ABSTRACT

USE OF POLYMER SPACERS FOR THE FABRICTION OF SHALLOW TRENCH ISOLATION REGIONS WITH ROUNDED TOP CORNERS

A method for forming insulator filled, shallow trench isolation regions, with rounded corners, has been developed. The process features the use of a polymer coated opening, in an insulator layer, used as a mask to define the shallow trench region in silicon. After completion of the shallow trench formation the polymer spacers are removed, exposing a region of unetched semiconductor, that had been protected by the polymer spacers, during the shallow trench dry etching procedure. The sharp corner, at the intersection between the shallow trench and the unetched region of semiconductor, is then converted to a rounded corner, via thermal oxidation of exposed silicon surfaces. The polymer spacers also eliminate the tcp corner wraparound.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)