Threshold Voltage of Double Gate Junctionless Field Effect Transistor with a Triangle-Shaped Spacer

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Abstract

This paper presents a mathematical approach for determining the threshold voltage of a double-gate Junctionless field-effect transistor with a triangle-shaped spacer. The threshold voltage is obtained from the depletion width of the device. The threshold voltage is the minimum applied gate voltage at which the depletion width equals the channel thickness. Above the threshold voltage, the depletion width will be less than the channel thickness. The threshold voltage expression is compared TCAD simulation results.

Keywords

FET, Junctionless, Triangle-shaped spacer, Threshold voltage.