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ABSTRACT

REMOVAL OF ORGANIC ANTI-REFLECTION COATINGS IN INTEGRATED CIRCUITS

A method for manufacturing an integrated circuit structure is provided having a semiconductor substrate [10] and depositing a layer [42] to be patterned on the semiconductor substrate [10]. An organic anti-reflection coating [44] is deposited on the layer [42] to be patterned and then an organic photoresist [46] on the anti-reflection coating [44]. The photoresist [46] is patterned and developed to form an opening having a side wall [52] and to expose a portion of the anti-reflection coating [44]. The photoresist [46] and the exposed portion of the anti-reflection coating [44] adsorb non-active molecules. A unidirectional electron-ion bombardment causes desorption of non-active molecules, that gives access of active molecules to the exposed surface of the anti-reflection coating [44]. Bombardment also causes decomposition of non-active molecules on the exposed surfaces, which produces active atoms. Both processes provide unidirectional removal of the anti-reflection coating [44] without attacking the photoresist side walls [52] and underlying layers.

FIGURE 2