ABSTRACT

Surface Treatment of Metal Interconnect Lines

Methods and apparatus for forming a semiconductor structure comprising a first layer on top of a substrate wherein the first layer defines conductive regions such as copper interconnect lines and non-conductive regions such as dielectric materials. The conductive regions are covered by a second layer of a material different than the first layer such as for example nickel and then the structure is heat treated such that the interconnect lines and second metal, such as a copper interconnect line and a nickel second layer, interact with each other to form an alloy layer. The alloy layer has superior qualities for adhering to both the copper interconnect lines and a subsequently deposited dielectric material.

Fig 2C