

SEMICONDUCTOR DEVICES INCLUDING STAIR STEP STRUCTURES, AND RELATED METHODS

Abstract

Semiconductor devices, such as three-dimensional memory devices, include a memory array including a stack of conductive tiers and a stair step structure. The stair step structure is positioned between first and second portions of the memory array and includes contact regions for respective conductive tiers of the stack of conductive tiers. The first portion of the memory array includes a first plurality of select gates extending in a particular direction over the stack. The second portion of the memory array includes a second plurality of select gates also extending in the particular direction over the stack of conductive tiers. Methods of forming and methods of operating such semiconductor devices, including vertical memory devices, are also disclosed.

Fig. 3