SEMICONDUCTOR STRUCTURE HAVING A CRYSTALLINE ALKALINE EARTH METAL SILICON NITRIDE/OXIDE INTERFACE WITH SILICON

Abstract of the Disclosure

A semiconductor structure comprises a silicon substrate (10), one or more layers of single crystal oxides or nitrides (26), and an interface (14) between the silicon substrate and the one or more layers of single crystal oxides or nitrides, the interface manufactured with a crystalline material which matches the lattice constant of silicon. The interface comprises an atomic layer of silicon, nitrogen, and a metal in the form $MSiN_2$, where M is a metal. In a second embodiment, the interface comprises an atomic layer of silicon, a metal, and a mixture of nitrogen and oxygen in the form $MSi[N_{1-x}O_x]_2$, where M is a metal and X is $0 \leq X < 1$.

FIG. 10 accompanies this abstract.