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(12) **United States Patent**
Hardee

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(45) **Date of Patent:** **Feb. 27, 2001**

(54) **DUAL SLOPE SENSE CLOCK GENERATOR**
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5,614,856 3/1997 Wilson et al. .
5,638,333 * 6/1997 Lee 365/205
5,666,074 9/1997 Chun .
5,822,262 10/1998 Hasimoto et al. .

FOREIGN PATENT DOCUMENTS

WO 98/25272 6/1998 (WO) .

OTHER PUBLICATIONS

Changhyun, Kim, "Basic Dram Operation", Feb. 1998, Samsung Electronics.

* cited by examiner

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/492,726**
(22) Filed: **Jan. 27, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/118,737, filed on Feb. 5, 1999.
(51) **Int. Cl.**⁷ **G11C 7/00**
(52) **U.S. Cl.** **365/205**; 365/149; 365/194; 327/51
(58) **Field of Search** 365/205, 207, 365/149, 194; 327/51, 57

(57) **ABSTRACT**

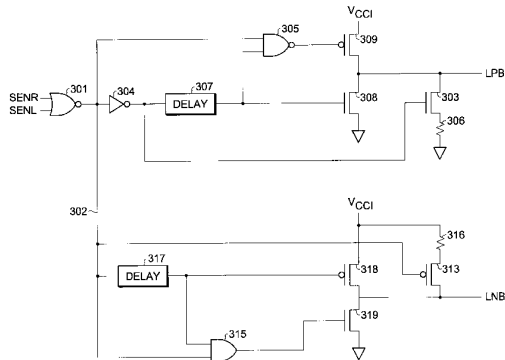
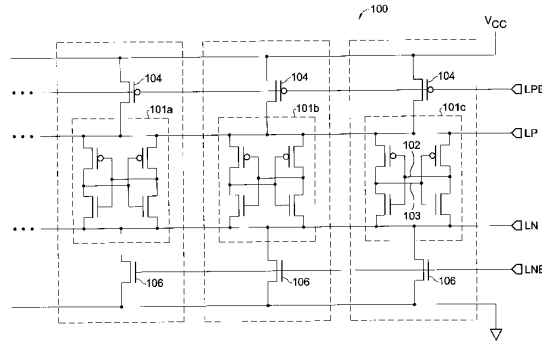
A memory device including a plurality of sense amplifiers distributed about an integrated circuit chip, where each sense amplifier has a power node for receiving current. A conductor couples the power nodes of a number of sense amplifiers together. A low-impedance power supply conductor extends to each sense amplifier and a local drive transistor is provided for each sense amplifier. A timer unit generates an output signal controlling the local drive transistors. A first component within the timer unit causes the output to change from a first logic level towards a second logic level at a first rate while a second component within the timer unit causes the output to change at a second rate, wherein the second rate is greater than the first rate.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,140,199 8/1992 Seo .
5,280,450 1/1994 Nakagome et al. .
5,334,890 8/1994 Hardee .
5,574,681 11/1996 Foss et al. .
5,591,695 * 1/1997 Yim et al. 365/201
5,598,122 1/1997 McClure .

