

NASA TECH BRIEF



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Thermal and Bias Cycling Stabilizes Planar Silicon Devices

The problem:

To reduce the inversion tendencies of planar silicon devices.

The solution:

Extend the time of the terminal burn-in or baking step carried out in the processing of the device (e.g., a planar transistor) and cyclically bias the collector-base junction of the device during the burn-in period. Alternate application and removal of reverse bias discharges and purges those ions which give rise to the problem of inversion and long-term drift during operation of these devices. For MOS field effect transistors, this processing step will reduce the surface-state density of inversion-causing ions and result in more stable threshold voltages.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Electronics Research Center
575 Technology Square
Cambridge, Massachusetts 02139
Reference: B67-10176

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: J. E. Meinhard and R. E. Harris
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Electronics Research Center
(ERC-48)

Category 01



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NASA Tech Briefs are intended to provide a rapid means of disseminating information on technical developments to the scientific and engineering communities. The information is derived from the technical reports prepared by NASA's research and development centers.

Technical Brief No. 100-100

The purpose of this brief is to describe the results of a study conducted by the Langley Research Center, Hampton, Virginia, in the area of the aerodynamic characteristics of a certain type of airfoil. The study was conducted as part of a larger program of research on the flow of air over various shapes.

The results of the study show that the aerodynamic characteristics of the airfoil are significantly affected by the angle of attack. The data indicate that the lift coefficient increases with the angle of attack, but that the drag coefficient also increases, resulting in a decrease in the lift-to-drag ratio.