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Effect of High Field Stressing on Charge Generation and Trapping in Ammonia Annealed Nitrided Oxides SHEKHAR PRADHAN, Vaughn College of Aeronautics and Technology — The effects of thermal nitridation of silicon dioxide in ammonia on dielectric conduction; charge generation and trapping; and breakdown characteristics were examined. Using high field, constant current stressing nitridation is observed to introduce significant numbers ($\sim 10^{18}/\text{cm}^3$) of electron traps of large cross-section ($\sim 10^{-15} / \text{cm}^2$) that enhance negative charge generation at higher fields and low fluence. At much higher fluence levels electron trapping similar to that observed in the oxide is seen, but total charge-to-breakdown is observed to be larger by 20% to 46% for the nitrided oxides. Enhanced low-field conduction is observed, but only a modest 7% reduction in the effective barrier height is observed for conduction in the high field regime. The author wish to acknowledge the guidance and support of Professor K.P. Roenker for his mentoring during the research

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