

(19)  
(12)

(KR)  
(B1)

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H01L 27/12

(45)  
(11)  
(24)

2001 12 15  
10 - 0305877  
2001 08 02

(21) 10 - 1993 - 0016093  
(22) 1993 08 19

(65) 1995 - 0007139  
(43) 1995 03 21

(73)

1

(72)

656 1 507

503 303

(74)

:

(54) (TFT)

가 / 가 , (bottom gate)

가 / 가 , 가 (step coverage)가 (pr

cess margin)

1a

[ ]

(TFT)

[ ]

1

2

3

\*

11,21,31 : 12,22,32 : (isolation oxide)

13,23,33 : 33 :

14,24,34 : 15,25,35 :

16,26 : (V+)

17,17 ,27,27 ,37,37 ,37" : (photoresist)

18,28,38 : (LDD) (N - )

19,29,39 : (N - )

110,210,310 : / (N+)

111,211,311 : / (N+)

N+,N - :

[ ]

S (RAM) (LCD) (TFT, Thin Film Transistor) , 4 가(M)  
 TFT ,  
 (gate oxide) (body polysilicon)  
 (trench bottom gate TFT)

- 가 - S (load resistor)  
 가 (bottom gate) 가 .

가

(silicon ion implantation)

(annealing) (V+, threshold voltage) / (source/drain)

1 , 가 (11)

1(a) (12) (13) (12) (13) (14) (high temperature oxide) (source) (drain) (body polysilicon, 15) (amorphous) (silicon ion implantation) (amorphous)가 (laser annealing) (600 ± 50 ) 5 (15) (V<sub>t</sub>, 16) (15)

1(b) (lightly doped drain) (17)

(N - ion implantation) (18) (N - , 19)

1(c) (offset) / (110) / LDD (N+, 111) (17 ) (Thin Film Transistor) 가 가 (step coverage)가 가 (trench bottom gate transistor) 가 (annealing) (V+, threshold voltage) (silicon ion implantation) (source/drain)

2 (21) (22) 3000 (22) (23 ) 가

2(b) (22) (23) (23) (etch back) (23)  
 , (source) (drain) (24) (high temperature oxide)  
 (amorphous) (body polysilicon, 25) (s  
 ilicon ion implantation) (amorphous)가 (600 ±  
 50 ) 5 (laser annealing) (25)  
 (25) ( $V_t$ , 26) .  
 , 2(c) (lightly doped drain) (27)  
 (N - ion implantation, 28) (N - , 29) .  
 2(d) (27) , LDD  
 (offset) / (210) / (N+,211)  
 (27 )

(silicon ion implantation) (annealing) ( $V+$ , thr  
 eshold voltage)  
 / (source/drain) .

3 , 3(a) (31) (32)  
 (33) (33) (32) (313) .  
 HTO, HLD, LTO, USG, PSG, BPSG, SOG

3(b) (313) (37)  
 (313) (33 ) .  
 가

, 3(c) (37) (313) (33 )  
 (34) (high temperature oxide) , (source) (drain)  
 (body polysilicon) (35) (amorphous)  
 (silicon ion implantation) (amorphous)가  
 (600 ± 50 ) 5 (laser annealing)

(35) (35) (Vt, 26)

(lightly doped drain)

(37 )

(N - ion imp

lantation, 38)

(N - , 39)

3(d)

(offset)

(37" )

(37 )

(310)

LDD

(N+, 311)

(bottom gate)

(step coverage)가

(process margin)

(57)

1.

(22)

(21)

(23)

(23 )

(etch back)

(23)

(23 )

(22)

(24)

(body polysilicon, 25)

(source)

(silicon ion implantation)

(am

orphous)가

600 ± 50

5

(laser anne

aling)

(25)

(25)

(Vt,

26)

(lightly doped drain)

(N - ion implantation, 28)

(N - , 29)

(27)

(offset)

(210)

(N+,

211)

2.

1

(In - Situ doped polysilicon)

(amorphous silicon)

3.

(32) , (31)  
 (33) (313)  
 (37) (33 )  
 (37) (313) (33 ) (34)  
 (source) (drain) (body polys  
 ilicon) (35) (amorphous) (silicon ion implanation)  
 (amorphous)가 600 ± 50 5 ( (Vt,  
 laser annealing) (35) (35) (N - ion implantation, 38)  
 26) (lightly doped drain) (37 ) (offset) /  
 (N - ,39) (37" ) (310) / (N  
 +, 311)

