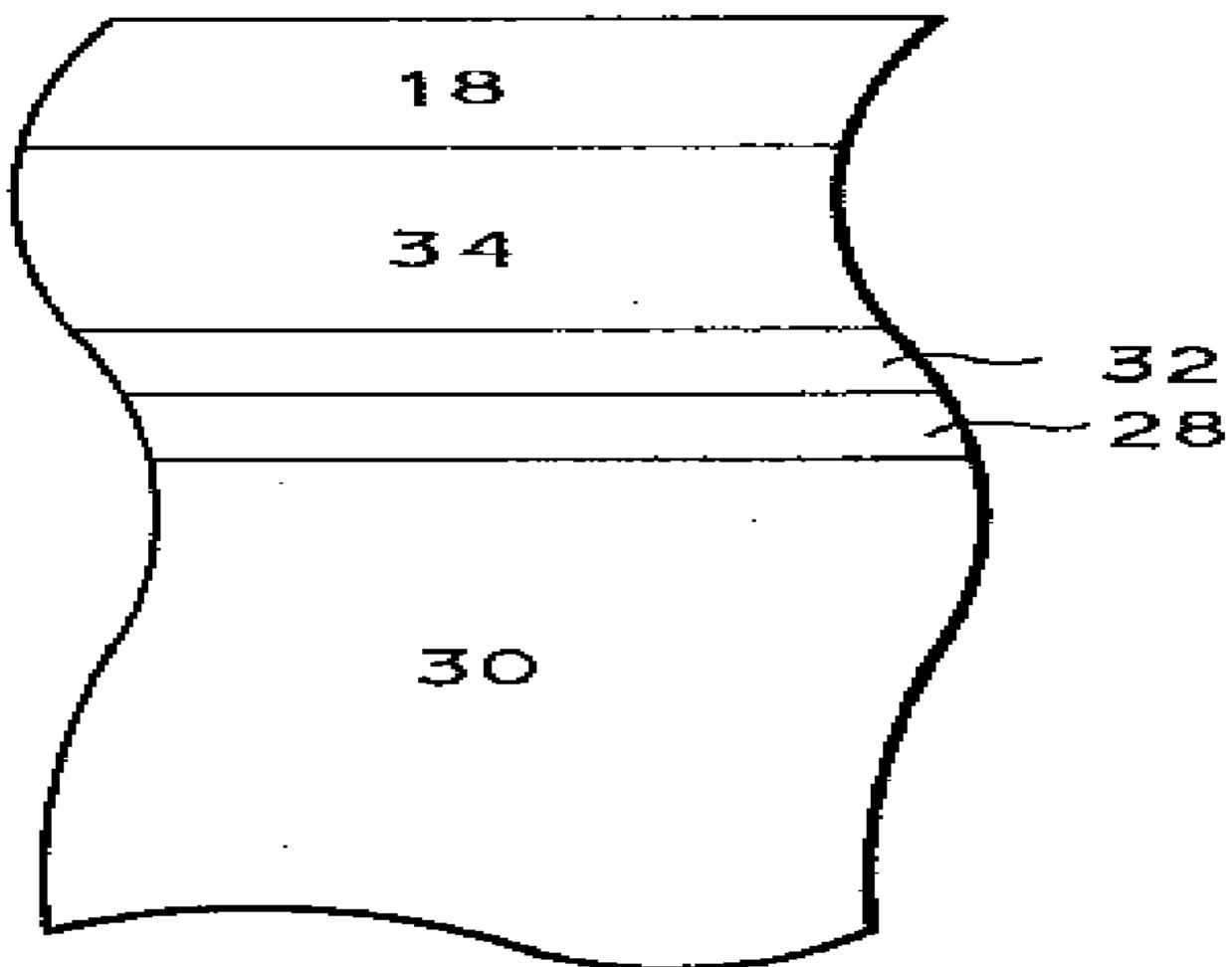
1



2



3



4

