

IC Reliability

Design support for robust and reliable ICs

Rapid technological progress in the development of electronic components also requires new strategies for the design process. Nowadays, developers are confronted with major challenges from constraints such as reliability, durability and cost efficiency as well as miniaturization.

Fraunhofer IIS/EAS offers a wide spectrum of products and services for supporting the design of robust and reliable ICs as well as systems. Master effects such as process variations, aging or electro-thermal interactions owing to technology and design quickly and reliably to reduce your costs in the production process and improve your product quality.

Our Services

- Measurements on reliability and robustness at the wafer and system levels
- Development of degradation models for transistors, including implementation in different EDA environments
- Modeling of effects caused by process variations and the behavior of ESD structures
- Multi-physical simulation including creation of reduced-complexity models
- Development of stress monitoring solutions and forecasts for the remaining lifetime of electronic systems
- Development of algorithms and software

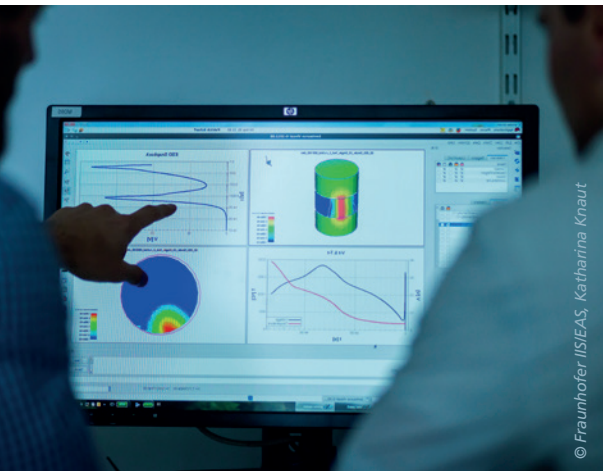
Your Benefits

- Secure use of technological capabilities without overdimensioning
- Compliance with quality standards
- Equivalent support for different design environments based on customer requirements
- Meaningful reliability analyses as well as safeguarding of the lifespan of transistors and ICs

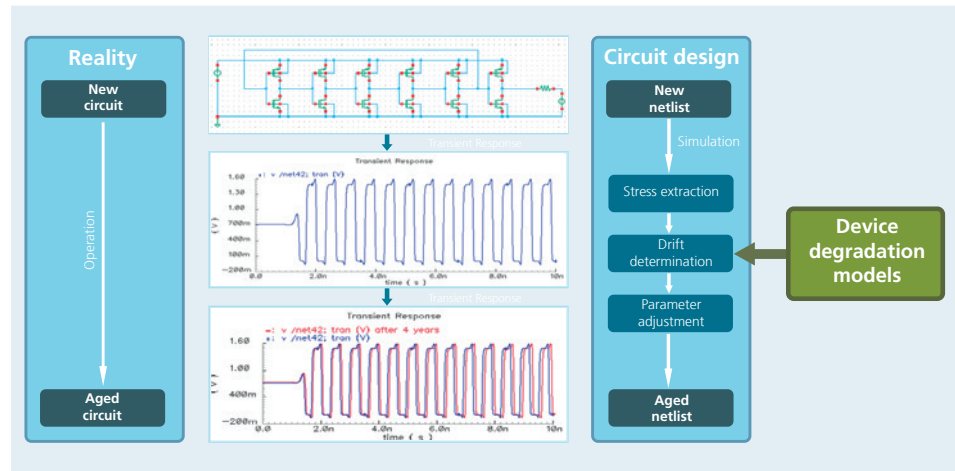
More information



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left:
Investigating the behavior of ESD structures

right:
Principles of aging simulation

Our Solutions for Your Designs

Particularly in safety-critical areas where durability and cost efficiency are a must, the aspects of reliability and robustness have to be taken into consideration in IC design.

We supply methods and solutions to help our partners meet their individual requirements with their designs. Generally, our offers extend existing EDA solutions to include specific models or software with additional functionalities.

- Degradation models for ageing simulations with precision and tool support according to customer requirements
- Concepts for analyzing system reliability based on physical and data-driven models

Our solutions can verify the functioning of an electronic system under various operating conditions. Considering coupled behavior in particular helps derive concrete constraints and tips for designing integrated circuits and their layouts. As a result, users can efficiently verify and safeguard the reliability and robustness of their systems during the design process. Our solutions also enable users to monitor functionality and reliability after production right in the specific application.

Users

Our services and software tools are aimed at semiconductor manufacturers as well as IC and system designers. They are the ideal choice for the following industries:

- Automotive electronics
- Aerospace
- Medical technology
- Industrial automation

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