Effect of Semicon-Dielectric Interface on Conductivity and Electric Field Distribution

Development of solid dielectric dc transmission class cable has become a priority throughout much of the world. Interdiffusion between the semiconducting electrode materials and the dielectric inevitably causes variations in conductivity of the dielectric near the semicon which results in distortion of the electric field and space charge formation under dc conditions. Analytical approximations and numerical computations provide a basis for analyzing space charge measurements, and based on such space charge measurements and the analysis, we estimate the field distortion for several material systems.

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