

ABSTRACT

A semiconductor device includes: a memory cell array region including memory cells connected to respective word lines and bit lines; and a peripheral circuit region including a first semiconductor element and a second semiconductor element. Each of the first and second semiconductor elements includes: a fin structure extending in a first direction on a substrate; a gate structure extending on the fin structure in a second direction, perpendicular to the first direction, and including a gate dielectric layer and a gate metal layer; and a source region and a drain region in the substrate at opposing ends of the fin structure. A thickness of the gate dielectric layer in the first semiconductor element is greater than a thickness of the gate dielectric layer in the second semiconductor element, and the source and drain regions in the first semiconductor element are doped with first conductivity type impurities and have different structures.

FIG. 6