

Abstract

A lead-free piezoelectric ceramic composition mainly includes a first crystal phase (KNN phase) and a second crystal phase (NTK phase). In the first crystal phase (KNN phase), a plurality of crystal grains formed of an alkali niobate/tantalate perovskite oxide having piezoelectric characteristics is bound to each other in a deposited state. The second crystal phase (NTK phase) is formed of a compound containing titanium (Ti) and fills spaces between the crystal grains in the first crystal phase.