US007067434B2

(12) **United States Patent**
Colombo et al.

(10) **Patent No.: US 7,067,434 B2**
(45) **Date of Patent: Jun. 27, 2006**

(54) **HYDROGEN FREE INTEGRATION OF HIGH-K GATE DIELECTRICS**

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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 201 days.

(21) Appl. No.: **10/745,449**

(22) Filed: **Dec. 22, 2003**

(65) **Prior Publication Data**

US 2005/0136679 A1 Jun. 23, 2005

(51) **Int. Cl.**
H01L 21/302 (2006.01)

(52) **U.S. Cl.** **438/714**; 438/723; 438/724; 438/788; 438/792; 438/910; 438/954

(58) **Field of Classification Search** 438/696, 438/723, 724, 714, 756, 757, 751, 787, 788, 438/791, 792, 910, 954
See application file for complete search history.

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(57) **ABSTRACT**

The present invention pertains to forming a transistor in the absence of hydrogen, or in the presence of a significantly reduced amount of hydrogen. In this manner, a high-k material can be utilized to form a gate dielectric layer in the transistor and facilitate device scaling while mitigating defects that can be introduced into the high-k material by the presence of hydrogen and/or hydrogen containing compounds.

24 Claims, 9 Drawing Sheets