FIG. 1

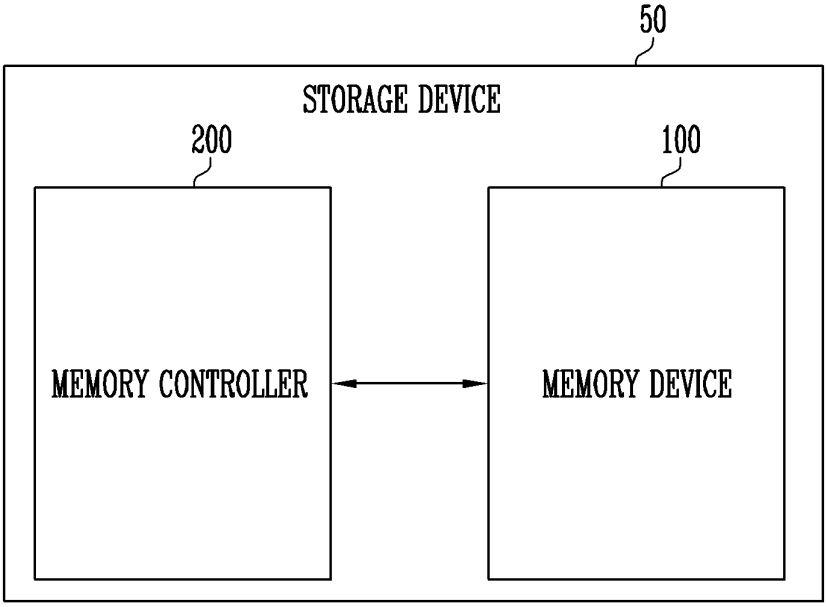


FIG. 2

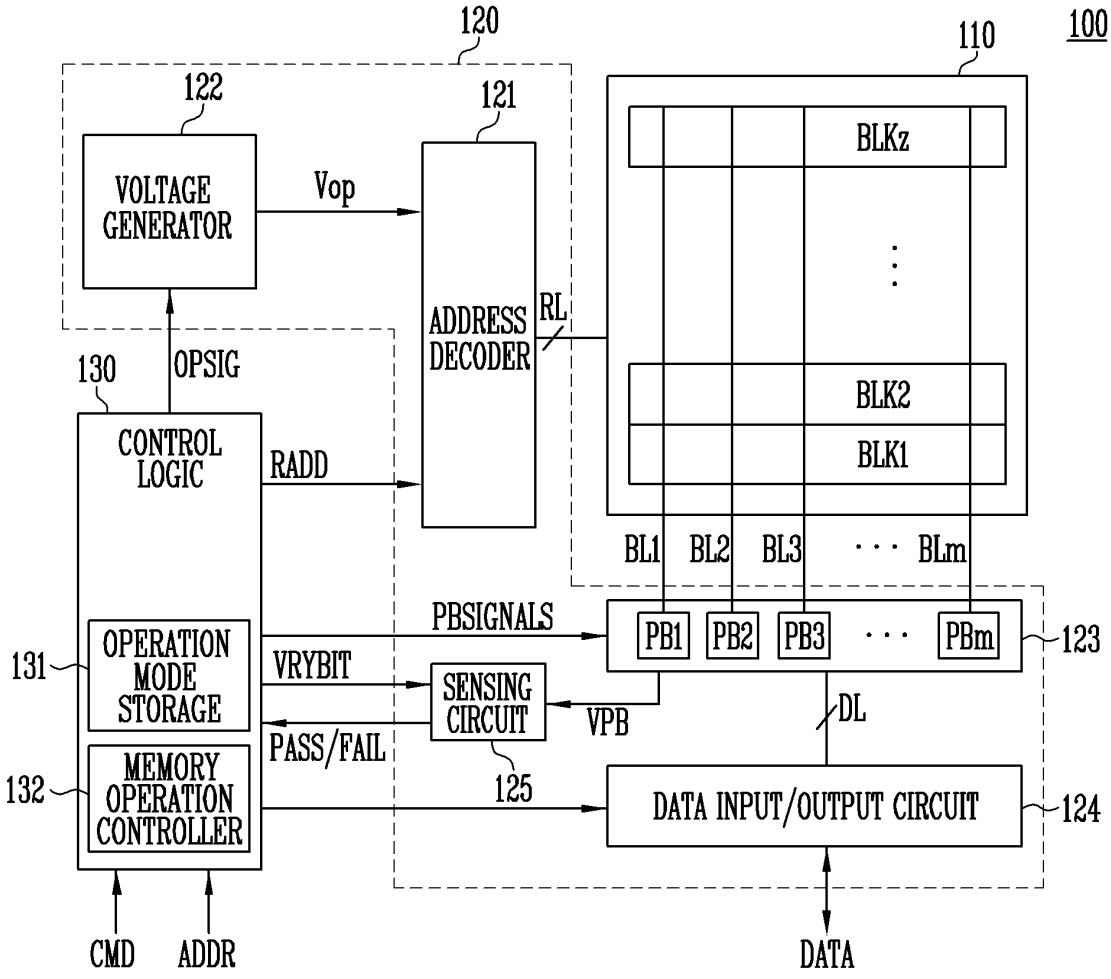

120
110
100
122
121
VOLTAGE GENERATOR
Vop
ADDRESS DECODER
RL
BLKz
BLK2
BLK1
130
OPSIG
CONTROL LOGIC
RADD
BL1
BL2
BL3
BLm
PBSIGNALS
PB1
PB2
PB3
PBm
123
131
OPERATION MODE STORAGE
VRYBIT
SENSING CIRCUIT
VPB
DL
PASS/FAIL
125
132
MEMORY OPERATION CONTROLLER
DATA INPUT/OUTPUT CIRCUIT
124
CMD
ADDR
DATA

