

## Reliability Physics and Engineering

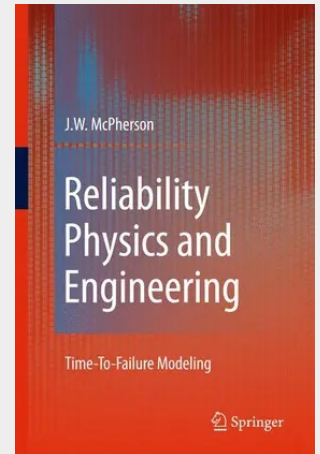
### Time-To-Failure Modeling

This book provides the basic Reliability Physics and Engineering tools that are needed by Electrical Engineers, Mechanical Engineers, Materials Scientists, and Applied Physicists to build better products. The material includes information for engineers to develop better methodologies for producing reliable product designs and materials selections to improve product reliability. Important statistical training and tools are contained within the text. The author emphasizes the physics of failure and the development of reliability engineering models for failure. The beginning of the book concentrates on device/materials degradation and the development of the critically important time-to-failure models. Since time-to-failure is a statistical process, the needed statistical tools are presented next along with failure-rate modeling. Following that the use of accelerated testing and the modeling of the acceleration factors are presented. The next section focuses on the effective use of these acceleration factors, during initial product-level testing and operation, in order to reduce the expected device failure rate in the field. The important time-to-failure models are presented next for Electrical Engineering applications. Likewise, the next section addresses important time-to-failure models for Mechanical Engineering applications. The final chapters provide both Electrical and Mechanical Engineers with design help specifically, conversion of dynamic/transient stresses into equivalent static forms, establishing aggressive but safe design rules, and the need to look very closely at design and process interactions.

Reliability Physics and Engineering provides critically important information that is needed for designing and building reliable cost-effective products. Key features include:

- Materials/Device Degradation
- Degradation Kinetics
- Time-To-Failure Modeling
- Statistical Tools
- Failure-Rate Modeling
- Accelerated Testing
- Ramp-To-Failure Testing
- Important Failure Mechanisms for Integrated Circuits
- Important Failure Mechanisms for Mechanical Components
- Conversion of Dynamical Stresses into Static Equivalents
- Small Design Changes Producing Major Reliability Improvements

This textbook includes numerous example problems with solutions. Also, exercise problems along with answers are included at the end of each chapter. Reliability Physics and Engineering can be a useful resource for students, engineers and materials scientists.



**85,55 €**

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