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

(54)

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2

,   ,   ,   ,

1
2

3   2
4   2
5
6   5

,

,   .

                                                           (dynamic random access memory)

          (static random access memory)   .

                                                                                    .   ,

                                   (mask read only memory: MROM),   (program
mable read only memory:PROM),   (erasable programmable read only
memory:EPROM),   (electrically erasable programmable re
ad only memory:EEPROM)   .

                                                                                    .

     ,   MROM, PROM, EPROM   (
)   .   ,   -   (on- board)
                                    .   ,   EEPROM

                                                   .

     ,

                              EEPROM   .   ,

                                                                                            EE
PROM   .
EEPROM   (Flash) EEPROM   NAND
          AND   EEPROM   (   )
                                     .

                                                                         .

                                                                5
                                                                5   ,   (p)   (subs
trate:10)   (n)   (12)   (12)
                              (14)   .   100
                    (16)   ,   (16)
                                        (18)   .   ,   (14)   ,
          (12)   .   (18)
                    ,   (16)   (18
)   .   5   .   .
     6   .   ,   ,
                              (14)   (16)   (hot electron inj
ection)   .   6   ,   ,   (12)
                    (10)   ,   (18)   9V
          (14)   5V   .
                              (16)   ,
                    .   ,   (12)   (10)
     ,   (14)   1V   (18)
                    4.5V   ,
          .
                              (14)   (12)   .
                    " - "   ,
     6V - 7V   .
                                                                        (10)   (18)
                    (Fowler- Nordheim)   (F - N   )   .   F - N
                              (18)   6   - 9V
          (10)   F - N   9V   .
          (14)   (12)   (high- impedan
ce)   .   (18)   (10)   ,

F-N .   (16)
(12)   .   F-N   6-7 MV/cm
                    .   100
            F-N   .
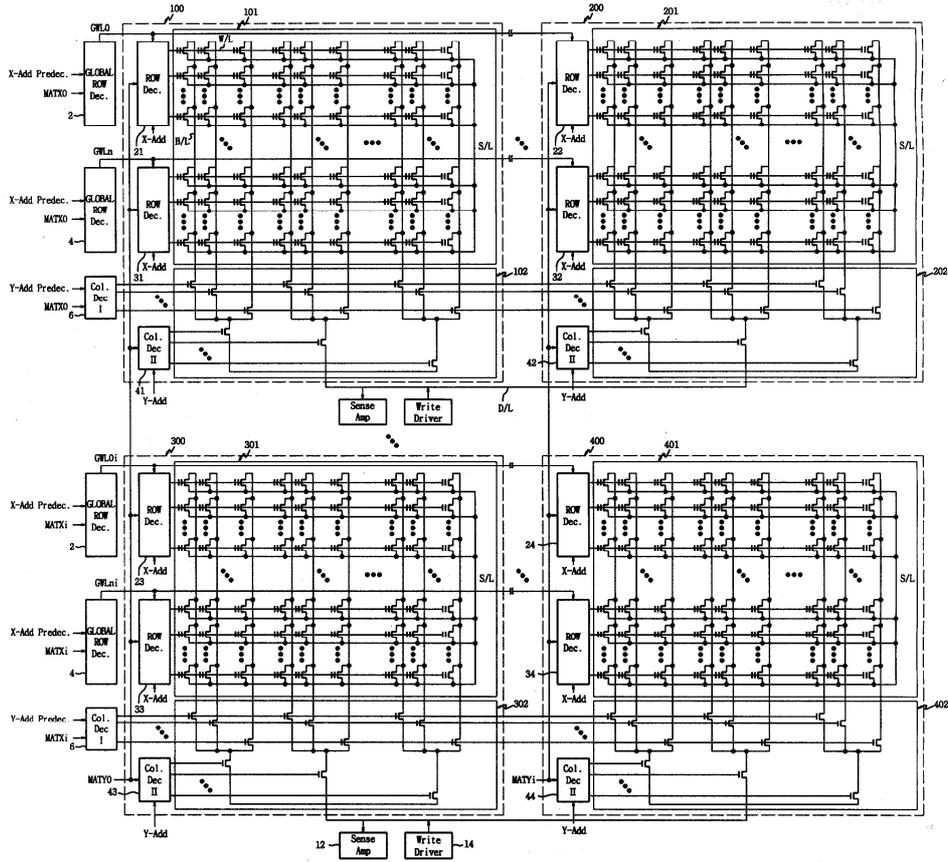   (6)   .
                                                                                                    .