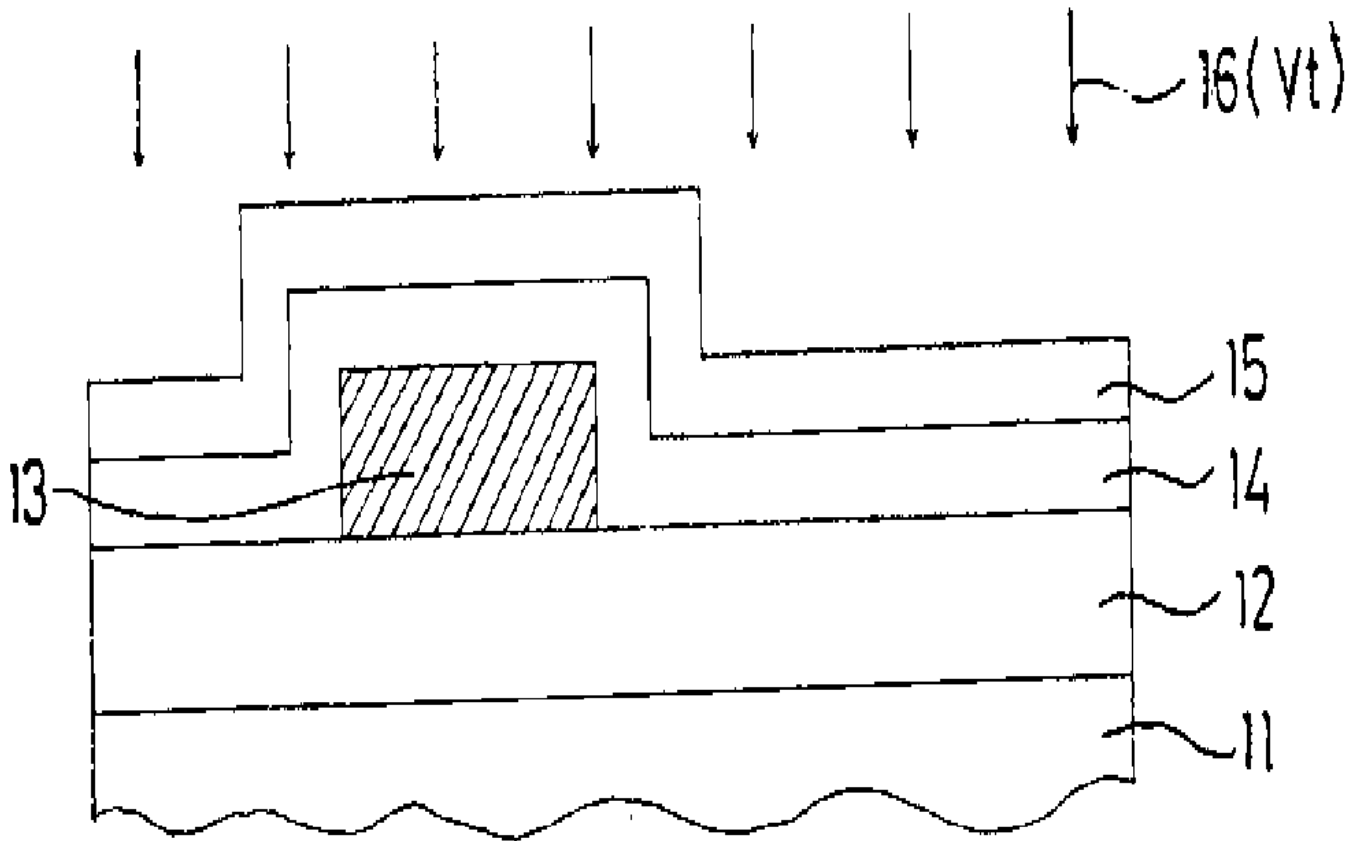
4.

3 , (In - Situ doped polysilicon)  
 (amorphous silicon)

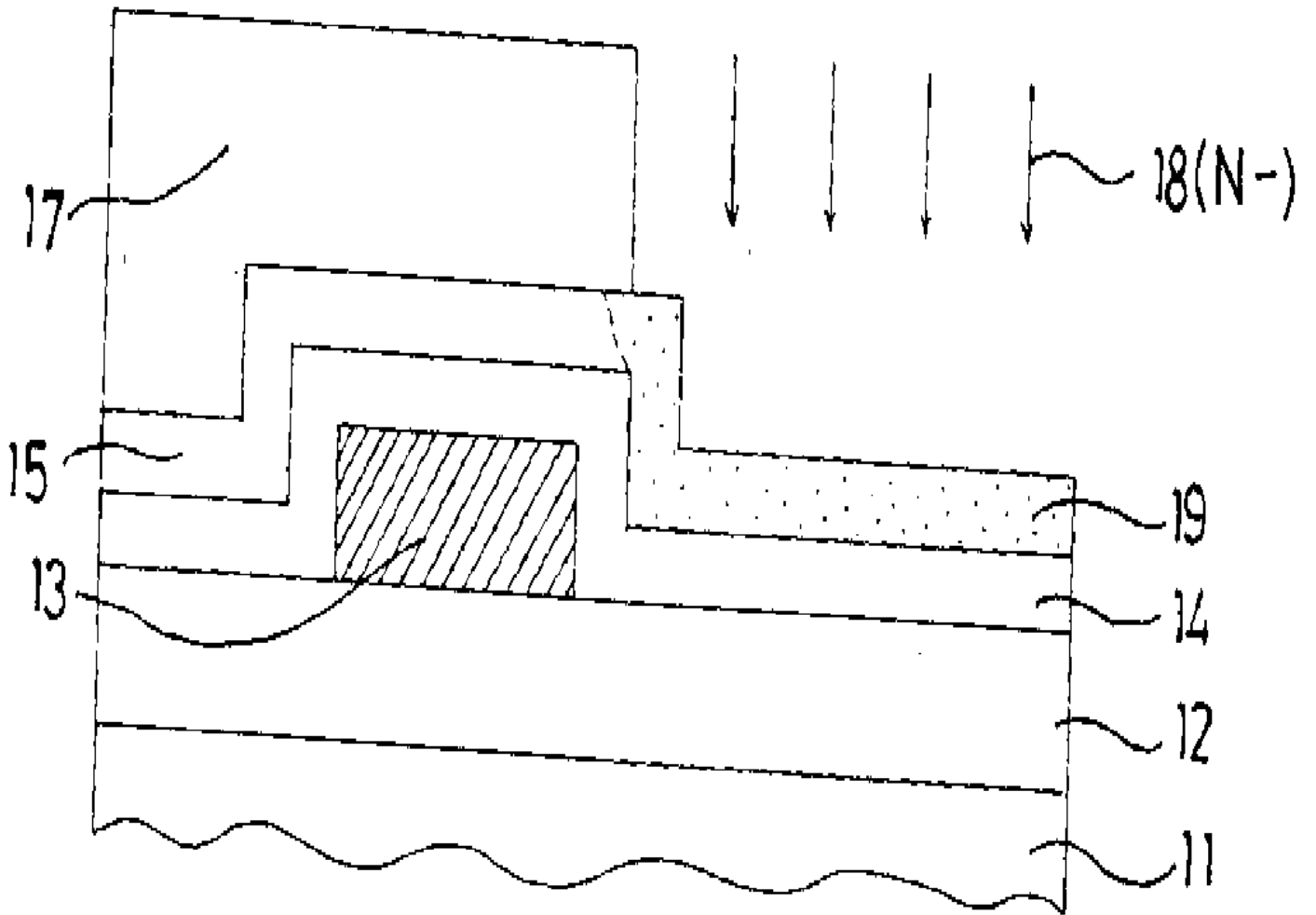
5.

