Abstract

Semiconductor devices with improved performance and reliability and methods for forming the same are provided. The semiconductor devices include an active pattern extending in a first direction, gate structures spaced apart from each other in the first direction on the active pattern, a source/drain pattern on the active pattern, a source/drain contact on the source/drain pattern, and a contact liner extending along a sidewall of the source/drain contacts. A carbon concentration of the contact liner at a first point of the contact liner is different from a carbon concentration of the contact liner at a second point of the contact liner, and the first point is at a first height from an upper surface of the active pattern, the second point is at a second height from the upper surface of the active pattern, and the first height is smaller than the second height.

FIG. 2