ABSTRACT

A semiconductor device includes a substrate including an active pattern, a channel pattern and a source/drain pattern that are on the active pattern and connected to each other, and an active contact electrically connected to the source/drain pattern. The active contact includes a first barrier metal and a first filler metal on the first barrier metal, and the first barrier metal includes a metal nitride layer. The first filler metal includes at least one of molybdenum, tungsten, ruthenium, cobalt, or vanadium. The first filler metal includes a first crystalline region having a body-centered cubic (BCC) structure and a second crystalline region having a face-centered cubic (FCC) structure. A proportion of the first crystalline region in the first filler metal ranges from 60% to 99%.

FIG. 6