IMPROVED IMP TiN BARRIER METAL PROCESS

ABSTRACT

A new method is provided for the creation of an adhesion/barrier layer over which a tungsten interconnect is created. The invention reduces metal extrusion and effects of pin-holes by dividing the process of barrier material of TiN deposition into two phases, whereby after about half the thickness of the required layer of TiN has been deposited, an intermediate and very thin layer of Ti is deposited. After the thin layer of Ti has been deposited, the deposition of the barrier layer of TiN is continued to the point where the required thickness for the layer of TiN has been reached.

Figure 14