Stability Enhancement of Polysilicon Thin-Film Transistors with A Source-tied-to-body

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Abstract

The differences between floating and grounded body effects in polycrystalline silicon thin-film transistors (polysilicon TFTs) are investigated by making a body contact. The floating body effects such as kink effect, subthreshold slope change, and body current characteristics are explained and modeled by impact ionization, which causes source body turn on, and activates the parasitic bipolar junction transistors (BJTs). These effects become crucial for channel lengths of 4㎛ or shorter. Our data show that making a body contact reduces kink effects significantly and identifies impact ionization mechanism in polysilicon TFTs.

To be presented in the Large Area Displays

I would like to give an oral or poster presentation at the conference.