ABSTRACT

A METHOD TO FILL A TRENCH AND TUNNEL BY USING ALD SEED LAYER AND ELECTROLESS PLATING

An improved method to deposit, by atomic layer deposition, ALD, a copper barrier and seed layer for electroless copper plating, filling trench and channel or tunnel openings in a damascene process, for the fabrication of interconnects and inductors, has been developed. A process flow outlining the method of the present invention is as follows: (1) formation of trenches and channels, (2) atomic layer deposition of copper barrier and seed, (3) electroless deposition of copper, (4) chemical mechanical polishing back of excess copper, and (5) barrier deposition, SiN, forming copper interconnects and inductors.

FIGURE 5