METHOD OF FORMING A HIGH K METALLIC DIELECTRIC LAYER

ABSTRACT

A process for forming a high dielectric constant, (High K), layer, for a metal - oxide - metal, capacitor structure featuring localized oxidation of an underlying metal layer, performed at a temperature higher than the temperature experienced by surrounding structures, has been developed. The process features a UV or I line procedure performed only to a local region of an underlying metal layer, in an oxidizing ambient creating the desired high temperature only at an exposed local spot. The surrounding structures on a semiconductor substrate, not directly exposed to the UV or I line procedure remain at lower temperatures. The selective treatment of specific spots on the semiconductor substrate is accomplished via the UV or I line treatment applied only to clear regions in a photolithographic plate. This procedure results in the formation of a high K layer, on a top portion of the underlying metal layer.

Figure 5