



Development of design methods and optimization of design solutions and forecasting of operational characteristics of power electronics devices and analog microcircuits operating under radiation exposure conditions

Key research objectives:

- Perform computer simulation of operational characteristics of power electronics instrument structures in accordance with the selected standardized approaches that provide prediction of changes in electrophysical parameters under radiation exposure;
- to optimize the operation modes of manufacturing processes and geometric parameters of the design of power electronics instrument structures, taking into account the features of their functioning under radiation exposure;
- Develop compact models of power electronics instrument structures in the Verilog-A hardware description language, taking into account the degradation of operational characteristics as a result of radiation exposure and methods for extracting their parameters;
- Develop methods for accounting for radiation exposure in the circuit simulation of analog chips, providing the possibility of optimizing the designed circuit solutions.

Relevance of the research:

Reducing the time and cost of developing special-purpose electronic component base and predicting their behavior in the conditions of complex special exposure factors.

Type of collaboration

research cooperation

Key words

power, electronics,
radiation, analog,
microcircuits

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