3 , HTO, HLD, LTO, USG, PSG, BPSG, SOG

1a

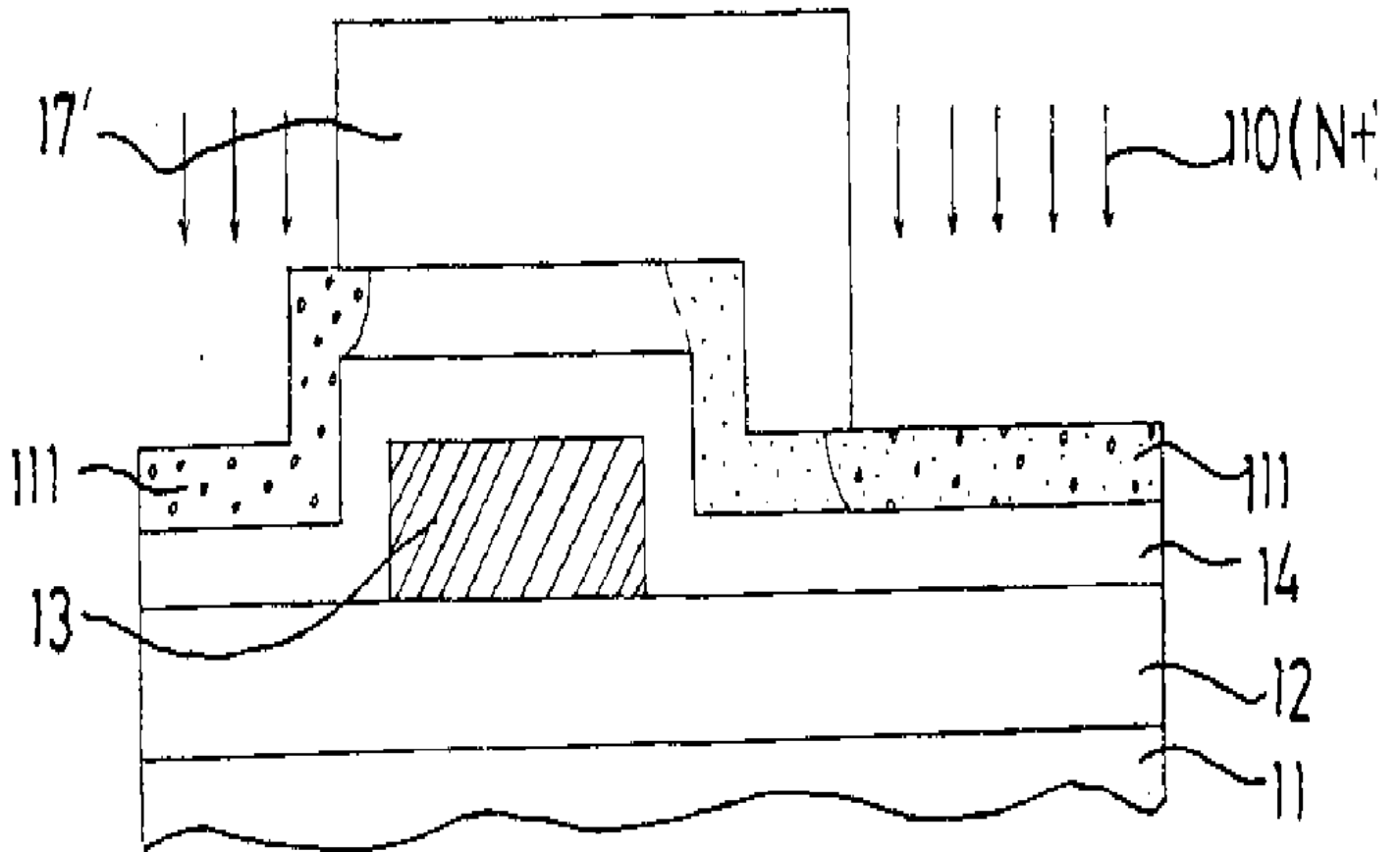