FIG. 3

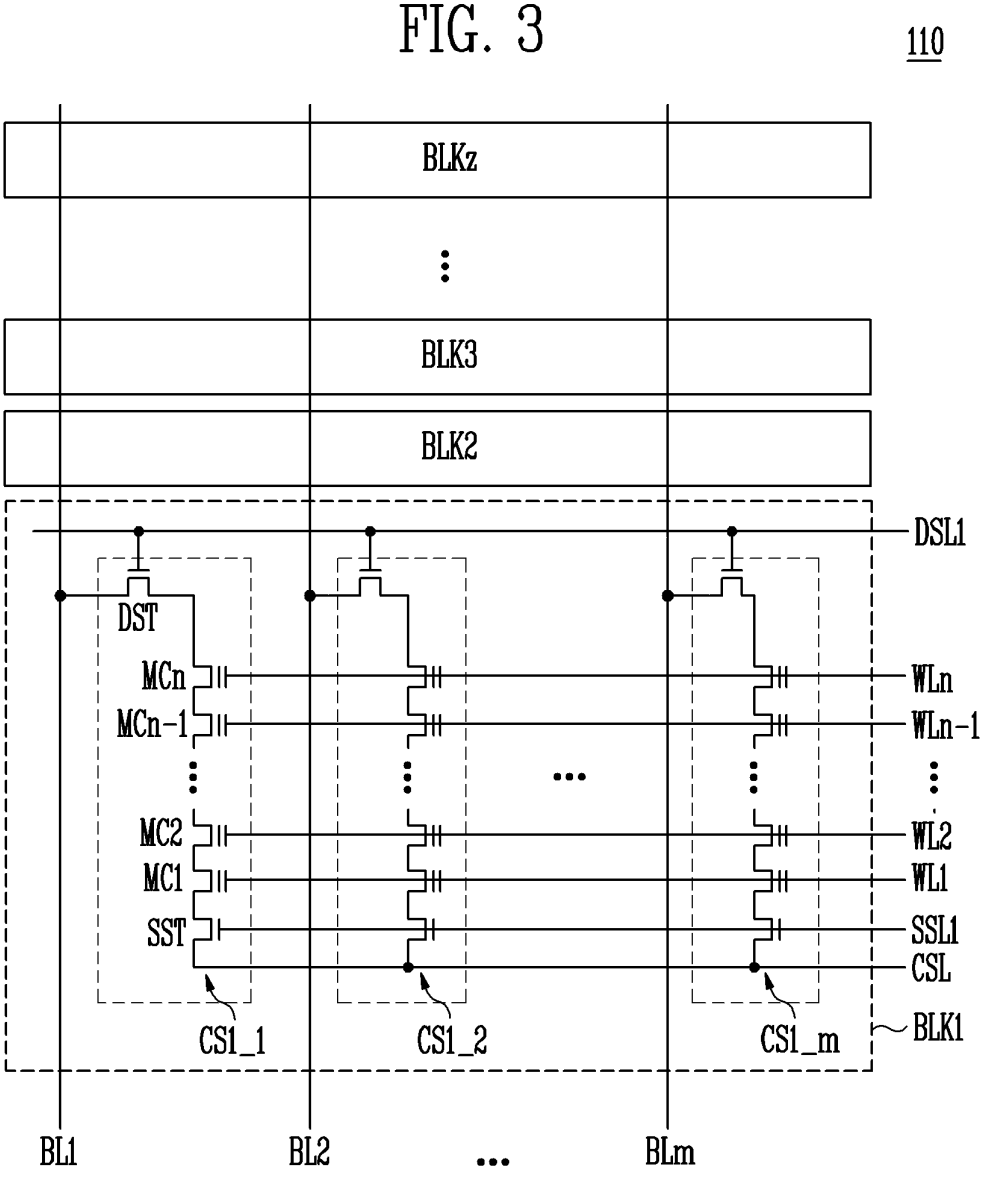

110
BLKz
BLK3
BLK2
DSL1
DST
MCn
MCn-1
MC2
MC1
SST
WLn
WLn-1
WL2
WL1
SSL1
CSL
BLK1
CS1_1
CS1_2
CS1_m
BL1
BL2
BLm

FIG. 4

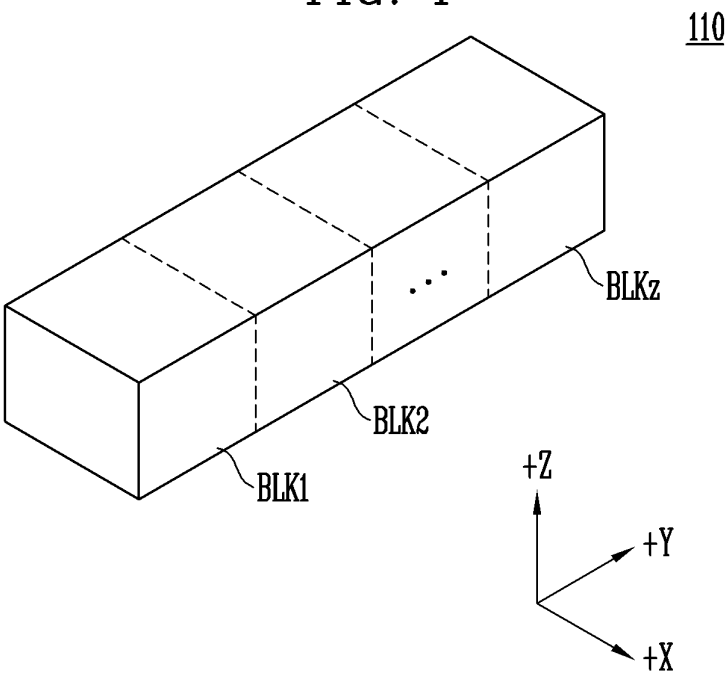


