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Annealing Effects on Depletion Voltage and Capacitance of Float Zone and Magnetic Czochralski Silicon Diodes After 800 MeV Proton Exposure

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The radiation damage effects on p- and n-type Float Zone (FZ) and Magnetic Czochralski (MCz) Silicon diodes were characterized by studying the capacitance and depletion voltage. The diodes were exposed to 800 MeV protons
to fluences up to $1.5x10^{15}$ p/cm^2. The diodes were then annealed at 60 ℃ and measured at various intervals up to 1,000 minutes. The intent of this study is to understand the transition from reverse annealing to beneficial annealing
where charge type inversion occurs to fully characterize the annealing behavior of the diodes. We compare the results to data from previous studies taken under different irradiation conditions and to theoretical models.

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