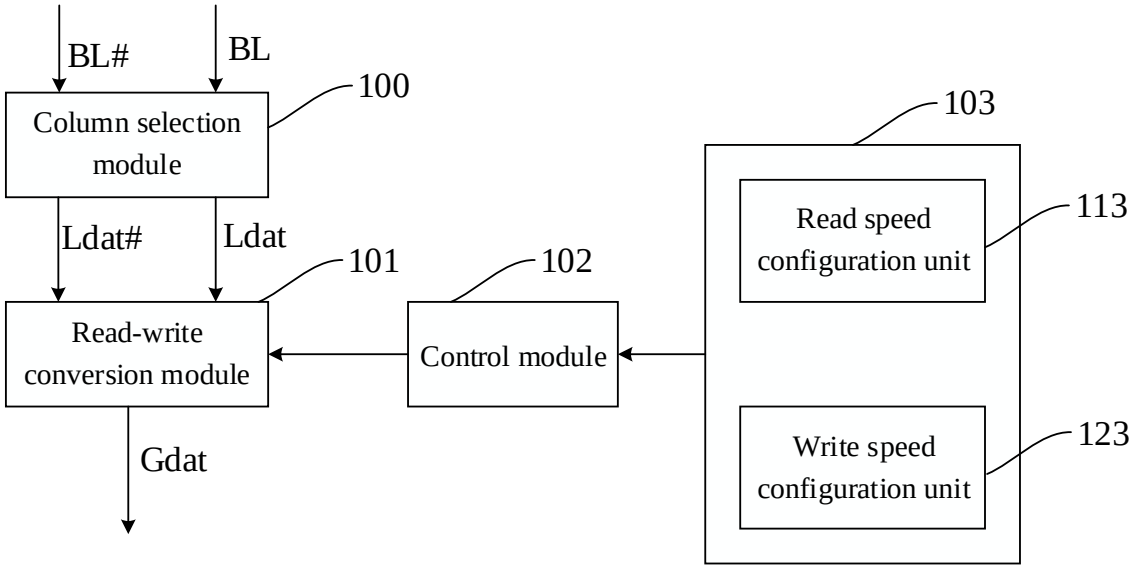

BL#
BL
100
Column selection module
Ldat#
Ldat
101
Read-write conversion module
Gdat
102
Control module
103
Read speed configuration unit
113
Write speed configuration unit
123