18 Claims, 4 Drawing Sheets



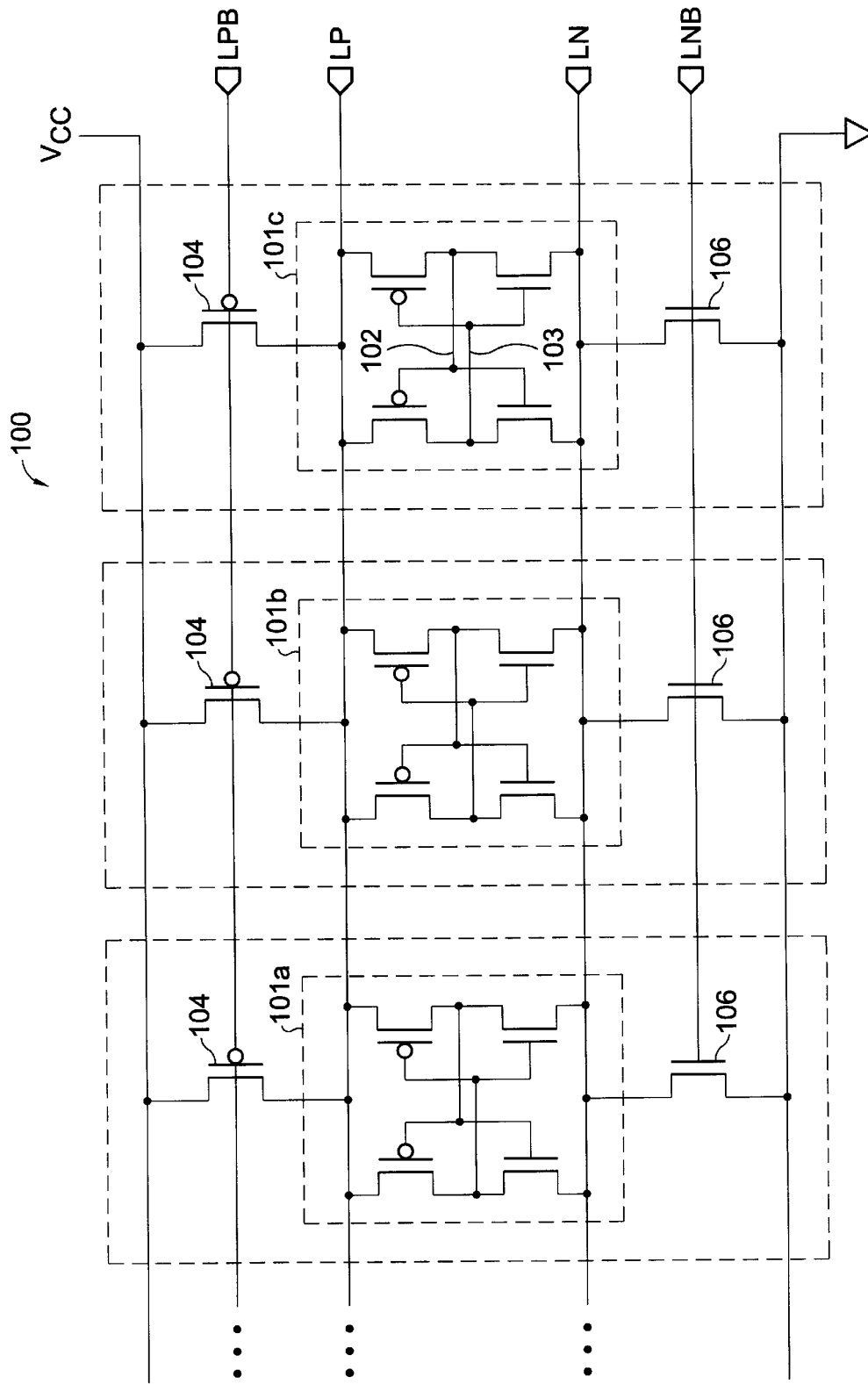


FIG. 1

