LANGMIR - BLODGETT (LB) FILMS AS ARC AND ADHESION PROMOTERS FOR PATTERNING OF SEMICONDUCTOR DEVICES

ABSTRACT OF THE DISCLOSURE

A method for forming upon a reflective layer, such as a reflective conducting layer, within an integrated circuit an Anti-Reflective Coating (ARC) which simultaneously possesses adhesion promotion characteristics for an organic layer to be formed upon the reflective layer. There is first formed upon a semiconductor wafer a reflective integrated circuit layer. The reflective integrated circuit layer may be a hydrophilic reflective integrated circuit layer or a hydrophobic integrated circuit layer. The semiconductor wafer is then immersed into and withdrawn from a Langmuir trough having formed therein a Langmuir-Blodgett (LB) monolayer film of a dye surfactant molecule ordered upon a surface of water. Upon withdrawing the wafer from the Langmuir trough, there is formed upon the reflective integrated circuit layer an ordered LB film of the dye surfactant molecule. The ordered LB film has exposed hydrophobic tail groups of the dye surfactant molecule which serve to promote adhesion of an organic layer, such as a photoresist to be formed upon the reflective integrated circuit layer. The chromophore groups within dye surfactant molecule and ordered LB film provide ARC characteristics to the reflective layer.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)