A PROCESS TO REDUCE SUBSTRATE EFFECTS BY FORMING CHANNELS UNDER INDUCTOR DEVICES AND AROUND ANALOG BLOCKS

ABSTRACT

A first method of reducing semiconductor device substrate effects comprising the following steps. O^+ or O_2^+ are selectively implanted into a silicon substrate to form a silicon-damaged silicon oxide region. One or more devices are formed over the silicon substrate proximate the silicon-damaged silicon oxide region within at least one upper dielectric layer. A passivation layer is formed over the at least one upper dielectric layer. The passivation layer and the at least one upper dielectric layer are patterned to form a trench exposing a portion of the silicon substrate over the silicon-damaged silicon oxide region. The silicon-damaged silicon oxide region is selectively etched to form a channel continuous and contiguous with the trench whereby the channel reduces the substrate effects of the one or more semiconductor devices. A second method of reducing substrate effects under analog devices includes forming an analog device on a SOI substrate and then selectively etching the silicon oxide layer of the SOI substrate to form a channel at least partially underlying the analog device.
(Figure 8)