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### Brief 67-10176

# 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 collectorbase 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 of North American Aviation, Inc. under contract to Electronics Research Center (ERC-48)

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## NASA TECH-BRIEF



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