FIG. 5

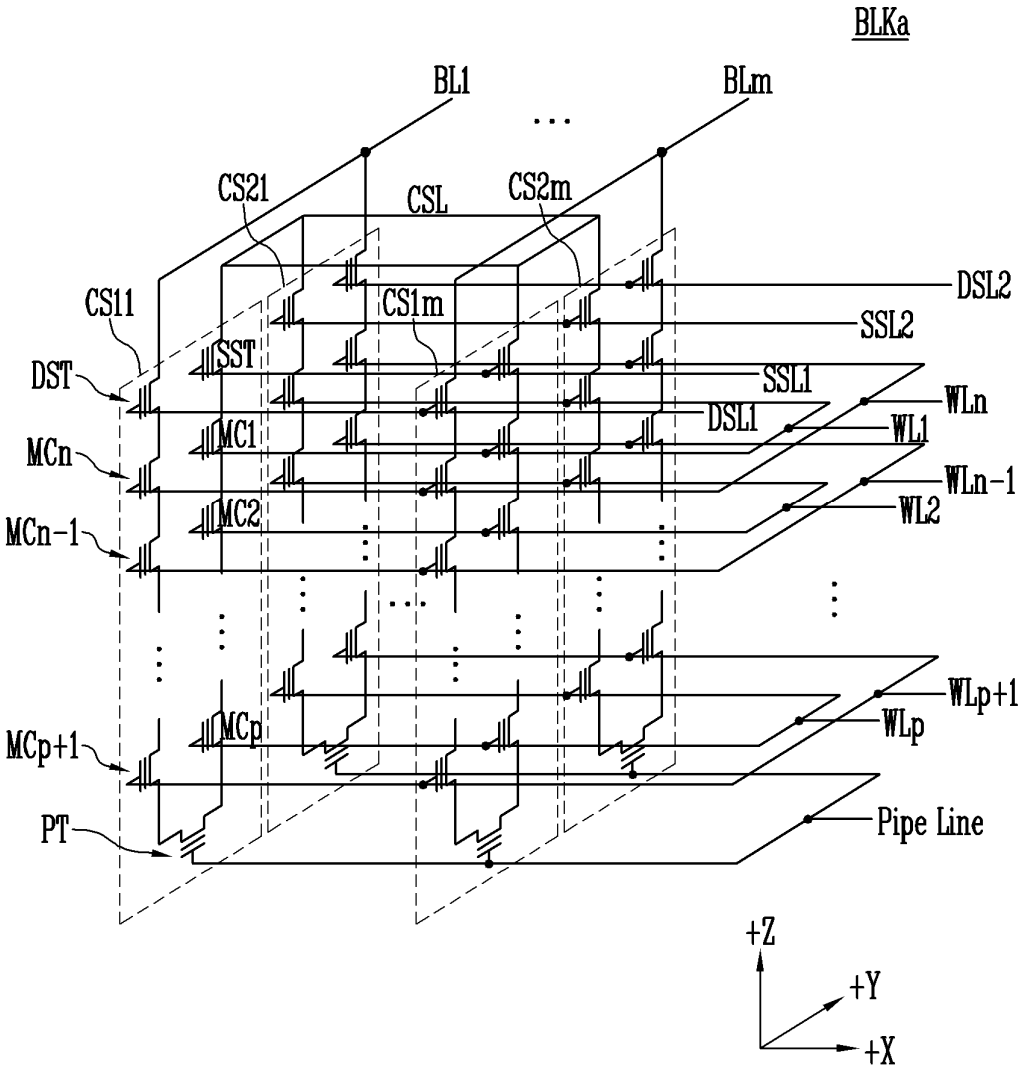

BLKa
BL1
BLm
CS21
CSL
CS2m
CS11
CS1m
DSL2
SSL2
SST
SSL1
DST
WLn
DSL1
WL1
MCn
MC1
WLn-1
MC2
WL2
MCn-1
WLp+1
MCp
WLp
MCp+1
PT
Pipe Line
+Z
+Y
+X

