

1. Record Nr.	UNISA990002413320203316
Autore	PIANEZZOLA, Emilio
Titolo	Dieci secoli di letteratura latina : antologia di testi e traduzioni / Emilio Pianezzola, Lucio Cristante, Giovanni Ravenna
Pubbl/distr/stampa	Firenze : Le Monnier, 1995
ISBN	88-00-42003-6
Edizione	[Nuova ed. rinnovata e aumentata]
Descrizione fisica	IV, 997 p. ; 24 cm
Altri autori (Persone)	CRISTANTE, Lucio RAVENNA, Giovanni
Disciplina	870.8001
Soggetti	Letteratura latina - Antologie
Collocazione	V.3.C. 61(VIII C 1470)
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr.	UNINA9910841712403321
Autore	Bernstein Joseph B
Titolo	Reliability Prediction for Microelectronics
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2024 ©2024
ISBN	1-394-21096-5 1-394-21094-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (401 pages)
Collana	Quality and Reliability Engineering Series
Altri autori (Persone)	BensoussanAlain BenderEmmanuel
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title Page -- Copyright Page -- Dedication Page -- Contents -- Author Biography -- Series Foreword -- Preface -- Scope -- Introduction -- Chapter 1 Conventional Electronic System Reliability Prediction -- 1.1 Electronic Reliability Prediction Methods -- 1.2 Electronic Reliability in Manufacturing, Production, and Operations -- 1.2.1 Failure Foundation -- 1.2.2 Reliability Foundational Models (Markovian, Gamma, Lévy, Wiener Processes) -- 1.2.3 Correlation Versus Causation and Representativeness of Trackers -- 1.2.4 Functional Safety Standard ISO 26262 -- 1.2.5 Additional Considerations -- 1.3 Reliability Criteria -- 1.3.1 The Failure Rate Curve for Electronic Systems -- 1.3.2 Basic Lifetime Distribution Models -- 1.4 Reliability Testing -- 1.4.1 Reliability Test Methods -- 1.4.2 Accelerated Testing -- Chapter 2 The Fundamentals of Failure -- 2.1 The Random Walk -- 2.1.1 Approximate Solution -- 2.1.2 Constant Velocity -- 2.2 Diffusion -- 2.2.1 Particle Diffusion -- 2.3 Solutions for the Diffusion Equation -- 2.3.1 Normal Distribution -- 2.3.2 Error Function Solution -- 2.3.3 Finite Thickness -- 2.3.4 Thermal Diffusion -- 2.4 Drift -- 2.5 Statistical Mechanics -- 2.5.1 Energy -- 2.6 Chemical Potential -- 2.6.1 Thermodynamics -- 2.7 Thermal Activation Energy -- 2.7.1 Arrhenius Relation -- 2.7.2 Einstein Relation -- 2.7.3 Magnitude of Energy -- 2.8 Oxidation and Corrosion -- 2.8.1 Reaction

