IMPROVED ETCH STOP LAYER

ABSTRACT OF THE DISCLOSURE

A SiOC layer and/or a SiC layer of an etch stop layer may be improved by altering the process used to form them. In a bi-layer structure, a SiOC layer and/or a SiC layer may be improved to provide better reliability. A silicon carbide (SiC) layer may be used to form a single-layer etch stop layer, while also acting as a glue layer to improve interface adhesion. Preferably, the SiC layer is formed in a reaction chamber having a flow of substantially pure trimetholsilane (3MS) streamed into and through the reaction chamber under a pressure of less than about 2 torr therein. Preferably, the reaction chamber is energized with high frequency RF power of about 100 watts or more. Preferably, the SiOC layer is formed in a reaction chamber having a flow of 3MS and CO_2, and is energized with low frequency RF power of about 100 watts or more.

FIG. 4