FIG. 6

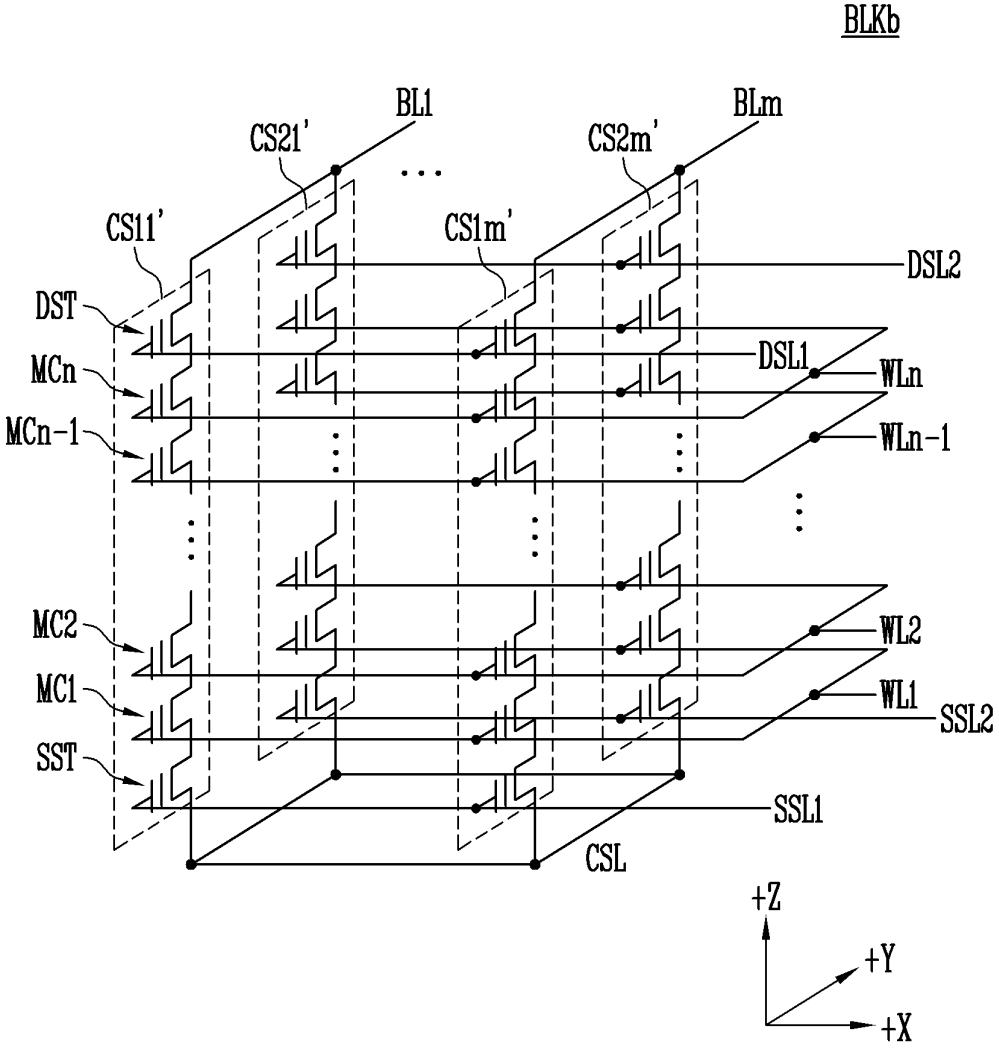

BLKb
BL1
BLm
CS21'
CS2m'
CS11'
CS1m'
DSL2
DST
DSL1
MCn
WLn
MCn-1
WLn-1
MC2
WL2
MC1
WL1
SSL2
SST
SSL1
CSL
+Z
+Y
+X

FIG. 7

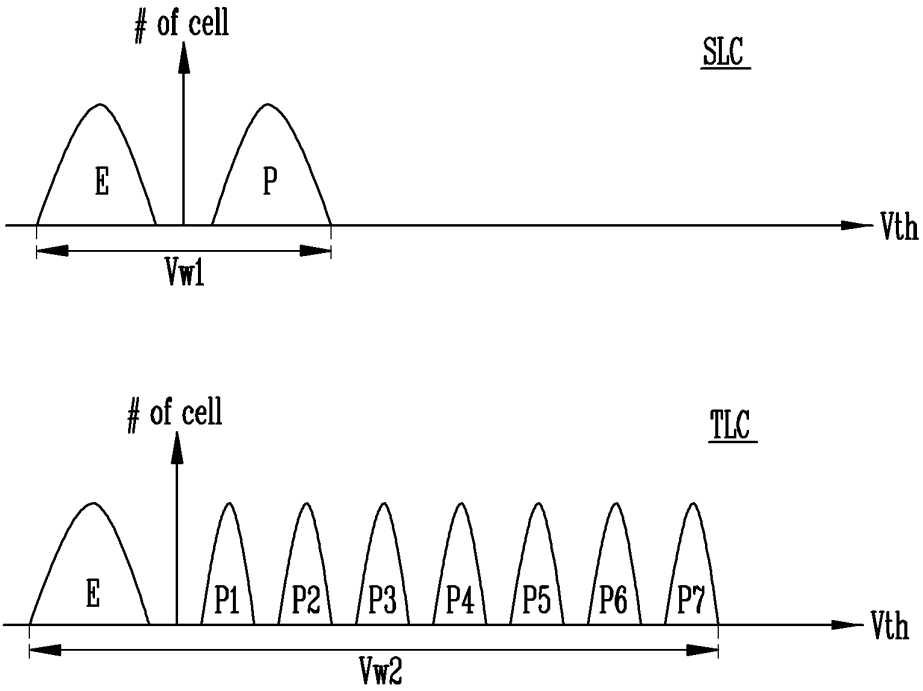


FIG. 8

131a

# of Data Bit	Operation Mode	Pump Clock
1	OM1	CLK1
2	OM2	CLK2
⋮	⋮	⋮
