

## **Realization of High Performance Dual Gate DRAMs without Boron Penetration by Application of Tetrachlorosilane Silicon Nitride Films**

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Conventional silicon nitride (SiN) films accelerate the boron penetration, which causes the degradation of PMOSFETs. It was found that the boron penetration becomes worse in proportion to SiH content incorporated in SiN films. Applications of SiH-less SiN films, formed by tetrachlorosilane (TCS) and ammonia, have successfully realized the high performance of PMOSFETs in dual gate system DRAMs.