TECHNIQUE FOR THE REMOVAL OF RESIDUAL SPIN-ON-GLASS (SOG) AFTER FULL SOG ETCHBACK

ABSTRACT

This invention relates to a method for removing residual spin-on-glass(SOG) during a planarization processing step wherein the SOG is used as a sacrificial planarization medium and subjected to a full etchback to an underlying interlevel dielectric(ILD) layer. The SOG is applied over the ILD layer, and etched back into the ILD layer by reactive-ion-etching under conditions of comparable etch rates for both SOG and ILD. At endpoint there some residual pockets of SOG can be present as well as a region of SOG along the edges of the wafer where it is clamped in the etchback tool. The residual SOG must be removed completely to avoid SOG cracking after thermal processing and SOG outgassing during subsequent metal deposition. For this purpose an aqueous etch consisting of hydrofluoric acid buffered with ammonium fluoride is used. The etchant composition chosen exhibits a selectivity for SOG over the ILD glass of greater than 40 making it suitable for removing considerable SOG residues with minimal attack of the ILD.

(FIGURE 5 IS SUGGESTED FOR PUBLICATION)