n	OMn	CLKn

131b

Power Consumption Level	Operation Mode	Pump Clock
1	OM1	CLK1
2	OM2	CLK2
⋮	⋮	⋮
n	OMn	CLKn

FIG. 9

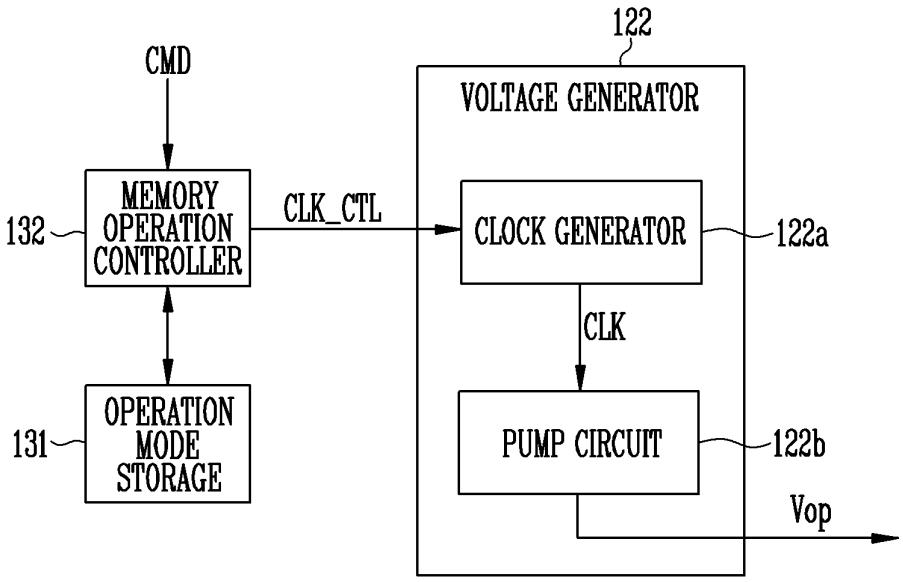

122
CMD
VOLTAGE GENERATOR
MEMORY OPERATION CONTROLLER
132
CLK_CTL
CLOCK GENERATOR
122a
CLK
OPERATION MODE STORAGE
131
PUMP CIRCUIT
122b
Vop

