What is claimed is

1. A bulk acoustic wave resonance assembly, comprising a substrate, and a first resonance assembly and a second resonance assembly which are arranged on the substrate, wherein an interconnection region is formed between the first resonance assembly and the second resonance assembly; the first resonance assembly comprises a first bottom electrode, a first piezoelectric layer, and a first top electrode which are arranged on the substrate in sequence; the second resonance assembly comprises a second bottom electrode, a second piezoelectric layer, and a second top electrode which are arranged on the substrate in sequence; the first bottom electrode and the second top electrode are connected to each other in the interconnection region; and the second bottom electrode and the first top electrode are connected to each other in the interconnection region, the first top electrode and the second bottom electrode are connected to each other through a plurality of second connections, and the first bottom electrode and the second top electrode are connected to each other through a plurality of first connections;

   wherein the first piezoelectric layer and the second piezoelectric layer are respectively provided with missing corners to expose a portion of the first bottom electrode and a portion of the second bottom electrode; the first top electrode extends to the missing corner of the second piezoelectric layer to form a first extension portion; the first extension portion is connected to the second bottom electrode; the second top electrode extends to the missing corner of the first piezoelectric layer to form a second extension portion; and the second extension portion is connected to the first bottom electrode.

2. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein the first piezoelectric layer and the second piezoelectric layer are connected to each other in the interconnection region; at least two through grooves are formed in a piezoelectric layer in the interconnection region to form a plurality of connection regions; the first bottom electrode extends to at least one of the plurality of connection regions and is connected to the second top electrode to form a first connection; and the second bottom electrode extends to at least one of the plurality of connection regions and is connected to the first top electrode to form a second connection.

3. The bulk acoustic wave resonance assembly as claimed in claim 2, wherein the bulk acoustic wave resonance assembly comprises a plurality of through grooves to form the plurality of

connection regions; and at least one first connection and at least one second connection are formed in the plurality of connection regions.

4. The bulk acoustic wave resonance assembly as claimed in claim 3, wherein a quantity of first connections and a quantity of second connections are equal or have a difference of 1; and the first connections and the second connections are alternately arranged at intervals.

5. The bulk acoustic wave resonance assembly as claimed in claim 4, wherein the bulk acoustic wave resonance assembly comprises three through grooves to form three connection regions; the first connection is located between two of the second connections; and a connection width of the first connection is greater than a connection width of each second connection.

6. The bulk acoustic wave resonance assembly as claimed in claim 4, wherein the bulk acoustic wave resonance assembly comprises four through grooves to form four connection regions; and a connection width of each first connection is the same as a connection width of each second connection.

7. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein the first piezoelectric layer and the second piezoelectric layer are separated from each other in the interconnection region; the first bottom electrode extends to the interconnection region and is connected to the second top electrode to form a third connection; the second bottom electrode extends to the interconnection region and is connected to the first top electrode to form a fourth connection; and the third connection is separated from the fourth connection.

8. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein a width of the first extension portion in an extension direction of the first extension portion gradually decrease, and a width of the second extension portion in an extension direction of the second extension portion gradually decrease.

9. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein an edge of an orthographic projection of at least one of the first bottom electrode and the second bottom electrode on the substrate is a curve.

10. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein an edge of an orthographic projection of at least one of the first top electrode and the second top electrode on the substrate is a curve.

11. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein an edge of an orthographic projection of at least one of the first piezoelectric layer and the second piezoelectric layer on the substrate is a curve.

12. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein an orthographic projection of at least one of the first top electrode and the second top electrode on the substrate is enclosed by a curve and a straight line.

13. The bulk acoustic wave resonance assembly as claimed in claim 1, wherein a region where the first top electrode, the first piezoelectric layer, and the first bottom electrode overlap is a first effective resonance region; a region where the second top electrode, the second piezoelectric layer, and the second bottom electrode overlap is a second effective resonance region; and a shape of each of the first effective resonance region and the second effective resonance region is one of: a regular polygon, an irregular polygon, a circle, and a closed pattern formed by a plurality of curved edges.

14. A method for manufacturing a bulk acoustic wave resonance assembly, which is used for manufacturing the bulk acoustic wave resonance assembly as claimed in claim 1, comprising:

providing a substrate, and forming a first bottom electrode and a second bottom electrode on the substrate, wherein the first bottom electrode and the second bottom electrode are separated;

forming a first piezoelectric layer on the first bottom electrode, and forming a second piezoelectric layer on the second bottom electrode, wherein the first piezoelectric layer and the second piezoelectric layer are separated; and

forming a first top electrode connected to the second bottom electrode on the first piezoelectric layer, and forming a second top electrode connected to the first bottom electrode on the second piezoelectric layer.

15. The method as claimed in claim 14, wherein forming the first bottom electrode and the second bottom electrode on the substrate comprises:

depositing a metal material on the substrate to form a bottom electrode layer; and

etching the bottom electrode layer to form the first bottom electrode and the second bottom electrode, wherein a first trench is provided between the first bottom electrode and the second bottom electrode to separate the first bottom electrode from the second bottom electrode.

16. The method as claimed in claim 15, wherein forming the first piezoelectric layer on the first bottom electrode, and forming the second piezoelectric layer on the second bottom electrode comprises:

depositing a piezoelectric material on an etched bottom electrode layer to form a piezoelectric base layer; and

etching the piezoelectric base layer to form the first piezoelectric layer and the second piezoelectric layer, wherein a second trench is provided between the first piezoelectric layer and the second piezoelectric layer to separate the first piezoelectric layer from the second piezoelectric layer, and the second trench is communicated to the first trench.

17. The method as claimed in claim 16, wherein forming the first top electrode connected to the second bottom electrode on the first piezoelectric layer, and forming the second top electrode connected to the first bottom electrode on the second piezoelectric layer comprises:

depositing a metal material on an etched piezoelectric base layer to form a top electrode layer, wherein the top electrode layer fills the first trench and the second trench; and

etching the top electrode layer to form the first top electrode and the second top electrode, wherein the first top electrode is connected to the second bottom electrode through the metal material in the first trench and the second trench, and the second top electrode is connected to the first bottom electrode through the metal material in the first trench and the second trench.