1b

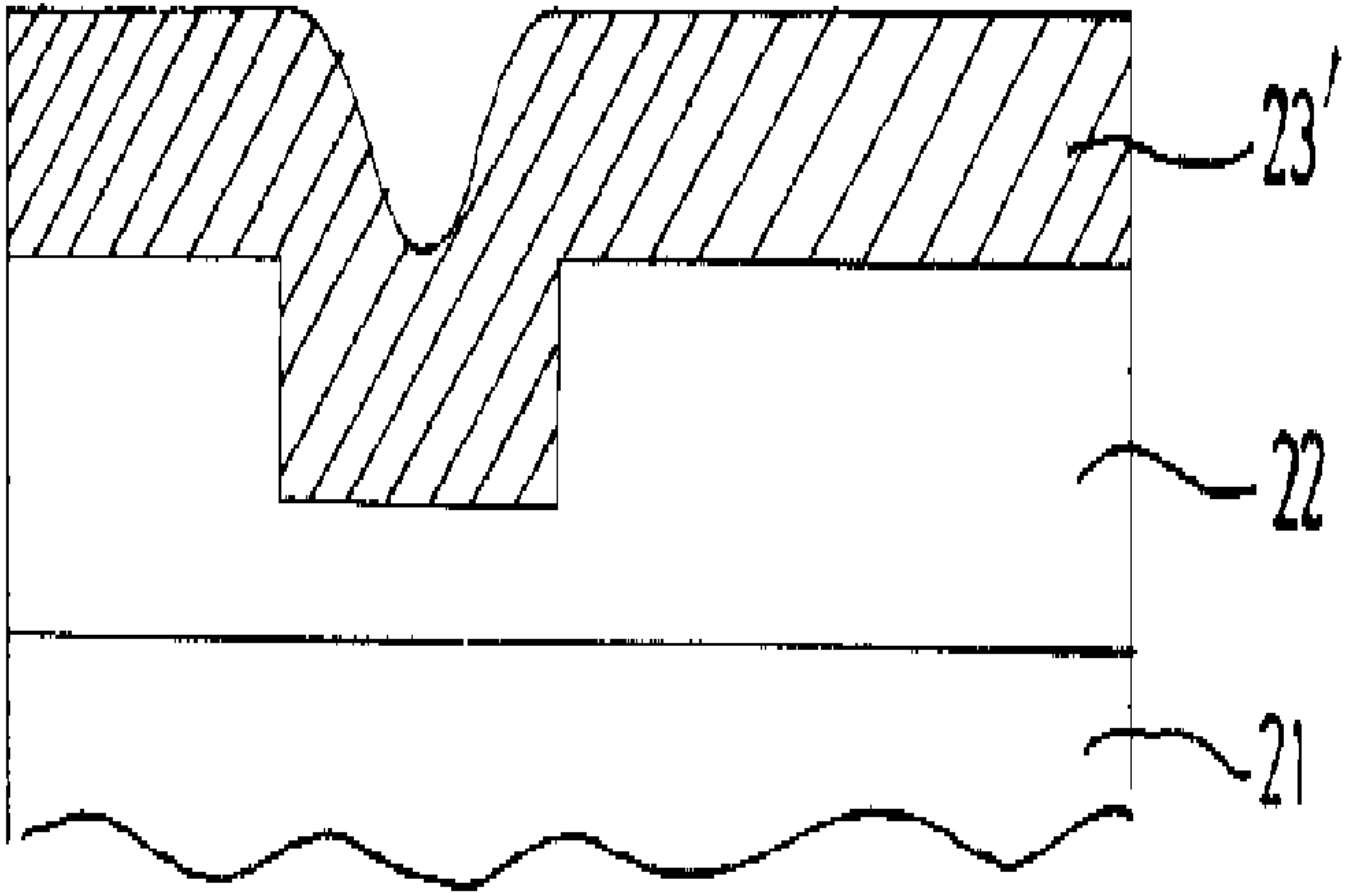




