

ABSTRACT

A semiconductor device includes a gate structure including a source select line, a drain select line, and word lines stacked between the source select line and the drain select line; a second channel layer penetrating through the source select line and including polysilicon; a third channel layer penetrating through the drain select line and including polysilicon; a first channel layer penetrating through the word lines, connected between the second channel layer and the third channel layer, and including molybdenum disulfide (MoS_2); and an insulating core disposed inside the first channel layer.

FIG. 1A