FIG. 10

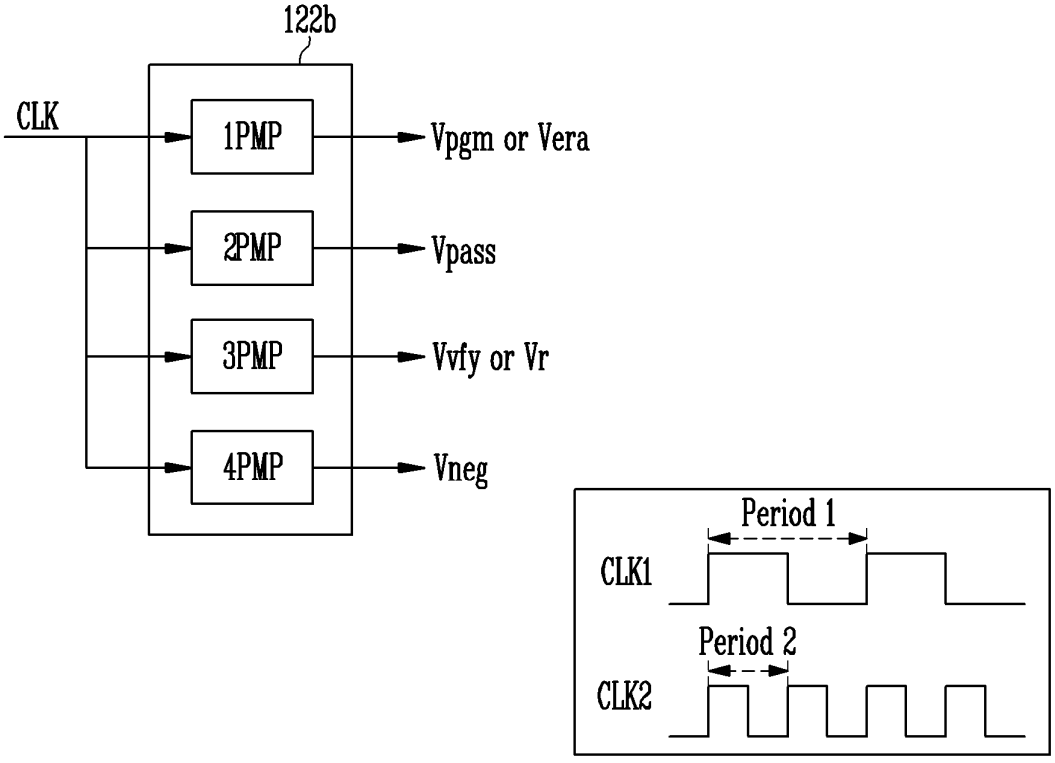

122b
CLK
1PMP
Vpgm or Vera
2PMP
Vpass
3PMP
Vvfy or Vr
4PMP
Vneg
Period 1
CLK1
Period 2
CLK2

