Abstract

A semiconductor device including a lower pattern extending in a first direction, a gate electrode on the lower pattern and extending in a second direction, a lower channel pattern on the lower pattern and comprising at least one lower sheet pattern, an upper channel pattern on the lower channel pattern and comprising at least one upper sheet pattern, wherein the upper channel pattern is spaced apart from the lower channel pattern in a third direction, the gate electrode comprises a lower gate electrode through which the lower sheet pattern passes and an upper gate electrode through which the upper sheet pattern passes, the lower gate electrode comprises a lower conductive liner layer defining a trench and a lower filling layer filling the trench, and an entire bottom surface of the upper gate electrode is higher than an upper surface of the lower gate electrode, may be provided.

FIG. 2