Title: CHEMICAL VAPOR DEPOSITION OF HIGH QUALITY FLOW-LIKE SILICON DIOXIDE USING A SILICON CONTAINING PRECURSOR AND ATOMIC OXYGEN

Abstract: Methods of depositing a silicon oxide layer on a substrate are described. The methods may include the steps of providing a substrate to a deposition chamber, generating an atomic oxygen precursor outside the deposition chamber, and introducing the atomic oxygen precursor into the chamber. The methods may also include introducing a silicon precursor to the deposition chamber, where the silicon precursor and the atomic oxygen precursor are first mixed in the chamber. The silicon precursor and the atomic oxygen precursor react to form the silicon oxide layer on the substrate, and the deposited silicon oxide layer may be annealed. Systems to deposit a silicon oxide layer on a substrate are also described.

Published:

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/69999

A CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C23C 16/40 (2007.10)
USPC - 257/E21.279, E21.547; 427/255.37

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)
USPC - 257/E21 279, E21 547; 427/255 37

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 257/E21 273, E21.274, E21 279, E21 547, 427/255.37, 255.28, 255 29, 579, 588; 438/789, 790 and all relevant classifications (text search, see terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PUBWEST(USPT, PGPB, EPAB, JPAB); DialogPRO(Eng neering); Google Scholar
Search Terms: semiconductor, silicon oxide layer, argon plasma, silane, oxygen, atomic oxygen, ozone

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2001/0054387 A1 (Frankel et al.) 27 December 2001 (27.12.2001), entire document especially Abstract and para [0008], [0077], [0200] and [0222], [0075], [0200], [0204], [0222], [0011], [0177], [0155], [0246] and [0255]</td>
<td>1-13 and 16-31</td>
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<td>14 and 15</td>
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Further documents are listed in the continuation of Box C.

* 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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Y document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search
15 November 2007 (15.11.2007)

Date of mailing of the international search report
06 DEC 2007

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