

ABSTRACT OF THE DISCLOSURE

A semiconductor device includes: a substrate including a memory cell region and a connection region; a plurality of gate lines vertically overlapping each other in the memory cell region of the substrate in a vertical direction, each gate line including a first metal; a stepped connection unit in the connection region and comprising a plurality of conductive pad regions, each conductive pad region including the first metal and integrally connected to a respective gate line of the plurality of gate lines; a plurality of contact structures vertically overlapping the stepped connection unit, each contact structure connected to a respectively corresponding conductive pad region of the plurality of conductive pad regions and including a second metal; and at least one metal silicide layer between at least one contact structure and the respectively corresponding conductive pad region.

FIG. 5A