FIG. 1

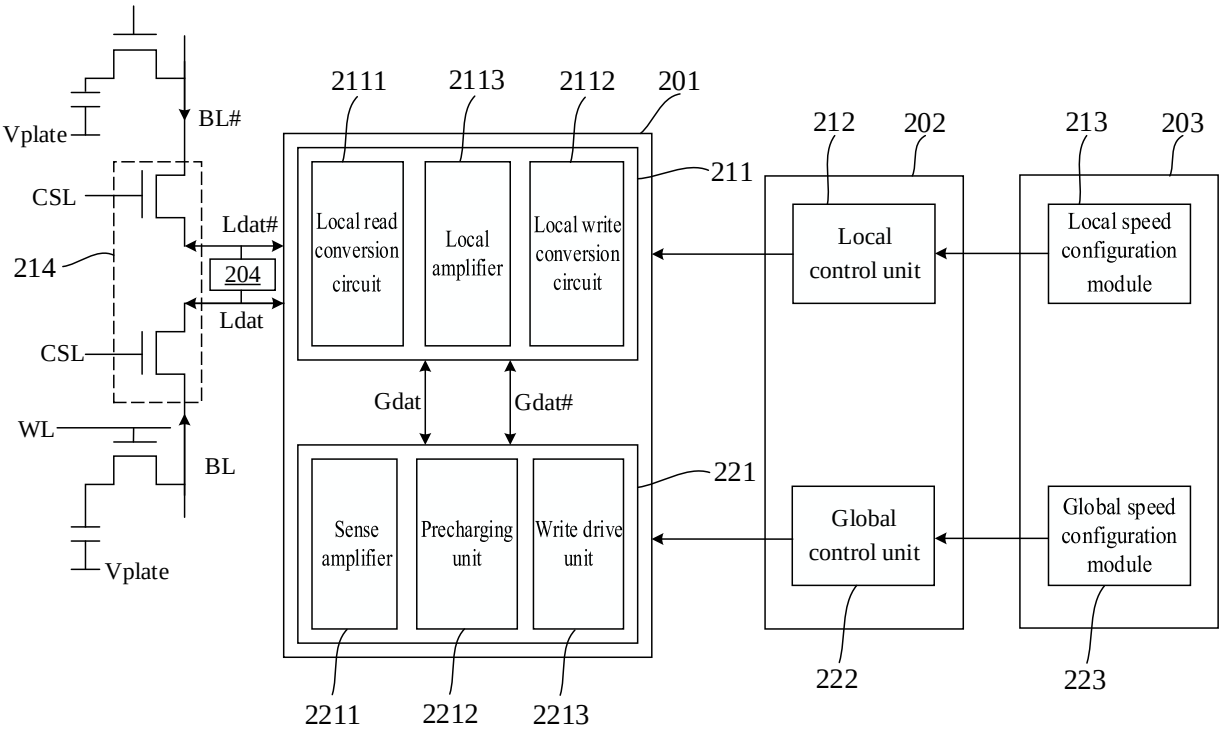

Vplate
BL#
CSL
214
Ldat#
204
Ldat
CSL
WL
BL
Vplate
2111
2113
2112
201
211
Local read conversion circuit
Local amplifier
Local write conversion circuit
Gdat
Gdat#
221
Sense amplifier
Precharging unit
Write drive unit
2211
2212
2213
212
202
Local control unit
Global control unit
222
213
203
Local speed configuration module
Global speed configuration module
223

FIG. 2

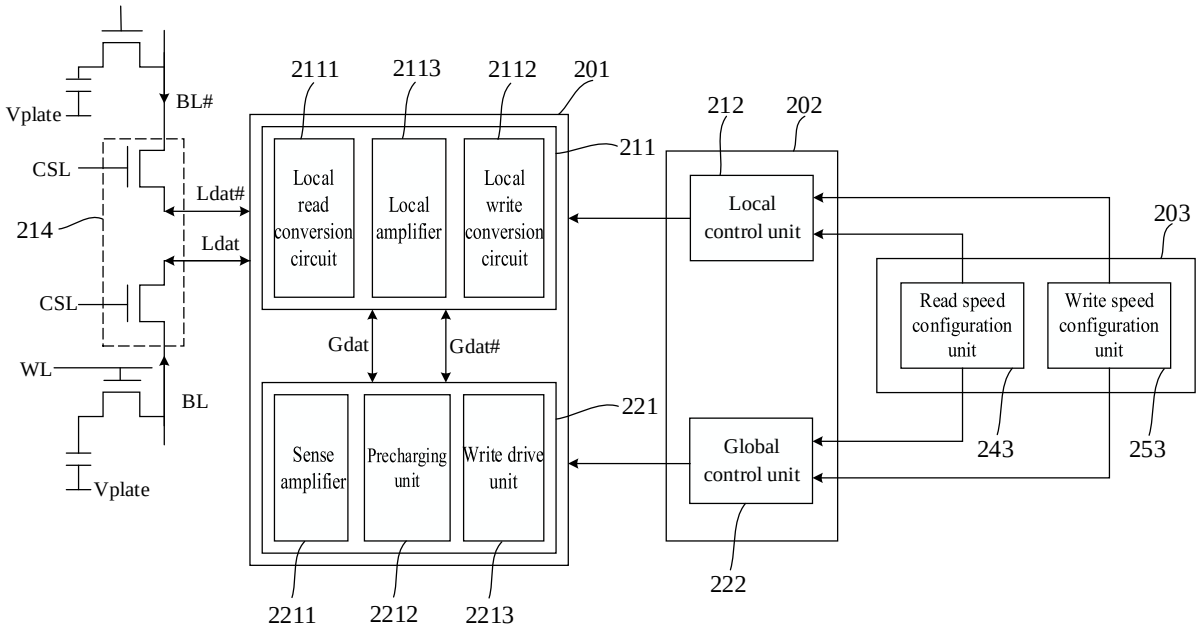

Vplate
BL#
CSL
Ldat#
214
Ldat
CSL
WL
BL
Vplate
2111
2113
2112
201
Local read conversion circuit
Local amplifier
Local write conversion circuit
Gdat
Gdat#
Sense amplifier
Precharging unit
Write drive unit
2211
2212
2213
211
221
212
202
Local control unit
Global control unit
222
203
Read speed configuration unit
Write speed configuration unit
243
253

