

US006195302B1

(12) United States Patent Hardee

(54) DUAL SLOPE SENSE CLOCK GENERATOR

- (75) Inventor: Kim C. Hardee, Colorado Springs, CO (US)
- (73) Assignce: United Memories, Inc., Colorado Springs, CO (US)
- (*) 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

(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 .

(10) Patent No.: US 6,195,302 B1 (45) Date of Patent: Feb. 27, 2001

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

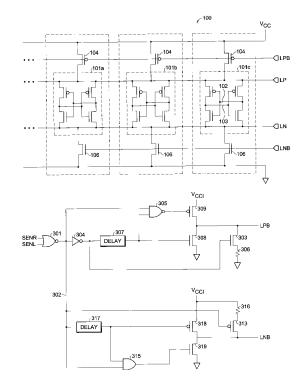
Primary Examiner-Huan Hoang

(74) *Attorney, Agent, or Firm*—Stuart T. Langley; William J. Kubida; Hogan & Hartson LLP

(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.

18 Claims, 4 Drawing Sheets

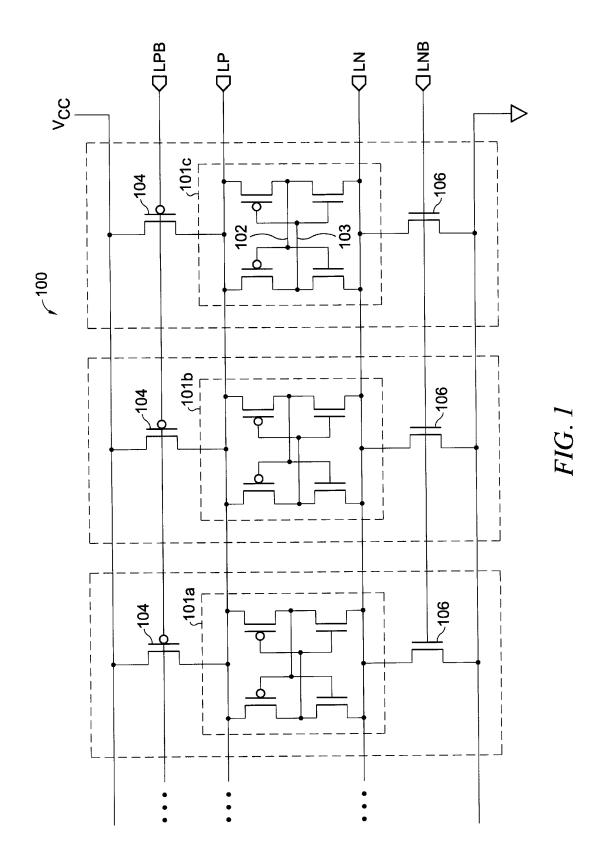


DCKET LARM Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

D

Α

ļ



OCKET R Α Μ Find authenticated court documents without watermarks at docketalarm.com.

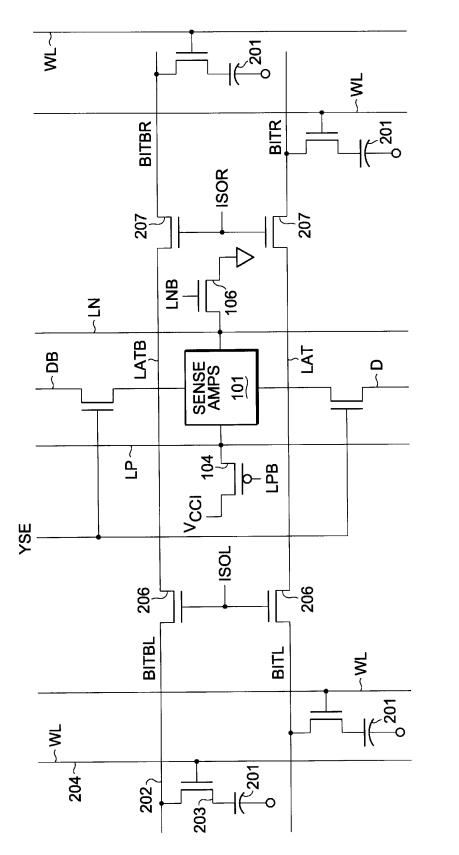
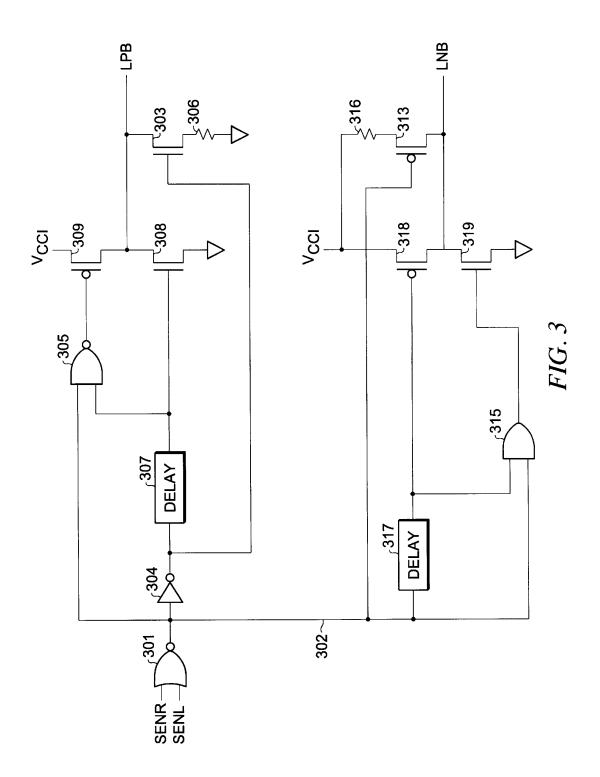
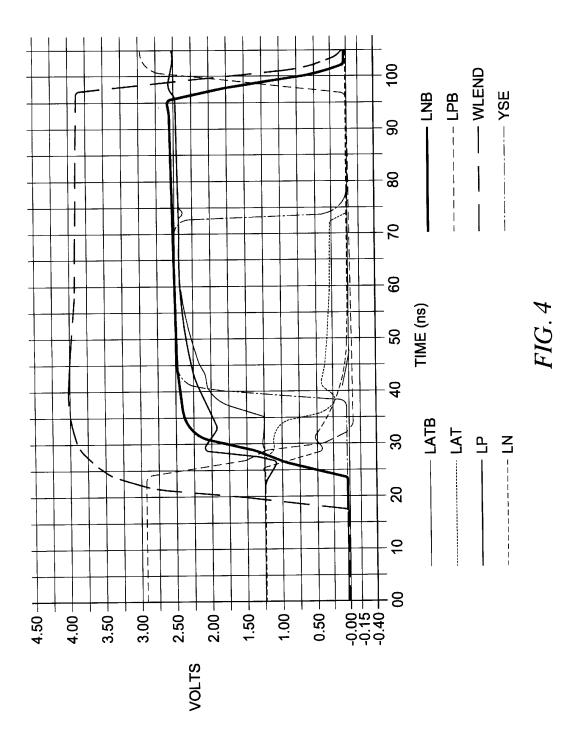


FIG. 2

DOCKET A L A R M Find authenticated court documents without watermarks at <u>docketalarm.com</u>.





DOCKET LARM Α Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

DOCKET A L A R M



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.