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(54) SEMICONDUCTOR DEVICE STRUCTURE AND METHODS OF FORMING THE SAME

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(57)ABSTRACT

A method for forming a nanosheet device is provided. The method includes epitaxially growing a conformal semiconductor layer from a first stack of semiconductor layers and a second stack of the semiconductor layers. Each of the first and second stack of semiconductor layers includes a plurality of first semiconductor layers and a plurality of second semiconductor layers alternately stacked on each other. A space between the first and second stacks of semiconductor layers is filled with a dielectric fin. The conformal semiconductor layer and the second semiconductor layers may be removed. A metal gate structure is formed over the first semiconductor layers and filling openings created by removal of the conformal semiconductor layer and the second semiconductor layer. A process may be performed on the metal gate structure to form an isolation between the portions of the metal gate structure being separated by a patterning process.