FIG. 11

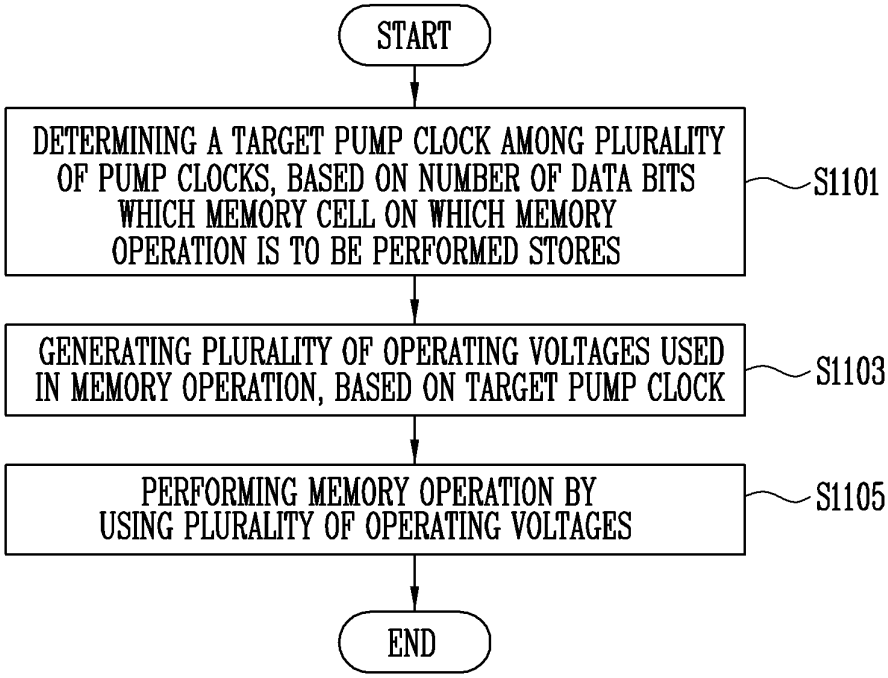
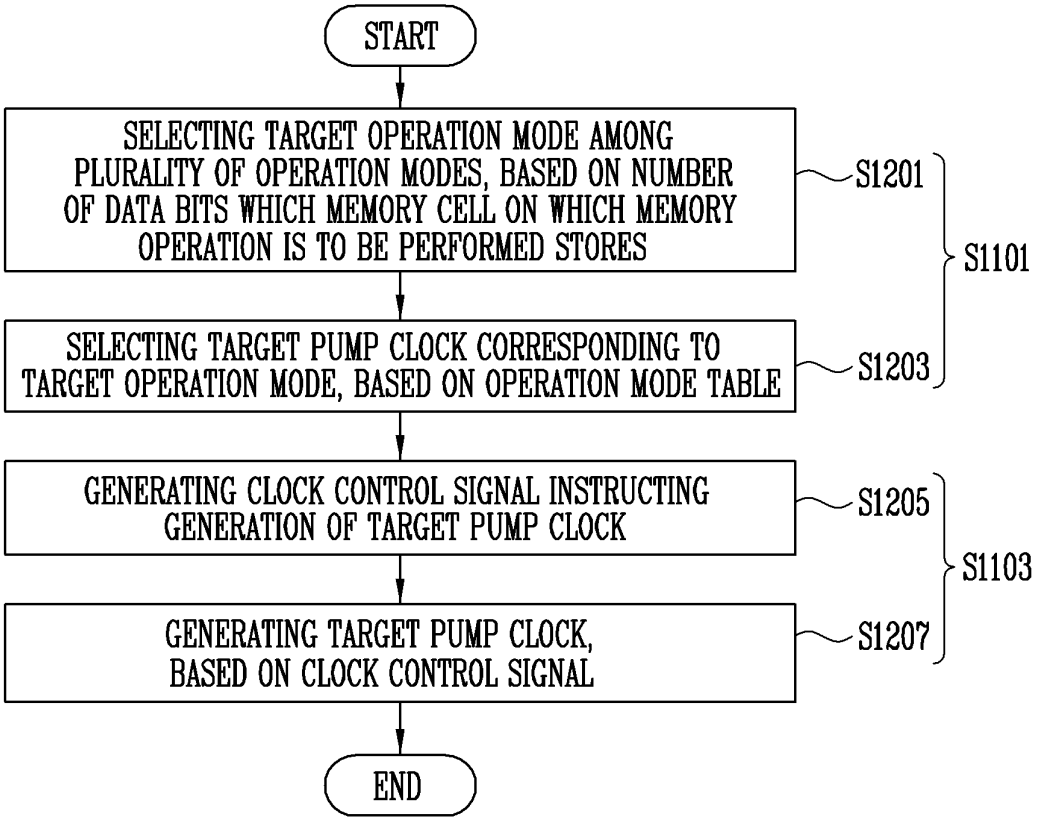

START
DETERMINING A TARGET PUMP CLOCK AMONG PLURALITY OF PUMP CLOCKS, BASED ON NUMBER OF DATA BITS WHICH MEMORY CELL ON WHICH MEMORY OPERATION IS TO BE PERFORMED STORES
S1101
GENERATING PLURALITY OF OPERATING VOLTAGES USED IN MEMORY OPERATION, BASED ON TARGET PUMP CLOCK
S1103
PERFORMING MEMORY OPERATION BY USING PLURALITY OF OPERATING VOLTAGES
S1105
END

FIG. 12


START
SELECTING TARGET OPERATION MODE AMONG PLURALITY OF OPERATION MODES, BASED ON NUMBER OF DATA BITS WHICH MEMORY CELL ON WHICH MEMORY OPERATION IS TO BE PERFORMED STORES
S1201
SELECTING TARGET PUMP CLOCK CORRESPONDING TO TARGET OPERATION MODE, BASED ON OPERATION MODE TABLE
S1203
S1101
GENERATING CLOCK CONTROL SIGNAL INSTRUCTING GENERATION OF TARGET PUMP CLOCK
S1205
GENERATING TARGET PUMP CLOCK, BASED ON CLOCK CONTROL SIGNAL
S1207
S1103
END