METHOD OF A NON-METAL BARRIER COPPER DAMASCENE INTEGRATION

ABSTRACT

[0042] The present disclosure provides a method, integrated circuit, and interconnect structure utilizing non-metal barrier copper damascene integration. The method is provided for fabricating an interconnect for connecting to one or more front end of line (FEOL) devices. The method includes forming a layer of doped oxide on the one or more FEOL devices and forming a first barrier layer on the layer of doped oxide, the first barrier layer comprising such material as silicon oxycarbide (SiOC) or silicon carbonitride (SiCN). The method further includes forming a plurality of refractory metal plugs in the first barrier layer and the doped oxide layer, forming a low dielectric constant film over the first barrier layer and the plurality of refractory metal plugs, and performing a first etch to create trenches through the low dielectric constant film. The plurality of refractory metal plugs and the first barrier layer perform as an etch-stop.