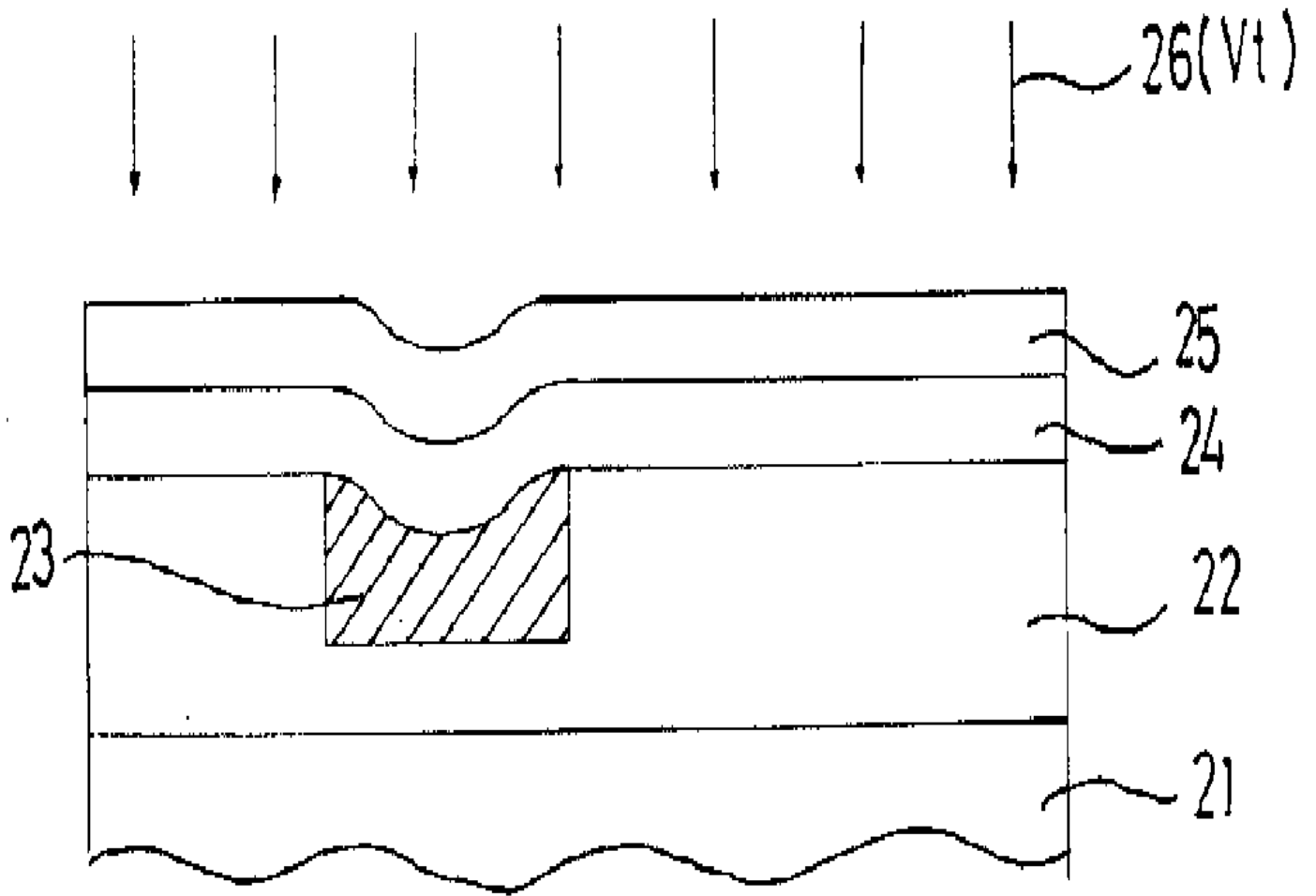
1c



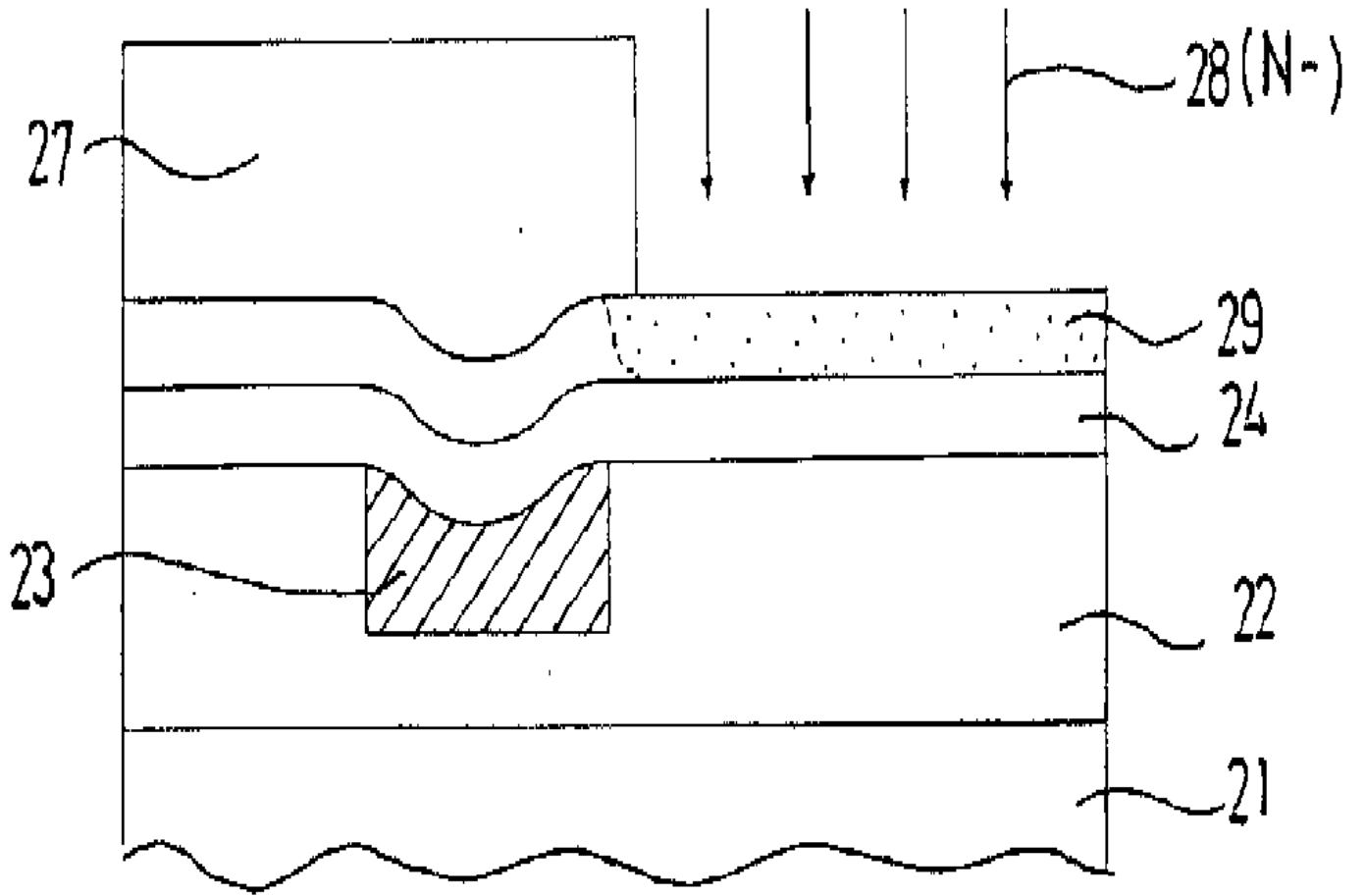
