

ABSTRACT

A NEW METHOD TO FORM A CROSS NETWORK OF AIR GAPS WITHIN IMD LAYER

A new method is provided for creating air gaps in a layer of IMD. A first layer of dielectric is deposited over a surface; the surface contains metal points of contact. Trenches are etched in this first layer of dielectric. The trenches are filled with a first layer of nitride or disposable solid and polished. A second layer of dielectric is deposited over the first layer of dielectric. Trenches are formed in the second layer of dielectric, a second layer of nitride or disposable solid is deposited over the second layer of dielectric. The layer of nitride or disposable solid is polished. A thin layer of oxide is deposited over the surface of the second layer of dielectric. The thin layer of oxide is masked and etched thereby creating openings in this thin layer of oxide, these openings align with the points of intersect of the trenches in the first layer of dielectric and in the second layer of dielectric. The nitride or removable solid is removed from the trenches. The openings in the thin layer of oxide are closed off leaving a network of trenches that are filled with air in the two layers of dielectric that now function as the Inter Level Dielectric.

(FIGURE 1A IS SUGGESTED FOR PUBLICATION)