POLY-ALUMINUM EXCHANGE FOR ALUMINUM FILL OF HIGH ASPECT RATIO SHAPES

ABSTRACT

A method for forming interconnect metallurgy for semi-conductors comprising the steps of: (a) providing a substrate (110) having a surface; (b) forming a recess (114) in the surface of the substrate; (c) depositing a material in the recess (116); (d) depositing a conductor (120) that is highly soluble in the material on the substrate; and (e) annealing the substrate to cause the conductor to exchange into the material is disclosed. The method takes advantage of the high aspect ratio filling properties of polysilicon as known for deep trench applications and combines that with known processes for forming silicon-aluminum alloys to form a wordline spacer structure in order to decrease the amount of space necessary for a unit cell.

Fig. 2