2a



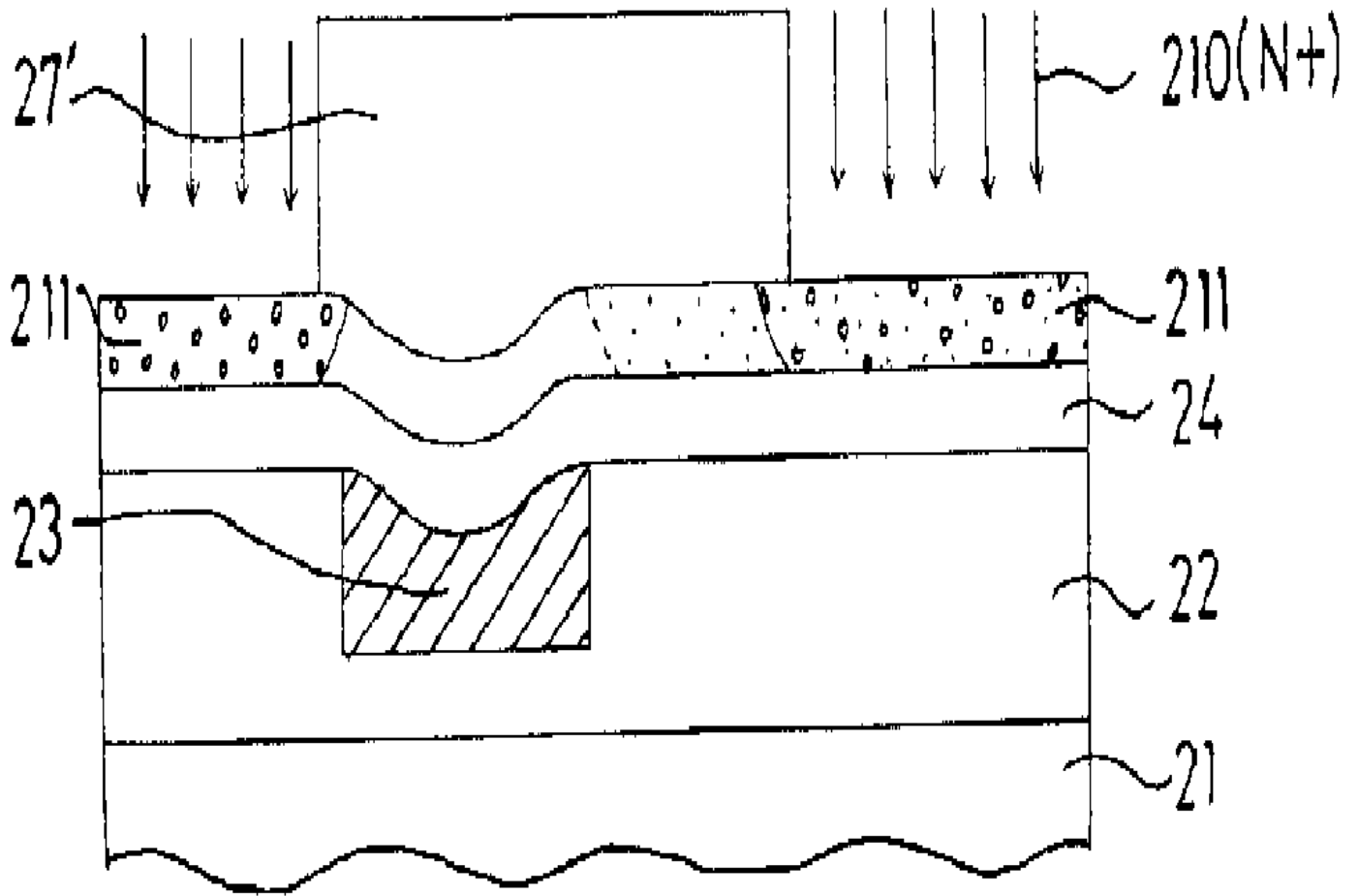
2b



