ABSTRACT OF THE DISCLOSURE

PROCESS FOR FORMING METAL DAMASCENE STRUCTURE TO PREVENT DIELECTRIC LAYER PEELING

A process for forming a metal damascene structure. First, a cap layer is formed on a first metal layer, and a dielectric layer is formed on the cap layer. Next, the dielectric layer is etched to form a damascene opening. Next, hydrogen-containing plasma, nitrogen-containing plasma, oxygen-containing plasma, or a mixture thereof is used to perform the plasma treatment. Next, a metal is filled in the damascene opening to form a second metal layer. Peeling of the dielectric layer due to remaining impurities is eliminated by the plasma treatment after etching of the damascene opening.

(FIG. 2)