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[Continued on next page]

(54) Title: THIN DIELECTRIC FORMATION BY STEAM OXIDATION

Present Invention

Wafer loaded into
chamber



Wafer ramped to
temperature in steam
and SiO₂ layer grown
in steam



Wafer cooled and
removed from reactor

(57) Abstract: The present invention relates to the steam oxidation of silicon wafers to form thin gate and capacitor dielectrics with improved electrical properties. In the present invention, improved oxide properties are obtained in a single wafer Rapid Thermal Process ("RTP") by beginning steam oxidation without stabilizing the silicon wafer in dry oxygen.

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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/22059

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 21/302, 21/461, 21/31

US CL : 438 /770, 771, 773

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)

U.S. : 438 /770, 771, 773

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,037,273 A (GRONET et al) 14 March 2000 (14.03.2000), abstract last two lines; column 5 line 60 - column 6 line 5; column 7, line 2.	1-10

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

PCT/US03/22059

Continuation of B. **FIELDS SEARCHED** Item 3:

EAST; WEST

search terms: interfacial near oxide near layer