Abstract

METHOD FOR FORMING DUAL GATE OXIDE

A method for forming a multiple thickness gate oxide layer by implanting nitrogen ions in a first area of a semiconductor substrate while a second area of the semiconductor substrate is masked; implanting argon ions into the second area of the semiconductor substrate while the first area of the semiconductor substrate is masked; and thermally growing a gate oxide layer wherein, the oxide growth is retarded in the first area and enhanced in the second area. A threshold voltage implant and/or an anti-punchthrough implant can optionally be implanted into the semiconductor substrate prior to the nitrigen implant using the same implant mask as the nitrogen implant for a low voltage gate, and prior to the argon implant using the same implant mask as the argonm implant for a high voltage gate, further reducing processing steps.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)