FIG. 3

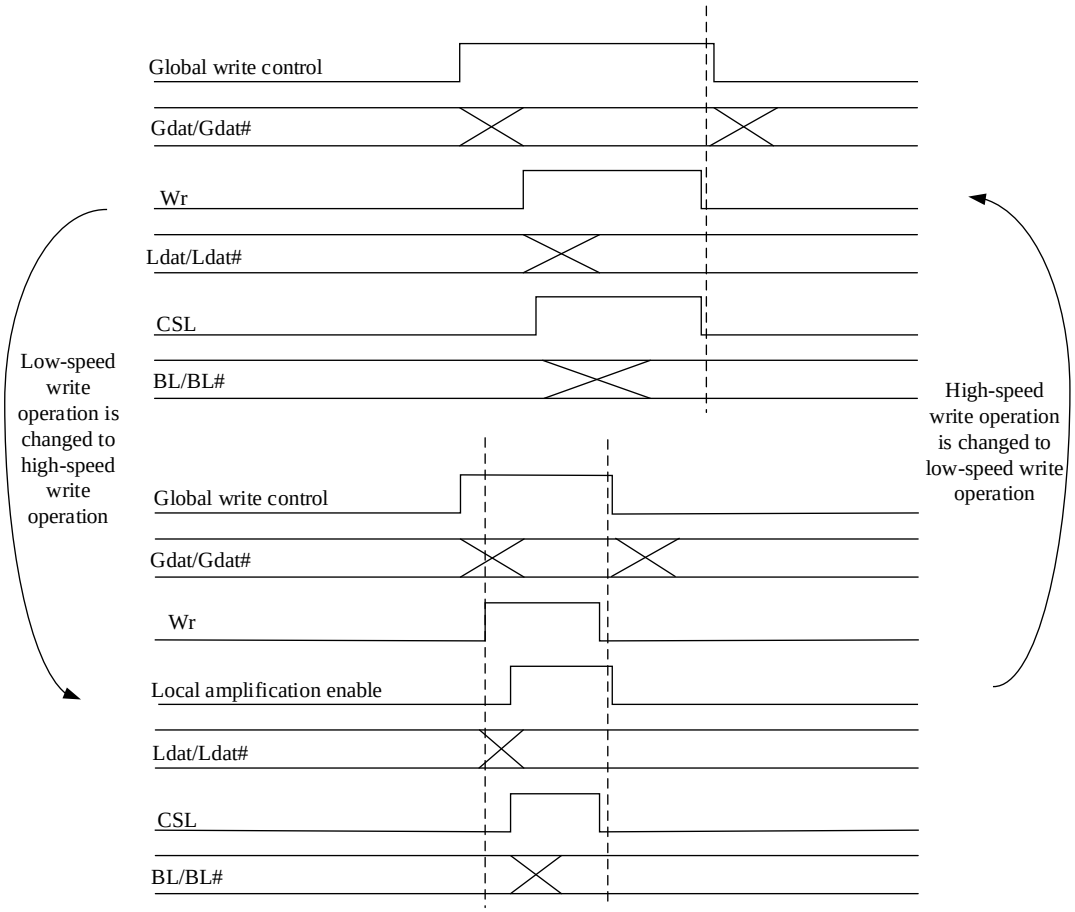

Global write control
Gdat/Gdat#
Wr
Ldat/Ldat#
CSL
BL/BL#
Low-speed write operation is changed to high-speed write operation
High-speed write operation is changed to low-speed write operation
Global write control
Gdat/Gdat#
Wr
Local amplification enable
Ldat/Ldat#
CSL
BL/BL#

