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(54) TWO-DIMENSIONAL (2D) MATERIAL FOR OXIDE SEMICONDUCTOR (OS) FERROELECTRIC FIELD-EFFECT TRANSISTOR (FEFET) DEVICE

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(57)ABSTRACT

The present disclosure relates a ferroelectric field-effect transistor (FeFET) device. In some embodiments, the FeFET device includes a ferroelectric layer having a first side and a second side opposite to the first side and a gate electrode disposed along the first side of the ferroelectric layer. The FeFET device further includes an OS channel layer disposed along the second side of the ferroelectric layer opposite to the first side and a pair of source/drain regions disposed on opposite sides of the OS channel layer. The FeFET device further includes a 2D contacting layer disposed along the OS channel layer. The OS channel layer has a first doping type, and the 2D contacting layer has a second doping type different than the first doping type.

