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.

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