

Abstract

Resonator, Filter And Duplexer

A resonator, a filter and a duplexer, which relate to the technical field of resonators. The resonator includes: a substrate, and a lower electrode layer, a piezoelectric layer and an upper electrode layer, which are sequentially formed on the substrate, wherein an acoustic reflection structure is formed on a surface of the substrate that is close to the lower electrode layer, and an overlapping region of the acoustic reflection structure, the lower electrode layer, the piezoelectric layer and the upper electrode layer along a stacking direction forms a resonant region; and in the resonant region, the surface, which is away from the substrate, of at least one of the lower electrode layer, the piezoelectric layer and the upper electrode layer is etched to form an etched region, the depth of the etched region is less than the thickness of an etched layer, and the area of the etched region is less than the area of the resonant region. By means of controlling an etching area ratio of the resonant region to the etched region, the resonator can obtain a plurality of different resonant frequencies on the same wafer without increasing processes.

Figure 1