

ABSTRACT

FILTER AND DUPLEXER

A filter includes: a plurality of piezoelectric thin film resonators, each having a multilayered film including a lower electrode located on a substrate, a piezoelectric film located on the lower electrode, and an upper electrode located on the piezoelectric film so as to face the lower electrode, wherein at least two piezoelectric thin film resonators have thick film portions, in each of which the multilayered film is thicker in at least a part of an outer peripheral portion than in an inner portion of a resonance region in which the lower electrode and the upper electrode face each other across the piezoelectric film, and lengths of the thick film portions from edges of the resonance regions are different from each other in the at least two piezoelectric thin film resonators.

FIG. 10B