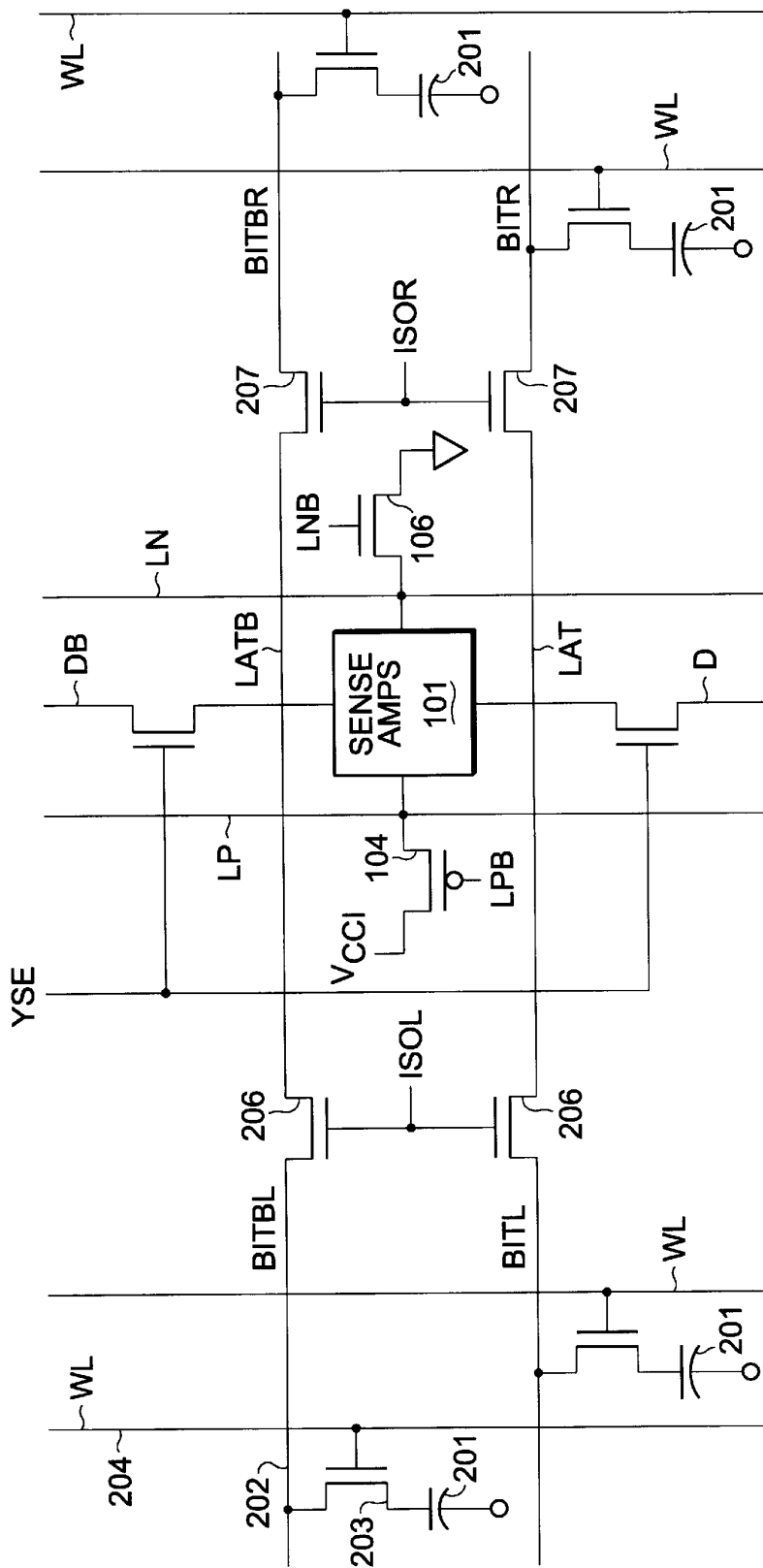


FIG. 2

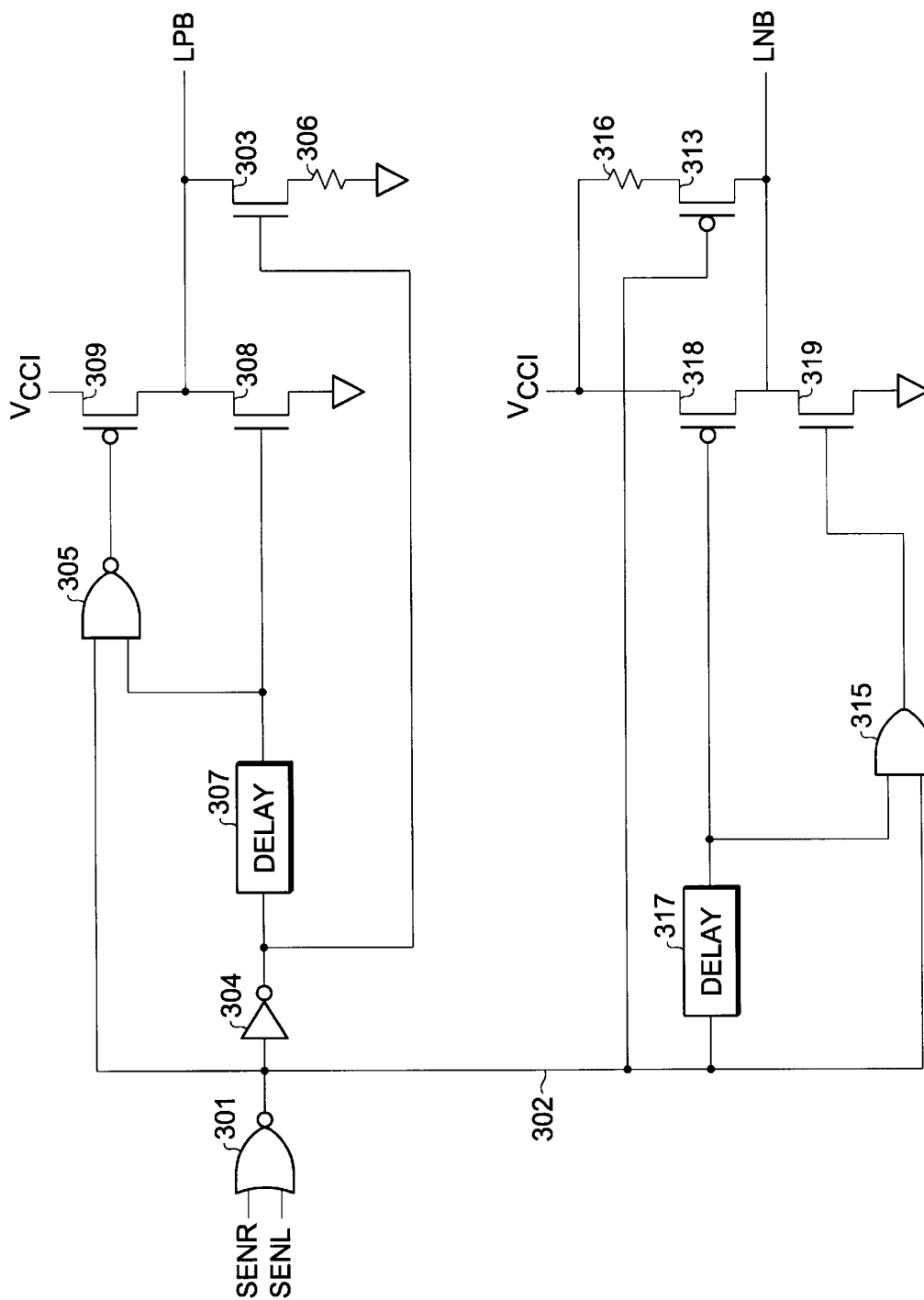


FIG. 3

