

THRESHOLD VOLTAGE TAILORING OF CORNER OF MOSFET DEVICE

ABSTRACT

A semiconductor MOSFET device is formed on a silicon substrate (12) which includes trenches filled with Shallow Trench Isolation dielectric trench structures and extending above the surface of the substrate. The trench structures have protruding sidewalls (36) with channel regions in the substrate having corner regions (25) adjacent to the trench structures (18d, 18e). The channel regions are between and adjacent to the STI trench structures (18d, 18e) doped with one concentration of dopant in the centers of the channel regions (32b) with a higher concentration of dopant in the corner regions. The dopant concentration differential provides a substantially equal concentration of electrons in the centers and at the corner regions of the channel regions.

Fig. 2I