Rate -- 2.8.2 Limiting Time Scales -- 2.8.3 Material Properties -- 2.9
Vibration -- 2.9.1 Oscillations -- 2.9.2 Multiple Resonances -- 2.9.3
Random Vibration -- 2.10 Summary -- Chapter 3 Physics-of-Failure-based Circuit Reliability -- 3.1 Problematic Areas -- 3.1.1 Single-Failure Mechanism Versus Competing-Failure Mechanism -- 3.1.2 Acceleration Factor -- 3.1.3 An Alternative Acceleration Factor Calculation - Matrix Method.
3.1.4 Single-Failure Mechanism Assumption: Conventional Approach -- 3.1.5 Failure Rate Calculations Assuming Multiple-Failure Mechanism -- 3.1.6 Constant-Failure-Rate Approximation/Justification -- 3.1.7 Exponential Distribution and Its Characterization -- 3.2 Reliability of Complex Systems -- 3.2.1 Drenick's Theorem -- 3.3 Physics-of-Failure-based Circuit Reliability Prediction Methodology -- 3.3.1 Methodology -- 3.3.2 Assembly, Materials and Processes, and Packaging -- 3.3.3 External Environment -- 3.3.4 PoF and Failure Mechanisms -- 3.3.5 Key Considerations for Reliability Models in Emerging Technologies -- 3.3.6 Input Data -- 3.3.7 Applicability of Reliability Models -- Chapter 4 Transition State Theory -- 4.1 Stress-Related Failure Mechanisms -- 4.2 Non-Arrhenius Model Parameters -- 4.2.1 Hot Carrier Injection (HCI) -- 4.2.2 Negative Apparent EA -- 4.2.3 Time-Dependent Dielectric Breakdown (TDDB) -- 4.2.3.1 Thermochemical E-Model -- 4.2.3.2 1/E Model (Anode-Hole Injection Model) -- 4.2.3.3 Power-Law Voltage VN-Model -- 4.2.3.4 Exponential E1/2-Model -- 4.2.3.5 Percolation Model -- 4.2.4 Stress-Induced Leakage Current (SILC) -- 4.2.5 Negative Bias Temperature Instability (NBTI) -- 4.2.5.1 Time Dependence -- 4.2.5.2 1/n-Root Measurements -- 4.2.5.3 Voltage Power Law -- 4.2.6 Electromigration (EM) -- 4.3 Physics of Healthy -- 4.3.1 Definitions -- 4.3.2 Entropy and Generalization -- Chapter 5 Multiple Failure Mechanism in Reliability Prediction -- 5.1 MTOL Testing System -- 5.1.1 Accelerated Element, Control System, and Counter -- 5.1.2 Separating Failure Mechanisms -- 5.1.3 EA and α Extrapolation -- 5.2 MTOL Matrix: A Use Case Application -- 5.2.1 Effective Activation Energy Characteristics (Eyring-M-STORM Model) -- 5.3 Comparison of DSM Technologies (45, 28, and 20 nm) -- 5.3.1 BTI's High Voltage Constant.
5.4 16 nm FinFET Reliability Profile Using the MTOL Method -- 5.4.1 Thermal Dissipation Concerns of 16 nm Technologies -- 5.5 16 nm Microchip Health Monitoring (MHM) from MTOL Reliability -- 5.5.1 Weibull Distribution Tapering by Increasing Devices -- 5.5.2 The FLL Measurement Circuit -- 5.5.3 Degradation Data Correction with Temperature Compensation -- 5.5.4 Accurate Lifetime Calculations Using Early Failure -- 5.5.5 Algorithm to Calculate the TTF of Early Failures -- 5.5.6 The Microchip Health Monitor -- Chapter 6 System Reliability -- 6.1 Definitions -- 6.2 Series Systems -- 6.2.1 Parallel Systems -- 6.2.2 Poisson Distribution Function -- 6.2.3 Weibull Distribution Function -- 6.2.4 Complex Systems -- 6.3 Weibull Analysis of Data -- 6.4 Weibull Analysis to Correlate Process Variations and BTI Degradation -- Chapter 7 Device Failure Mechanism -- 7.1 Time-Dependent Dielectric Breakdown -- 7.1.1 Physics of Breakdown -- 7.1.2 Early Models for Dielectric Breakdown -- 7.1.3 Acceleration Factors -- 7.1.4 Models for Ultra-Thin Dielectric Breakdown -- 7.1.5 Statistical Model -- 7.2 Hot Carrier Injection -- 7.2.1 Hot Carrier Effects -- 7.2.2 Hot Carrier Generation Mechanism and Injection to the Gate Oxide Film -- 7.2.3 Hot Carrier Models -- 7.2.4 Hot Carrier Degradation -- 7.2.5 Hot Carrier Resistant Structures -- 7.2.6 Acceleration Factor -- 7.2.6.1 Statistical Models for HCI Lifetime -- 7.2.6.2 Lifetime Sensitivity -- 7.3 Negative Bias Temperature Instability -- 7.3.1 Physics of Failure -- 7.3.2 Interface Trap Generation:

Reaction-Diffusion Model -- 7.3.3 Fixed Charge Generation -- 7.3.4
Recovery and Saturation -- 7.3.5 NBTI Models -- 7.3.6 Lifetime Models
-- 7.4 Electromigration -- 7.4.1 Electromigration Physics -- 7.4.2
Lifetime Prediction -- 7.4.3 Lifetime Distribution Model -- 7.4.4
Lifetime Sensitivity -- 7.5 Soft Errors due to Memory Alpha Particles.
Chapter 8 Reliability Modeling of Electronic Packages -- 8.1 Failure
Mechanisms of Electronic Packages -- 8.2 Failure Mechanisms'
Description and Models -- 8.2.1 Wire Bond Failures (Wire Lifting,
Broken Wires, Bond Fracture,etc.) -- 8.2.2 BGA and Package-on-
Package Failures -- 8.2.3 Die Cracking Failures -- 8.2.3.1 Die Cracking
Failure Mechanisms -- 8.2.4 Interface Delamination -- 8.2.5 Package
Cracking Failure -- 8.2.6 Solder Joint Fatigue Failure -- 8.3 Failure
Models -- 8.3.1 IMC Diffusion Models -- 8.3.2 Fracture Models Due to
Cyclic Loads -- 8.3.3 Die Cracking Failure Models -- 8.3.4 Solder Joint
Fatigue Failure Models -- 8.4 Electromigration -- 8.4.1
Electromigration Failure Description -- 8.4.2 Electromigration Failure
Models -- 8.5 Corrosion Failure -- 8.5.1 Corrosion Failure Models --
8.6 Failure Rate and Acceleration Factors -- 8.6.1 Creep -- 8.7
Reliability Prediction of Electronic Packages -- 8.7.1 Reliability and
Failure Description -- 8.8 Reliability Failure Models -- 8.8.1 Inverse
Power Law Models -- 8.8.2 Arrhenius Models -- 8.8.3 Arrhenius-
Weibull Models -- References -- Index -- EULA.
