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(54) SEMICONDUCTOR DEVICES AND DATA STORAGE SYSTEMS INCLUDING THE

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ABSTRACT (57)

A semiconductor device includes a stack structure having gate electrodes and interlayer insulating layers, the stack structure having a cell region and a step region, and the gate electrodes extending in a first direction to have a step shape in the step region, channel structures through the stack structure in the cell region, separation structures through the stack structure and extending in the first direction, and support structures between the separation structures and through the stack structure in the step region. The step region includes first and second regions, the first region closer to the cell region in the first direction than the second region is, the support structures include first and second support structures through the stack structure in the first and second regions, respectively, a maximum width of the first support structure being greater than that of the second support structure.

