



US006979623B2

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

(10) **Patent No.:** **US 6,979,623 B2**
(45) **Date of Patent:** **Dec. 27, 2005**

(54) **METHOD FOR FABRICATING SPLIT GATE TRANSISTOR DEVICE HAVING HIGH-K 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 0 days.

(21) Appl. No.: **10/738,957**

(22) Filed: **Dec. 17, 2003**

(65) **Prior Publication Data**

US 2005/0136632 A1 Jun. 23, 2005

(51) **Int. Cl.**⁷ **H01L 21/336**

(52) **U.S. Cl.** **438/287; 438/275; 438/785**

(58) **Field of Search** 438/275, 287, 438/766, 770, 785, 981, 308, 799

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(57) **ABSTRACT**

Methods and systems are disclosed that facilitate semiconductor fabrication by fabricating transistor devices having gate dielectrics with selectable thicknesses in different regions of semiconductor devices. The thicknesses correspond to operating voltages of the corresponding transistor devices. Furthermore, the present invention also provides systems and methods that can fabricate the gate dielectrics with high-k dielectric material, which allows a thicker gate dielectric than conventional silicon dioxide.

17 Claims, 11 Drawing Sheets

