A Damascene Interconnect Structure With Cap Layer

ABSTRACT OF THE DISCLOSURE

A method of forming an integrated circuit interconnect structure is presented. A first conductive line is formed over a semiconductor substrate. A conductive cap layer is formed on the first conductive line to improve device reliability. An etch stop layer (ESL) is formed on the conductive cap layer. An inter-level dielectric (IMD) is formed on the ESL. A via opening and a trench are formed in the ESL, IMD, and conductive cap layer. A recess is formed in the first conductive line. The recess can be formed by over etching when the first dielectric is etched, or by a separate process such as argon sputtering. A second conductive line is formed filling the trench, opening and recess.

(FIG. 3)