

ABSTRACT

Embodiments of the disclosure relate to the field of semiconductors, and provide a semiconductor structure and a method for manufacturing the semiconductor structure. The semiconductor structure includes: a base including bit lines arranged at intervals and semiconductor channels arranged at intervals, the bit lines extending in a first direction, the semiconductor channels being located at a part of top surfaces of the bit lines, each semiconductor channel including a first area, a second area, and a third area arranged successively in a direction perpendicular to the top surfaces of the bit lines; dielectric layers located between adjacent bit lines and located on side walls of the semiconductor channels; gate electrodes surrounding the dielectric layers in the second area and extending in a second direction, the first direction being different from the second direction; metal semiconductor compound layers located on top surfaces of the semiconductor channels; diffusion barrier layers at least surrounding side walls of the metal semiconductor compound layers; and insulating layers located between adjacent semiconductor channels on the same bit line and isolating the gate electrodes and the diffusion barrier layers located on each dielectric layer from the gate electrodes and the diffusion barrier layers located on the dielectric layers adjacent to each dielectric layer. The embodiments of the disclosure at least can improve the electrical performance of the semiconductor structure.