

ENHANCED SWITCH DEVICE AND MANUFACTURING METHOD THEREFOR

ABSTRACT

5 An enhanced switch device and a manufacturing method therefor. The method
comprises: providing a substrate, and forming a nitride transistor structure on the
substrate; fabricating and forming a dielectric layer on the nitride transistor structure, on
which a gate region is defined; forming a groove structure on the gate region; depositing
a p-type semiconductor material in the groove; removing the p-type semiconductor
10 material outside the gate region on the dielectric layer; etching the dielectric layer in
another position than the gate region on the dielectric layer to form two ohmic contact
regions; and forming a source electrode and a drain electrode on the two ohmic contact
regions, respectively. By forming the dielectric layer on the nitride transistor structure,
forming the groove structure on the gate region on the dielectric layer and arranging the
15 p-type semiconductor material in the groove, the aims of pinching off an n-type
conductive layer below a gate and controlling a threshold voltage are achieved, so as to
realize an enhanced switch device.

(Figure 1e)