

ABSTRACT

SEMICONDUCTOR STRUCTURE AND MANUFACTURING METHOD THEREOF

The present disclosure provides a semiconductor structure and a manufacturing method thereof, relates to the technical field of semiconductors, and solves the technical problem of a high parasitic capacitance of the semiconductor structure. The manufacturing method of the semiconductor structure includes: providing a substrate, a plurality of spaced first trenches being formed in the substrate; forming a sacrificial layer in the first trenches and a first protective layer on the sacrificial layer, the sacrificial layer and the first protective layer filling up the first trenches, and the first protective layer in the first trenches being provided with etching holes penetrating through the first protective layer; removing the sacrificial layer with the etching holes to form air gaps; and carrying out a silicification reaction on the substrate between adjacent ones of the first trenches and close to bottoms of the first trenches to form bit lines (BLs) in the substrate, parts of side surfaces of the BLs being exposed in the air gaps. By forming the air gaps, and exposing parts of the side surfaces of the BLs in the air gaps, the present disclosure reduces the dielectric constant of the structure between the BLs and the parasitic capacitance of the semiconductor structure.

Figure 1