WHAT IS CLAIMED IS:

1. A method for manufacturing a semiconductor structure, comprising:

providing a substrate;

forming a plurality of bit line structures distributed at intervals on the substrate, each of the bit line structures comprising a conductive layer, a transition layer and a covering layer stacked sequentially, and a width of the transition layer being smaller than a width of the conductive layer;

forming air gaps on a top surface of the conductive layer and side surfaces of the transition layer; and

forming a conductive plug comprising a first conductive portion and a second conductive portion on the substrate between the bit line structures, and forming the second conductive portion over the first conductive portion,

wherein a bottom portion of the second conductive portion has an inclined surface facing the bit line structure.

2. The method for manufacturing the semiconductor structure of claim 1, wherein a width of the covering layer is greater than the width of the conductive layer, and the air gaps protrude from the side surfaces of the conductive layer.

3. The method for manufacturing the semiconductor structure of claim 1, wherein

the bottom portion of the second conductive portion further comprises a bottom surface, a first straight surface and a second straight surface, wherein the bottom surface is in

direct contact with a top surface of the first conductive portion, and two ends of the bottom surface are respectively connected with the first straight surface and the second straight surface; and

the first straight surface is also connected with the inclined surface.

4. The method for manufacturing the semiconductor structure of claim 1, wherein

a vertical distance between a top corner of the transition layer and the inclined surface is smaller than a vertical distance between a top corner of the conductive layer and the inclined surface.

5. The method for manufacturing the semiconductor structure of claim 4, wherein a bottom of the inclined surface is higher than a top of the conductive layer and lower than a top of the transition layer.

6. A semiconductor structure, comprising:

a substrate;

a plurality of bit line structures distributed at intervals on the substrate, each of the bit line structures comprising a conductive layer, a transition layer and a covering layer stacked sequentially, and a width of the transition layer being smaller than a width of the conductive layer;

air gaps located on a top surface of the conductive layer and side surfaces of the transition layer; and

conductive plugs located on the substrate between the bit line structures, each of the conductive plugs comprising a first conductive portion and a second conductive portion

located over the first conductive portion,

wherein a bottom portion of the second conductive portion has an inclined surface facing the bit line structure.

7. The semiconductor structure of claim 6, wherein a width of the covering layer is greater than a width of the conductive layer.

8. The semiconductor structure of claim 6, wherein the air gaps protrude from the side surfaces of the conductive layer.

9. The semiconductor structure of claim 6, wherein

the bottom portion of the second conductive portion further comprises a bottom surface, a first straight surface and a second straight surface, wherein the bottom surface is in direct contact with the first conductive portion, and two ends of the bottom surface are respectively connected with the first straight surface and the second straight surface; and

the first straight surface is also connected with the inclined surface.

10. The semiconductor structure of claim 6, wherein a vertical distance between a top corner of the transition layer and the inclined surface is smaller than a vertical distance between a top corner of the conductive layer and the inclined surface.

11. The semiconductor structure of claim 10, wherein a bottom of the inclined surface is higher than a top of the conductive layer and lower than a top of the transition layer.

12. The semiconductor structure of claim 10, wherein a width of the transition layer is 2/3 to 3/4 of a width of the conductive layer.

13. The semiconductor structure of claim 6, wherein a material of the transition layer comprises metal-rich nitride or metal-rich silicide, and a material of the covering layer comprises silicon nitride.