FIG. 4

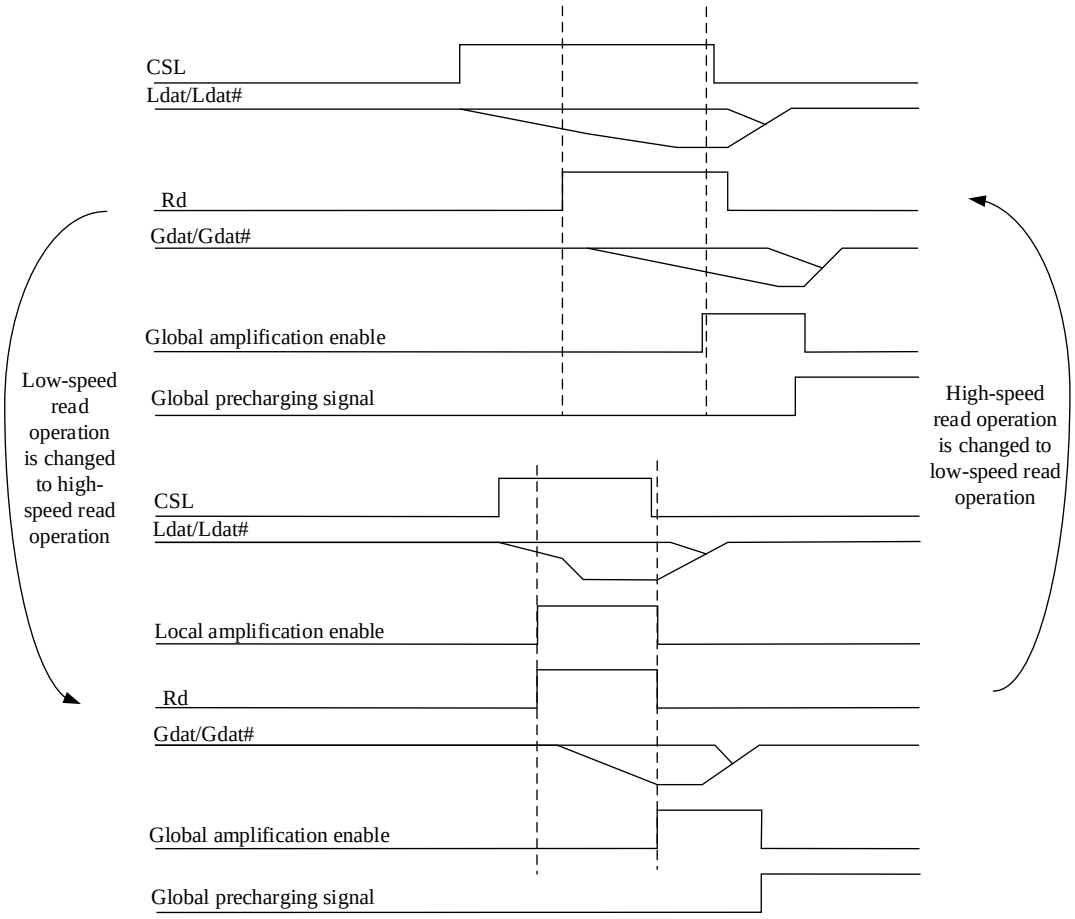

CSL
Ldat/Ldat#
Rd
Gdat/Gdat#
Global amplification enable
Global precharging signal
Low-speed read operation is changed to high-speed read operation
High-speed read operation is changed to low-speed read operation
CSL
Ldat/Ldat#
Local amplification enable
Rd
Gdat/Gdat#
Global amplification enable
Global precharging signal

