

## **Abstract**

### **Bulk Acoustic Resonator and Filter**

A bulk acoustic resonator and a filter relate to the technical field of resonators. The bulk acoustic resonator includes a substrate having a cavity, and a bottom electrode, a piezoelectric layer and a top electrode that are sequentially arranged on the substrate, where an overlapping area of orthographic projections of the bottom electrode, the piezoelectric layer and the top electrode on the substrate forms a resonance area; and in the resonance area, an outline shape of the orthographic projection of each of the bottom electrode and the top electrode on the substrate is a closed figure formed by connecting M arcs end to end, and the closed figure is an axisymmetric figure, where M is an integer greater than or equal to 2, and the arcs include a concave arc that is concave toward a center of the resonance area and a convex arc that is convex away from the center of the resonance area. The bulk acoustic resonator can reduce acoustic degeneracy, thus reducing clutter resonance peaks and pseudo modes, so as to obtain a pure dominant mode having a large electromechanical coupling coefficient.

Figure 2