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(54) Title: A METHOD CIRCUIT AND SYSTEM FOR DETERMINING A REFERENCE VOLTAGE

(57) Abstract: The present invention is a method, circuit and system for determining a reference voltage. Some embodiments of the present invention relate to a system, method and circuit for establishing a set of operating reference cells to be used in operating (e.g. reading) cells in an NVM block or array. As part of the present invention, at least a subset of cells of the NVM block or array may be read using each of two or more sets of test reference cells, where each set of test reference cells may generate or otherwise provide reference voltages at least slightly offset from each other set of test reference cells. For each set of test reference cells used to read the at least a subset of the NVM block, a read error rate may be calculated or otherwise determined. A set of test reference cells associated with a relatively low read error rate may be selected as the set of operating reference cells to be used in operating (e.g. reading) other cells, outside the subset of cells, in the NVM block or array. In a further embodiment, the selected set of test reference cells may be used to establish an operating set of reference cells having reference voltages substantially equal to those of the selected test set.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G11C 29/00, 7/00, 7/02, 16/04, 16/06
 US CL : 365/201, 210, 185.03, 185.2

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 USPAT; US-PGPUB; USOCR; JPO; DERWENT; IBM-TDB: reference, level, voltage, read, error, COHEN, GUY.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,639,837 B2 (TAKANO et al.) 28 October 2003	1-35
A	US 6,044,019 A (CERNEA et al.) 28 March 2000	1-35
A	US 5,828,601 A (HOLLMER et al.) 27 October 1998	1-35
A	US 5,805,500 A (CAMPARDO et al.) 08 September 1998	1-35
A	US 5,657,332 A (AUCLAIR et al.) 12 August 1997	1-35

Further documents are listed in the continuation of Box C.

See patent family annex.

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