            .   64K byte   (sector)   .   ,
                                                    .
6   ,
        (14)   (12)   - (on-cell)   .
                            " - "   ,
    1V-3V   .
    ,   ,   1V-3V
0V   .   0V   (over)
            .   1V-3V
    (   )   .
        (12)   (10)   (18)   2V-5V
    (14)   (+)   6V-9V   .
                                                                    (16)   1V-3V
        .

                    ,   ,   1   .
                        1   ,   (Hierachical)
                            (W/L)   (coding)   (Row Decoder)
                        .   101,201,301,401
                    .   (W/L)   (B/L)
                    .   102,202,302,402   (B/L)
                        Y-   (pass Gate)   .   100   (101)
Y-   (102)   W/L   (21,31)   .
    (100)   (101) W/L B/L   /   /
.   (200,300,400)   .
    1   ,   ,   (100)   (200)   W/L   . ,
    (100)   (200)   (21,22,31,32)   (GWL)   GWL0~GWLn
        (100,200) W/L   . ,   GWL
                        .   (21,22,31,32)
                    W/L   .   ,   (100)   (X)
    MATX0   X-   (2,4)   .   (
2,4)   GWL0~GWLn   .   ,   Y   MAT
Y0   (100)   (21,31)   W/L
            .
                    I(6)   (Y-address)   MATX0   Y-
    (102)   .   Y-   (102)   .
            (B/L)   (12)   (14)   (D/L)
                    ,   .
    ,   MATX0   (101,201)   (D/L)
                                        ,   (12)   (14)
                                                                    .
            MATXi   (300,400)   /   .
    1   (B/L)   1(Metal1)
                    ,   W/L   ,   GWL
    1   2(Metal2)   .
                        (Hierachical)
                                                                              MATXi   .
,   MATX
                    .   ,
        .

,

.

.

.

.

(aspect) , ,

,

.

, ,

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.

, , ,

.

. 2 , (100,200,300,400)

(21-24,31-34) ,

(101,201,301,401) ,

Y- (103,203,303,403) . (21,22)

(31,32) (2) (4) (GWL0,GWLn) , (23,24) (33,34) (2)

(4) (GWL0i,GWLni) . Y-

(103,203,303,403) (101,201,301,401) ,

(LCD;7) Y- (103,203) Y- (303,4
03) . (GCD;700,800) (500,600
) , (12) (14) (500,600)

.

, ,

. W/L B/L

, (W/L) n . ,

(B/L) m . , m Y-

(103,203,303,403) (500,600) (D/L)

, (D/L) (12) (14) .

, 2 (100,200) (300,400) W/L

1 , (100,300) (200,400) B/L

.

.

, (12) (14)

, 1 ,

. ,

.

3 2 (300) . (301)

WL0-WLi , B/L0-B/L

n 1 1(Metal1) . W/L W/L 2

2(Metal2) , B/L B/L 3 3(Metal3) .

(301) 2 3 W/L B/L . ,

2 3 B/L W/L .

4   2   .   4   ,   32

.   W/L   GWL   (2,4)

(21-24,31-34)   (2,4)

.   (7)   ,   (

700,800)   .

2   .

.

.   64K byte   .

(100)   (MC1)   W/L   .

(X-address)   MATX0

(2,4)   GWL0~GWLn   ,   MATY0   (100)

(21,31)   (21)   .   (21)

W/L   .   ,   2   1

.

(100)   (B/L)   ,   MATY0

(700)   .   (700)   (500)

(T1)   .   ,   (12)

(14)   (D/L)   (GBL0)   .

,   MATX0   (100)   (7)   .

Y-   (103)   (N1)   .   ,

(101)   (B/L)   (GBL0)   .

(MC1)

(12)   ,   (12)

(14)   (D/L

),   (GBL0)   (B/L)   (MC1)   .

