Modulation of Stress in ESL SiN Film through UV Curing to Enhance both PMOS and NMOS Transistor Performance

Abstract

An example embodiment of a method of forming a semiconductor device comprising the following. We form at least a first transistor over a first region of a substrate and forming at least a second transistor over a second region of the substrate. We form a stress layer over the first and second transistors. We form an electromagnetic radiation blocking layer over the second transistor and not over the first transistor. In an exposure step, we expose the electromagnetic radiation blocking layer over the second transistor and exposing the stress layer over the first transistor to electromagnetic radiation to form a cured stress layer over the first transistor. The cured stress layer has a different stress than the stress layer. We may remove the electromagnetic radiation blocking layer.

Fig. 5