

# **Advanced CMOS Transistors with a Novel HfSiON Gate Dielectric**

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## **Abstract**

We report for the first time on short channel transistors with HfSiON as a gate dielectric. HfSiON has superior electrical and physical properties over other high-k gate dielectrics. This material is amorphous and thermally stable up to 1100 °C in contact with poly Si, exhibits better boron blocking than SiO<sub>2</sub> and SiON, enables high channel mobility, and is scalable to EOTs < 10Å. The results indicate that this material is a promising high-k gate dielectric with good transistor characteristics.