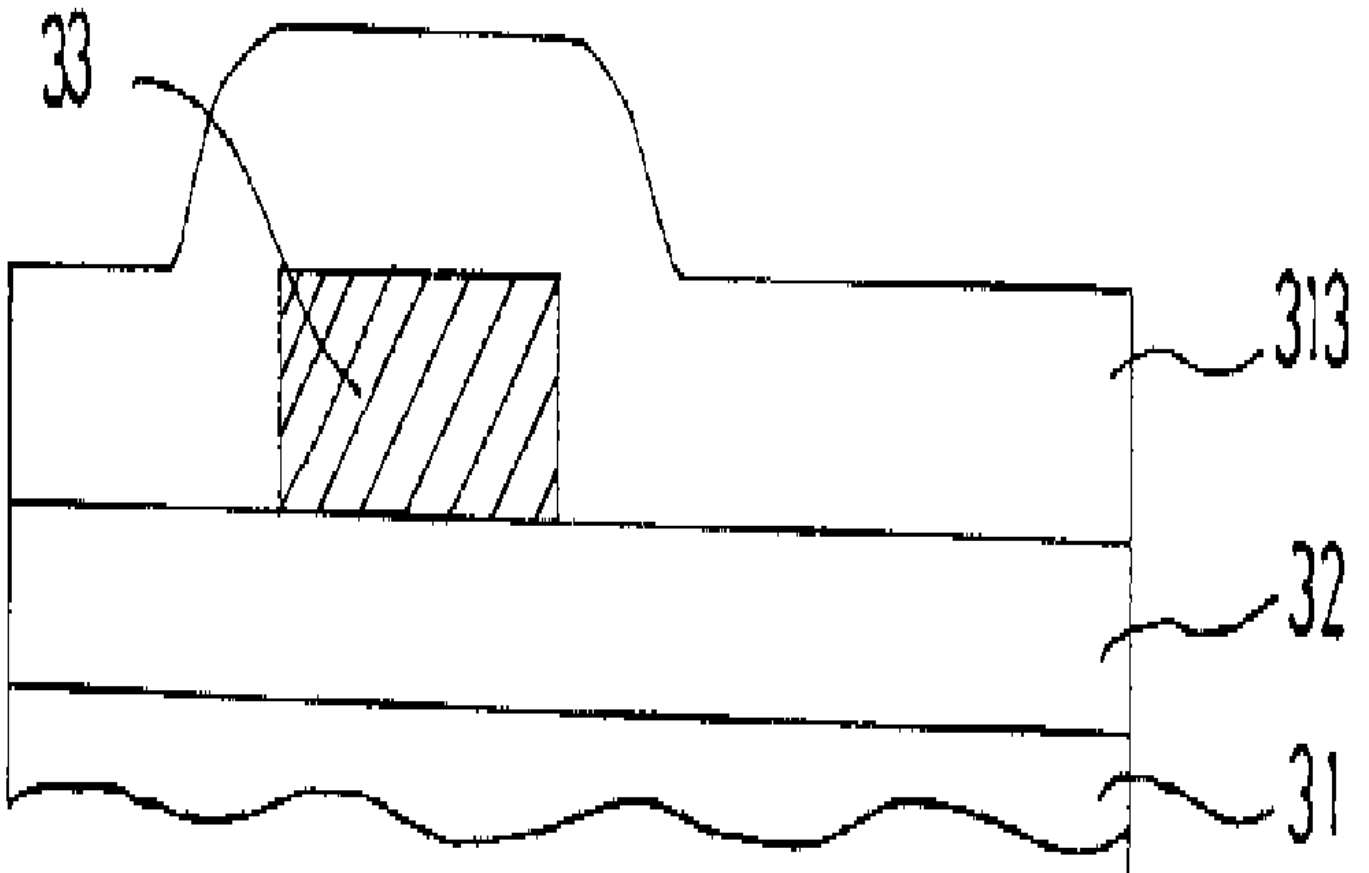
2c



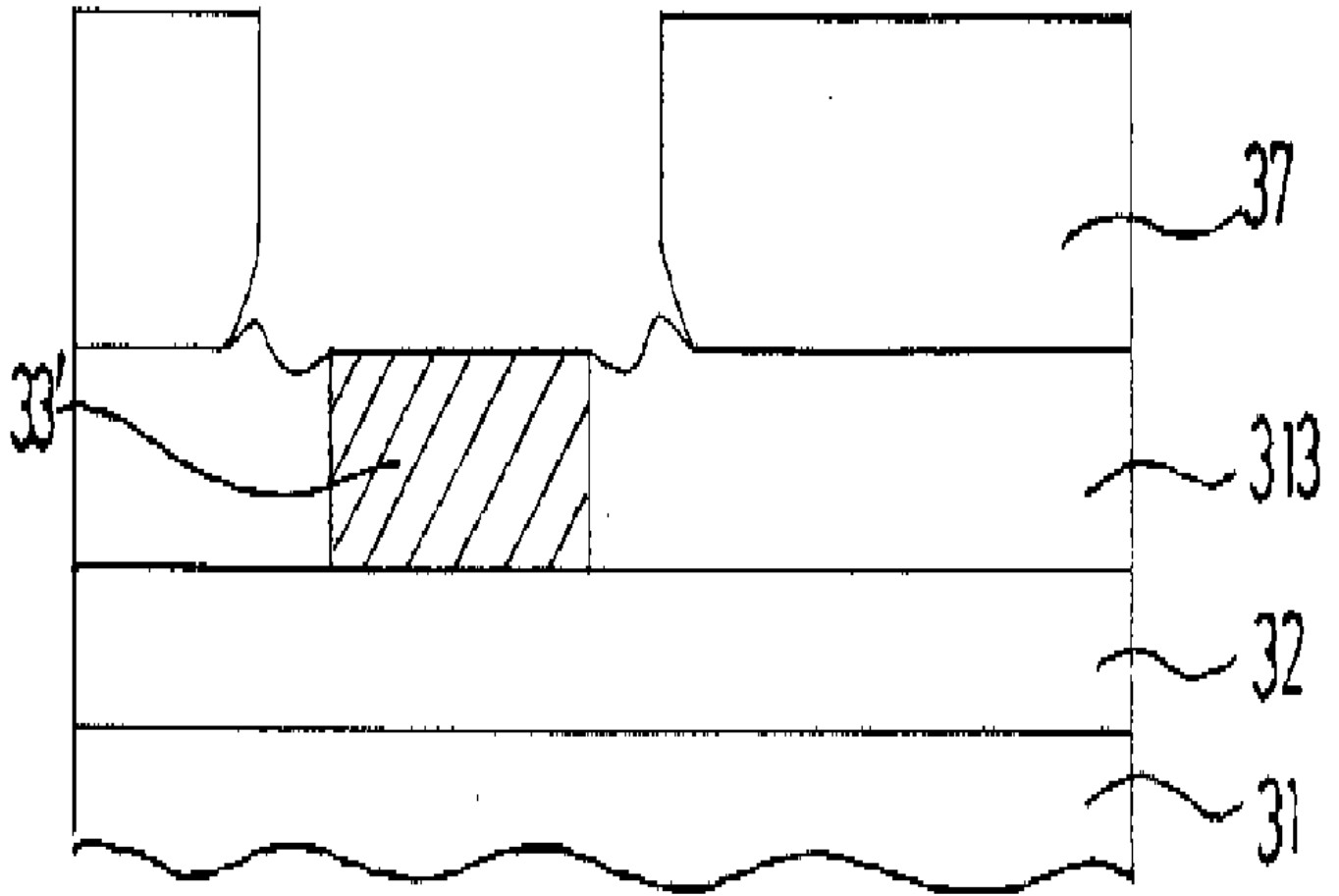
