

ABSTRACT

This method for manufacturing a piezoelectric film includes: a coating step of obtaining a coated film by coating a coating solution on a substrate, wherein the coating
5 solution includes at least lead, zirconium, and titanium, a content ratio of the zirconium and the titanium is in a range of 54:46 to 40:60 in terms of molar ratio, and a perovskite crystal phase is generated by heating the coating solution at a temperature equal to or higher than a crystallization initiation temperature; a drying step of obtaining a dried film by drying the coated film; a first calcining step of obtaining a first calcined film by heating
10 the dried film at a first calcining temperature in a range of equal to or higher than the crystallization initiation temperature and equal to or lower than a temperature of the crystallization initiation temperature + 40°C; a second calcining step of obtaining a second calcined film by heating the first calcined film at a second calcining temperature which is equal to or higher than a temperature of the first calcining temperature + 25°C and in a
15 range of equal to or higher than a temperature of the crystallization initiation temperature + 25°C and equal to or lower than a temperature of the crystallization initiation temperature + 100°C; and a main firing step of obtaining a piezoelectric film by heating the second calcined film at a main firing temperature which is equal to or higher than a temperature of the second calcining temperature + 25°C and in a range of equal to or
20 higher than a temperature of the crystallization initiation temperature + 100°C and equal to or lower than a temperature of the crystallization initiation temperature + 200°C.