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(54) Title: PROCESS FOR PREPARING AN IDEAL OXYGEN PRECIPITATING SILICON WAFER

(57) Abstract

A process for heat–treating a single crystal silicon wafer to influence the precipitation behavior of oxygen in the wafer in a subsequent thermal processing step is disclosed. The wafer has a front surface, a back surface, and a central plane between the front and back surfaces. In the process, the wafer is subjected to a heat–treatment to form crystal lattice vacancies, the vacancies being formed in the bulk of the silicon. The heat–treated wafer is then oxidized by heating in the presence of an oxygen–containing atmosphere in order to establish a vacancy concentration profile within the wafer. The oxidized wafer is then cooled from the temperature of said oxidizing heat treatment at a rate which allows some, but not all, of the crystal lattice vacancies to diffuse to the front surface to produce a wafer having a vacancy concentration profile in which the peak density is at or near the central plane with the concentration generally decreasing in the direction of the front surface of the wafer.