FIG. 5

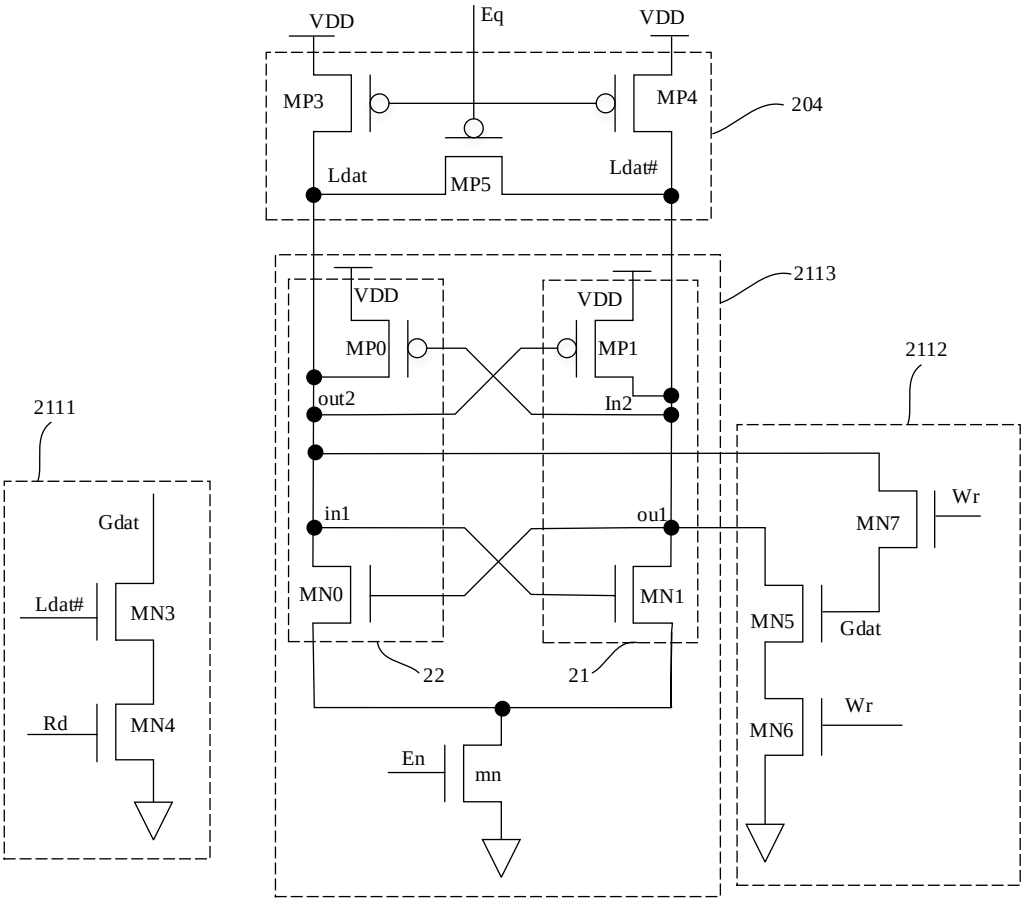

VDD
Eq
VDD
MP3
MP4
204
Ldat
MP5
Ldat#
2113
VDD
VDD
MP0
MP1
2112
2111
out2
In2
Gdat
in1
ou1
Wr
MN7
Ldat#
MN3
MN0
MN1
MN5
Gdat
22
21
Rd
MN4
Wr
MN6
En
mn

FIG. 6

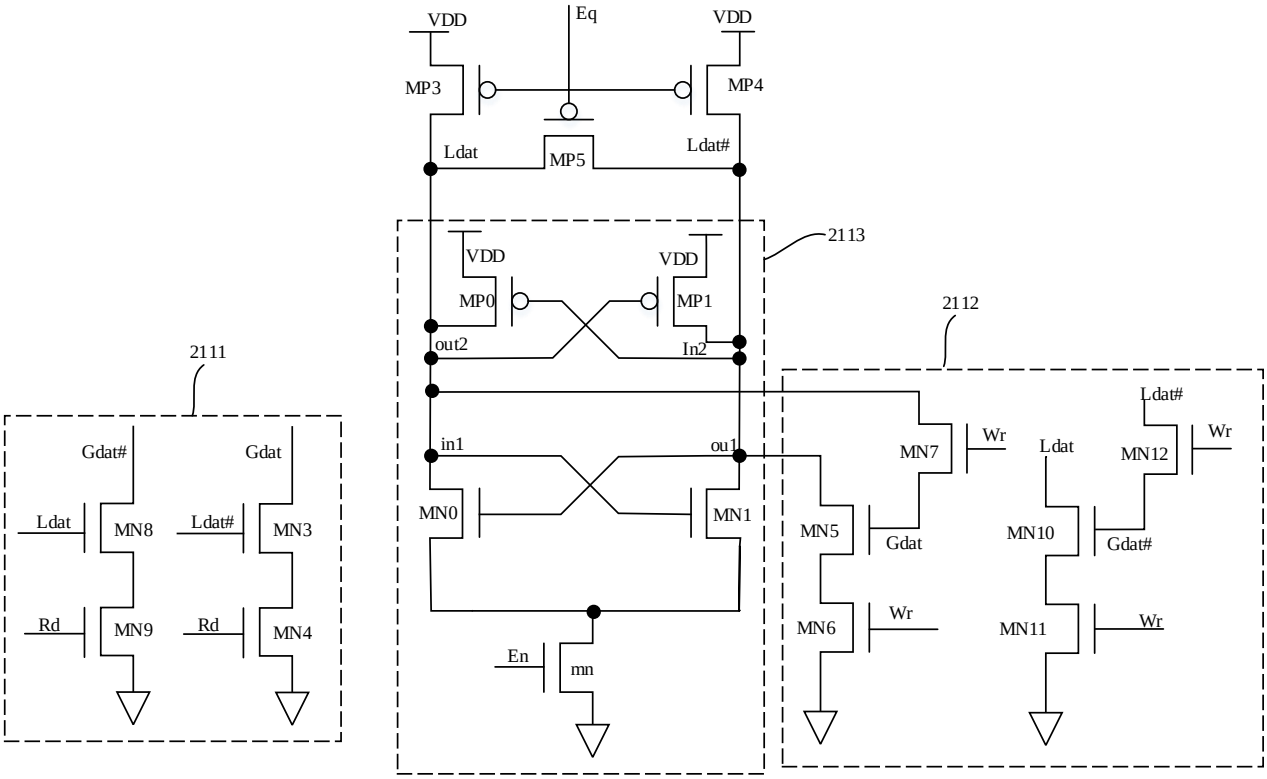

VDD
Eq
VDD
MP3
MP4
Ldat
MP5
Ldat#
2113
VDD
VDD
MP0
MP1
2112
out2
In2
2111
Ldat#
Gdat#
Gdat
in1
ou1
Wr
MN7
Ldat
MN12
Wr
Ldat
MN8
Ldat#
MN3
MN0
MN1
MN5
Gdat
MN10
Gdat#
Rd
MN9
Rd
MN4
Wr
MN6
Wr
MN11
En
mn

FIG. 7