METHOD FOR MINIMIZING COPPER DIFFUSION BY DOPING AN INORGANIC DIELECTRIC LAYER WITH A REDUCING AGENT

Abstract

A method for reducing copper diffusion into an inorganic dielectric layer adjacent to a copper structure by doping the inorganic dielectric layer with a reducing agent (e.g. phosphorous, sulfur, or both) during plasma enhanced chemical vapor deposition. The resulting doped inorganic dielectric layer can reduce copper diffusion without a barrier layer reducing fabrication cost and cycle time, as well as reducing RC delay.

Fig. 4



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