,   (Hierachical)   B/L   B/L   ,

,

1   1

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.   ,

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,   ,

.   ,

.   ,   3   .

,

.   ,

(57)

    1.

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,

,   Y-

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    2.

1   ,

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3.
(   )
4.
(   )
5.
(   )
6.
(   )
7.

;   ;
Y -
:

,   Y -
,
.

8.
(   )
9.
(   )
10.
(   )
11.
(   )
12.
(   )
13.
(   )

1

2

3

4

5

W/L

S/L

B/L

18

16

N+

N+

12

14

10
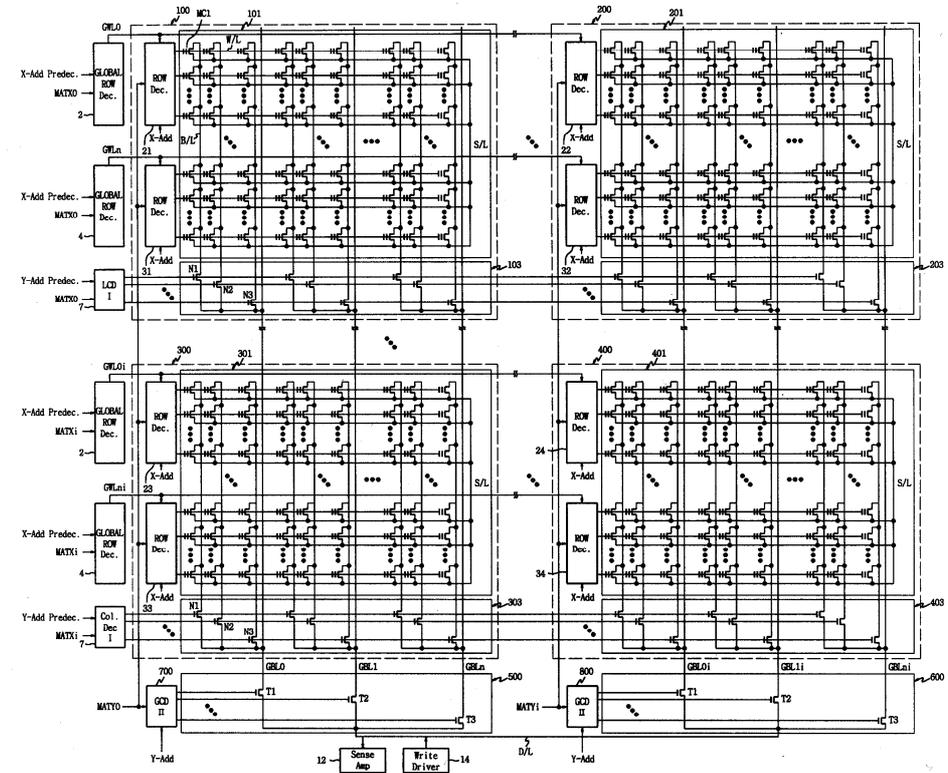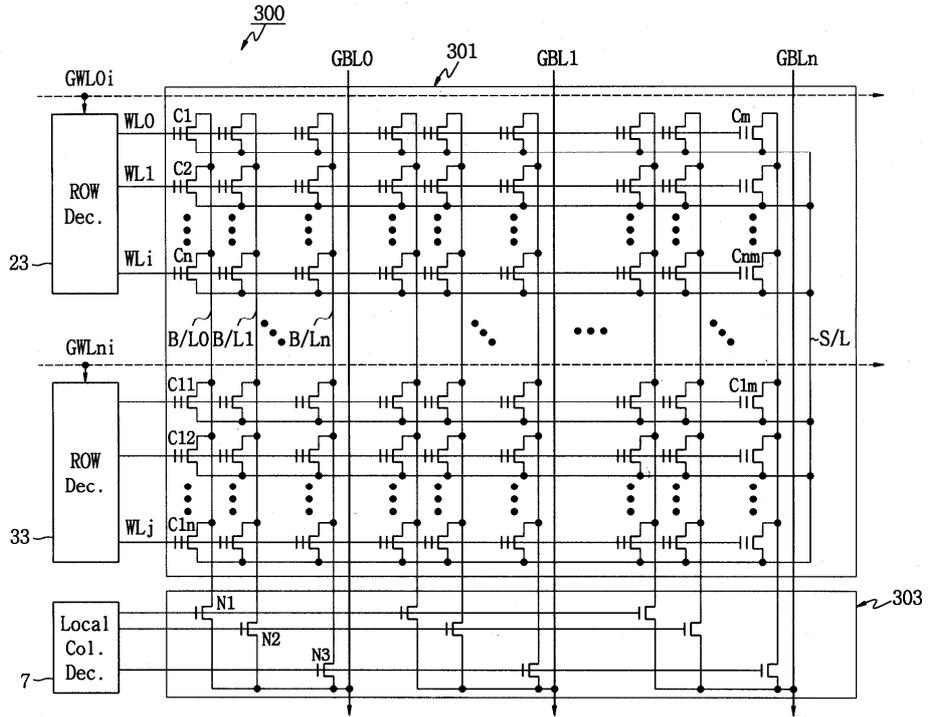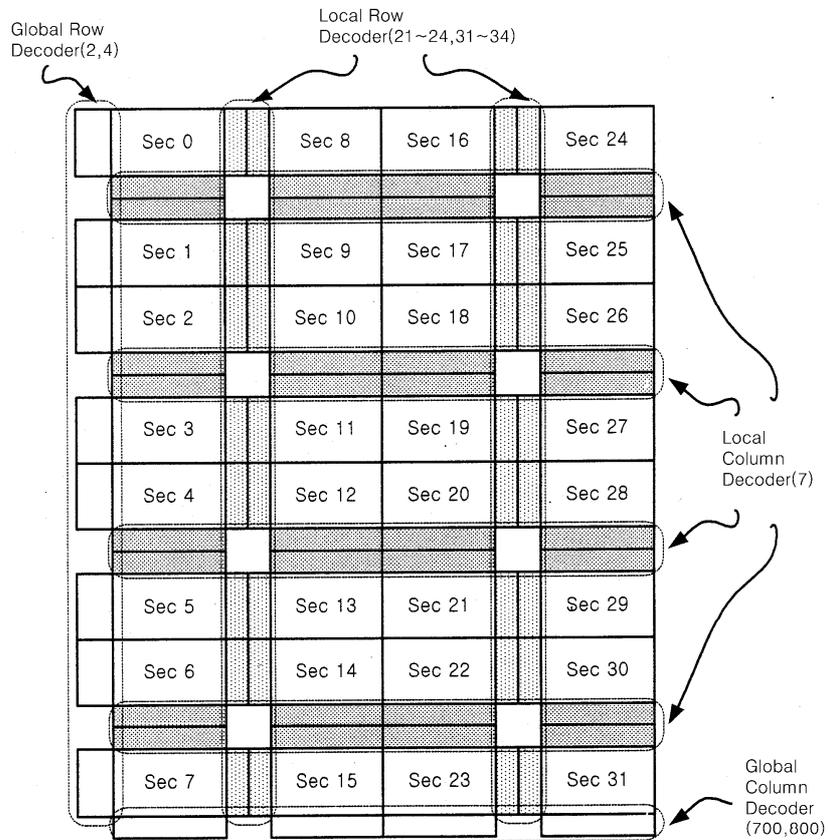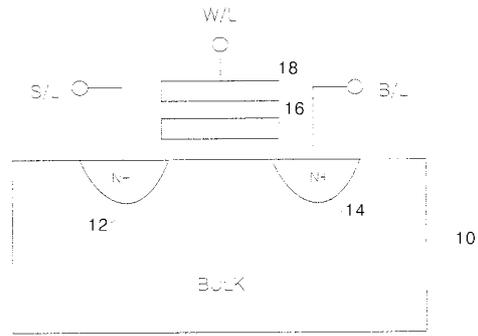
BULK

6

Operation	W/L	B/L	S/L	BULK
Program	9V	5V	0V	0V
Erase	-9V	Floating	Floating	9V
Read	4.5V	1V	0V	0V