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## ABSTRACT

A gate-all-around transistor is provided, including: a semiconductor substrate, a nanostructure, a gate stack structure and a gate length defining structure. In a length direction of the nanostructure, each layer of nanostructure includes a source region, a drain region, and a channel region between the two. Materials of the source region and drain region include a first metal semiconductor compound. The gate stack structure surrounds the channel region. In a length direction of the gate stack structure, a sidewall of the gate stack structure is recessed relative to a sidewall of the channel region to form a recess, and the gate length defining structure is filled in the recess. The gate length defining structure is made of a second metal semiconductor compound, and a semiconductor material for making the second metal semiconductor compound is different from that for making the first metal semiconductor compound.

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