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Title: Producing thin film lead zirconate titanate, comprises providing substrate, applying thin film in an oxygen containing atmosphere by sputtering lead, zirconium and titanium from respective targets to substrate and completing

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Abstract: NOVELTY - Producing a thin film lead zirconate titanate in 111-oriented perovskite structure, comprises: providing a substrate having a substrate temperature more than 450 degrees C and a lead target, a zirconium target and a titanium target; applying the thin film in an oxygen containing atmosphere by sputtering lead, zirconium and titanium from the respective targets to the substrate, where the deposition zirconium is such that the atomic concentration zirconium based on the atomic concentration zirconium together with titanium in the thin film is 0.2-0.3; and completing the thin film.

USE - The electronic component is useful as a thermal imaging camera, a presence detector, a motion sensor, a gas detector, a gesture recognition detector, a spectroscope and/or a terahertz detector (claimed).

ADVANTAGE - The method achieves a high throughput rate thin films, and produces the thin film with a high pyroelectric coefficient.

DETAILED DESCRIPTION - Producing a thin film lead zirconate titanate in 111-oriented perovskite structure, comprises: providing a substrate having a substrate temperature more than 450 degrees C and a lead target, a zirconium target and a titanium target; applying the thin film in an oxygen containing atmosphere by sputtering lead, zirconium and titanium from the respective targets to the substrate, where the entire deposition lead, zirconium and titanium is greater than 10 nm/minute, the deposition zirconium is such that the atomic concentration zirconium based on the atomic concentration zirconium together with titanium in the thin film is 0.2-0.3, and the deposition lead as a function substrate temperature and deposition rate the total lead, zirconium and titanium is included to be low so that X-ray diffractometer diagram the 111-oriented lead zirconate titanate in the region the diffraction angle 33-35.5 degrees has a significant peak value (19); and completing the thin film. An INDEPENDENT CLAIM is also included for an electronic component comprising a membrane as the substrate and the thin film, which is applied on the membrane.

Drawing:

Derwent Class Code(s): L02 (Refractories, ceramics, cement); M13 (Coating material with metals); L03 (Electro-(in)organic, chemical features electrical devices); S03 (Scientific Instrumentation, photometry, calorimetry); U14 (Memories, Film and Hybrid Circuits, Digital memories); W04 (Audio/Video ing and Systems)

Derwent Manual Code(s): L02-A02B; L02-A08; L02-G01D; L02-G01M1; L02-G12M1; L02-K; L03-H04D; L03-X; M13-L; S03-C06; S03-E14P; U14-E01C; W04-M01E1

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DE102011000752-B3 Ortner, K.: Influence Bias Voltage on the Structure Lead Zirconate Titanate Piezoelectric Films prepared by Gas Flow Sputtering. In: Plasma Process. Polym., 4, 2007, 134-138. Vidyarthi, V.S.: Plasma emission controlled multi-target reactive sputtering for in-situ crystallized Pb(Zr,Ti)O3 thin films on 6'' Si-wafers. In: Thin Solid Films, 515, 2007, 3547-3553. Yamakawa, K.: Preparation lead zirconate titanate thin films by reactive magnetron co-sputtering. In: Materials Letters, 28, 1996, 317-322.