

SHORT CHANNEL TRENCHED DMOS TRANSISTOR

ABSTRACT

A DMOS transistor having a trenched gate is formed in a substrate such that the P body region of the transistor may be formed heavier or deeper while still maintaining a "short" channel. This is accomplished by forming a portion of the N+ type source region within the P body region prior to forming the trench, followed by a second implantation and diffusion of a relatively shallow extension of the N+ source region formed overlying a part of the P body region. The increased depth or doping concentration of the P body region advantageously lowers the resistance of the P body region, while the short channel lowers the on-resistance of the transistor for improved performance.