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(57) Abstract :
The present disclosure discloses a semiconductor device (100) and by applying the concept of charge plasma to Mg2Si source (108) double gate tunnel field-effect transistor (MSH-DG-TFET) (104) configured a dopingless DL-MSH-DG-TFET (106). the proposed structure has also eliminated he problem of random dopant fluctuation (RDF). The proposed DL-MSH-DG-TFET (106) structure is optimized with the work function values of gate metal (4.2 eV), source electrode (5.1 eV) nd drain electrode (3.9 eV) . Gate oxide thickness value is optimized at 3 nm to achieve the best device performance in terms of switching ratio and threshold voltage.

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