

Dynamics of Threshold Voltage Instability in Stacked High-k Dielectrics: Role of the Interfacial Oxide

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Abstract

In this contribution, we compare the V_{TH} -instability in scaled stacks with the trapping behavior of thick HfO₂ layers. We show that a large part of the instability is caused by charging/discharging of HfO₂ bulk defects, independent of the HfO₂ thickness. The interfacial oxide thickness influences the mechanism of charging and discharging of the HfO₂ defects.