



Scaling down thickness of ULK materials for 65 nm node and below and its effect on electrical performance

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Abstract

The target of our investigation is the evaluation of the effect of decreasing thickness on the relative permittivity of dielectric films for high advanced interconnects of IC's. Two kinds of SiCOH-films with similar chemical composition and thickness between 70 and 830 nm were deposited by spin coating ("SOD") or PECVD ("CVD") on silicon wafers. The relative permittivity was determined by CV-measurement and its components of polarization response are deduced from ellipsometric and FTIR measurements.

Keywords: Thin dielectric films; Relative permittivity; Orientational polarization; SiCOH; Low k



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