COPPER INTERCONNECT STRUCTURE AND METHOD OF FORMATION

Abstract of the Disclosure

In one embodiment, a copper interconnect structure is formed by depositing a dielectric layer (28) on a semiconductor substrate (10). The dielectric layer (28) is then patterned to form interconnect openings (29). A layer of copper (34) is then formed within the interconnect openings (29). A portion of the copper layer (34) is then removed to form copper interconnects (39) within the interconnect openings (29). A copper barrier layer (40) is then formed overlying the copper interconnects (39). Adhesion between the copper barrier layer (40) and the copper interconnects (39) is improved by exposing the exposed surface of the copper interconnects (39) to a plasma generated using only ammonia as a source gas.

Fig. 3 accompanies this abstract.