

MODULATION OF STRESS IN STRESS FILM THROUGH ION IMPLANTATION AND ITS APPLICATION IN STRESS MEMORIZATION TECHNIQUE

Abstract

Some example embodiments of the invention provide a method to improve the performance of MOS devices by increasing the stress in the channel region. An example embodiment for a NMOS transistor is to form a tensile stress layer over a NMOS transistor. A heavy ion implantation is performed into the stress layer and then an anneal is performed. This increases the amount of stress from the stress layer that the gate retains/memorizes thereby increasing device performance.

Figure 4