

1. Record Nr.	UNINA9910458440603321
Titolo	Oxide reliability [[electronic resource]] : a summary of silicon oxide wearout, breakdown, and reliability / / editor, D.J. Dumin
Pubbl/distr/stampa	[River Edge, NJ], : World Scientific, c2002
ISBN	981-277-806-3
Descrizione fisica	1 online resource (281 p.)
Collana	Selected topics in electronics and systems ; ; v. 23
Altri autori (Persone)	DuminD. J
Disciplina	621.39/732
Soggetti	Metal oxide semiconductors - Reliability Silicon oxide - Deterioration Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	CONTENTS ; Foreword ; Oxide Wearout, Breakdown, and Reliability; 1. Introduction ; 2. Oxide Breakdown ; 3. Oxide Leakage Currents ; 4. Oxide Trap Generation ; 5. Statistics of Wearout and Breakdown ; 6. Reliability ; 7. Summary ; Reliability of Flash Nonvolatile Memories ; 1. Introduction 2. Implications to Scaling and Reliability 3. Dielectric Damage Caused by Program/Erase Cycling ; 4. Overerase Effects ; 5. Stress Induced Leakage Current and Post-Cycling Data Retention ; 6 Other Failure Mechanisms ; 7. Conclusions ; Physics and Chemistry of Intrinsic Time-Dependent Dielectric Breakdown in SiO ₂ Dielectrics 1. Introduction 2. Time-Dependent Dielectric Breakdown ; 3. Chemistry and Physics of Amorphous SiO ₂ ; 4. Molecular Models for Dielectric Degradation ; 5. Electron and Hole Injection into SiO ₂ ; 6. Role of Hole Capture in TDDB ; 7. Complementary Model for TDDB 8. Conditions Under Which the E and 1/E Models are Valid 9. Extension of the Complementary Model to Hyper-Thin SiO ₂ ; 10. Summary ; Breakdown Modes and Breakdown Statistics of

Ultrathin SiO₂ Gate Oxides; 1. Introduction ; 2.
Breakdown related to the generation of oxide defects
; 3. Modeling the Breakdown Statistics
4. Breakdown modes: Soft breakdown and Hard Breakdown
5. Breakdown effectiveness, energy dissipation and device failure; 6.
Conclusions ; MOSFET Gate Oxide Reliability: Anode Hole
Injection Model and Its Applications
; 1. Introduction ; 2. Development of the Anode Hole
Injection Model ; 3. Recent
Developments
4. Gross-Defect Related Breakdown and Burn-in Model

Sommario/riassunto

This book presents in summary the state of our knowledge of oxide reliability. The articles have been written by experts who are among the most knowledgeable in the field. The book will be an invaluable aid to reliability engineers and manufacturing engineers, helping them to produce and characterize reliable oxides. It can be used as an introduction for new engineers interested in oxide reliability, besides being a reference for engineers already engaged in the field.

Contents:

- Oxide Wearout, Breakdown, and Reliability (D J Dumin)
- Reliability of Flash Nonvol