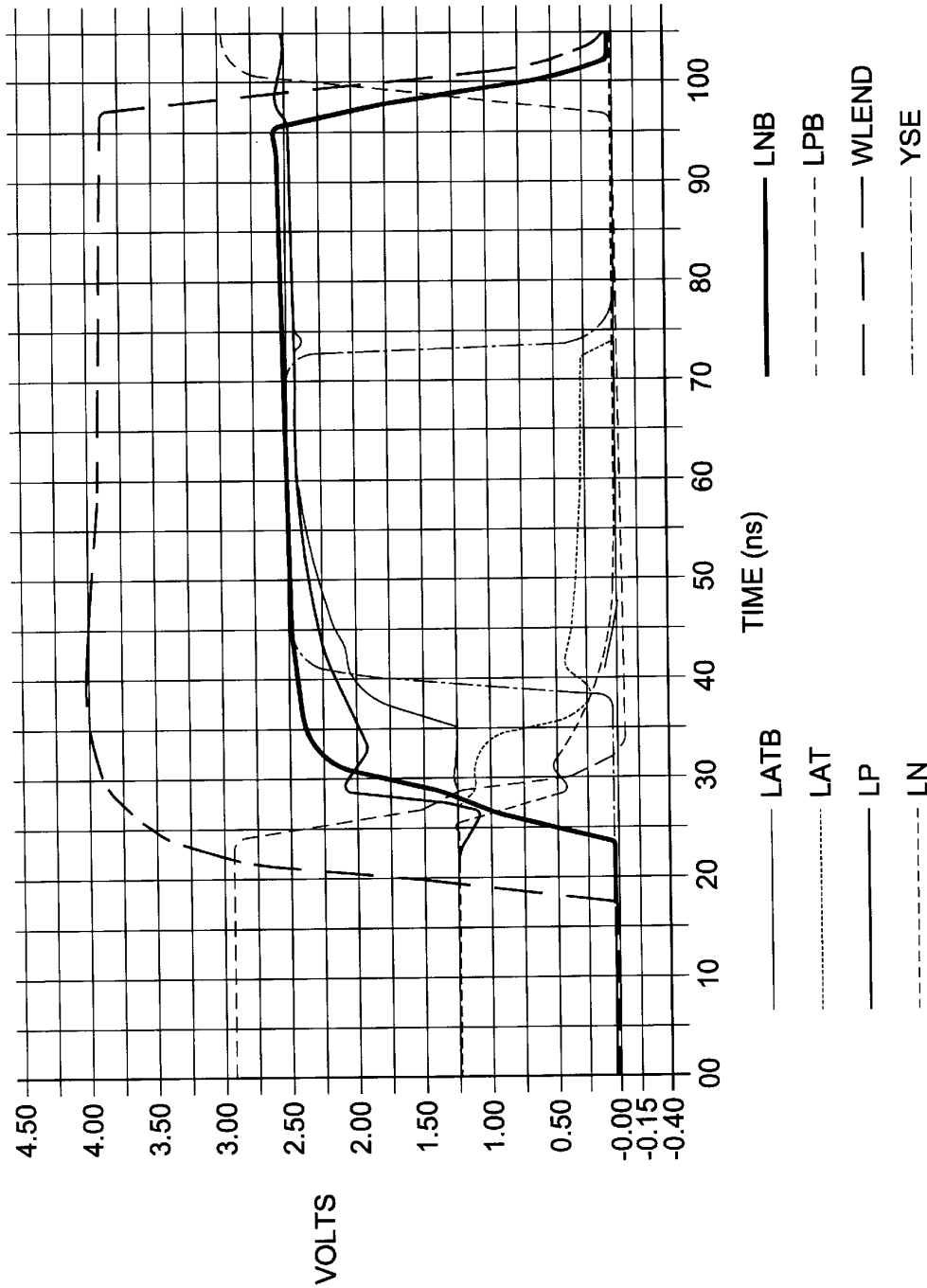


FIG. 4

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