2d



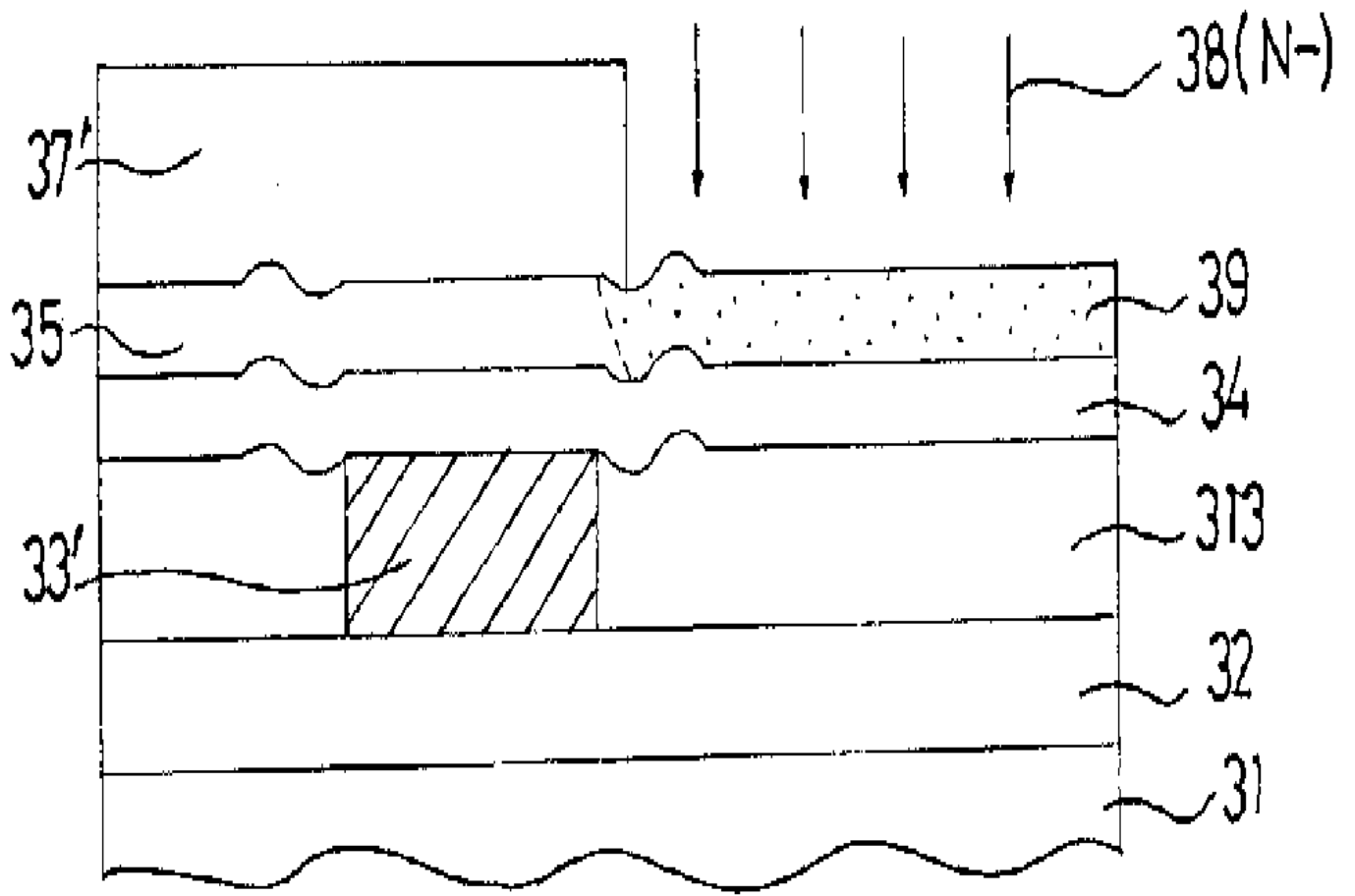
3a



3b



3c





3d

