Abstract

METHOD OF HIGH-DENSITY PLASMA BORON-CONTAINING SILICATE GLASS FILM DEPOSITION

A method for fabricating a boron-contained silicate glass layers, such as borosilicate and borophosphosilicate glass films at low temperature using High Density Plasma CVD with silane derivatives as a source of silicon, boron and phosphorus compounds as a doping compounds, oxygen is described. RF plasma with certain plasma density is maintained throughout the entire deposition step in reactor chamber. Key feature of the invention's process is a flow capability of boron-contained silicate glass materials which provide a film with good film integrity and void-free gap-fill within the steps of device structures after low temperature thermal budget anneal conditions.

(FIGURE 6A IS SUGGESTED FOR PUBLICATION)