



US007037730B2

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

(10) **Patent No.:** **US 7,037,730 B2**  
(45) **Date of Patent:** **May 2, 2006**

(54) **CAPACITOR WITH HIGH DIELECTRIC CONSTANT MATERIALS AND METHOD OF MAKING**

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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 882 days.

(21) Appl. No.: **09/904,112**

(22) Filed: **Jul. 11, 2001**

(65) **Prior Publication Data**

US 2003/0011961 A1 Jan. 16, 2003

(51) **Int. Cl.**  
**H01L 21/8242** (2006.01)

(52) **U.S. Cl.** ..... **438/3; 438/253; 438/240; 438/396**

(58) **Field of Classification Search** ..... **438/3, 438/239-242, 250-256, 393-399**  
See application file for complete search history.

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(57) **ABSTRACT**

Stabilized capacitors and DRAM cells using high dielectric constant oxide dielectric materials such as Ta<sub>2</sub>O<sub>5</sub> and Ba<sub>x</sub>Sr<sub>(1-x)</sub>TiO<sub>3</sub>, and methods of making such capacitors and DRAM cells are provided. A preferred method includes providing a conductive oxide electrode, depositing a first layer of a high dielectric constant oxide dielectric material on the conductive oxide electrode, oxidizing the conductive oxide electrode and the first layer of the high dielectric constant oxide dielectric material under oxidizing conditions, depositing a second layer of the high dielectric constant oxide dielectric material on the first layer of the dielectric, and depositing an upper layer electrode on the second layer of the high dielectric constant oxide dielectric material.

**23 Claims, 2 Drawing Sheets**

