Claims

1. A process for correcting the thickness of a piezoelectric layer arranged on a piezoelectric-on-insulator substrate, comprising the following steps:
   - measuring the thickness of at least one intermediate layer located between the piezoelectric layer and a carrier substrate,
   - measuring the thickness of the piezoelectric layer,
   - based on said measurements of the thickness of the at least one intermediate layer and of the piezoelectric layer and on a numerical model of at least one property of the piezoelectric layer as a function of a plurality of pairs of thicknesses of the piezoelectric layer and of said at least one intermediate layer, computing a thickness correction for the piezoelectric layer with a view to obtaining a target value for each property,
     applying the thickness correction to the piezoelectric layer using a milling process in a topographically discriminating manner.

2. The process according to Claim 1, wherein said property of the piezoelectric layer is chosen from an electromechanical coupling coefficient, a wave propagation velocity and/or a frequency temperature coefficient.

3. The process according to Claim 1 or Claim 2, wherein the thickness of the at least one intermediate layer and of the piezoelectric layer is measured locally at a plurality of measurement points, the process further comprising a step of linear interpolation of the thickness of each layer between at least two measurement points.

4. The process according to one of the preceding claims, wherein the milling process is an ion-beam milling process.

5. The process according to Claim 4, comprising a step of scanning the ion beam along two axes of a main plane of the piezoelectric layer, in which step the duration of irradiation by said ion beam in each position is adjusted depending on the thickness of the piezoelectric layer to be obtained.

6. The process according to one of the preceding claims, wherein the intermediate layer comprises a dielectric layer, a stack of a plurality of dielectric layers, a metal layer and/or a layer for trapping electrical charge.

7. The process according to one of the preceding claims, wherein the thickness of the piezoelectric layer and/or of the intermediate layer is measured by ellipsometry and/or reflectometry.

8. A process for fabricating a piezoelectric-on-insulator substrate, comprising the following steps:
    - o providing a carrier substrate,
    - o providing a piezoelectric donor substrate,
    - o bonding the donor substrate to the carrier substrate, an intermediate layer being arranged at the interface between the donor substrate and the carrier substrate,
    - o thinning the donor substrate so as to transfer a piezoelectric layer from said donor substrate to the carrier substrate,
    - o correcting the thickness of said piezoelectric layer using a process according to any one of Claims 1 to 7.

9. The process according to Claim 8, wherein thinning the donor substrate comprises, before bonding, forming a weakened region so as to delineate a piezoelectric layer to be transferred, and, after bonding, detaching the donor substrate along said weakened region.

10. The process according to either of Claims 8 and 9, wherein the thickness of the at least one intermediate layer is measured after the piezoelectric layer has been transferred to the carrier substrate.

11. The process according to either of Claims 8 and 9, wherein the thickness of the at least one intermediate layer is measured before the donor substrate has been bonded to the carrier substrate.

12. The process according to one of the Claims 8 to 11, wherein the at least one intermediate layer comprises: a metal layer, a dielectric layer, a stack of a plurality of dielectric layers, and/or a layer for trapping electrical charge.

13. A piezoelectric-on-insulator substrate comprising, in succession, a piezoelectric layer, an intermediate layer and a carrier substrate, characterized in that the local thickness of said piezoelectric layer is adjusted depending on the local thickness of the intermediate layer by milling the piezoelectric layer in a topographically discriminating manner based on a numerical model of at least one property of the piezoelectric layer as a function of a plurality of pairs of thicknesses of the piezoelectric layer and of said

at least one intermediate layer, according to a process according to any one of Claims 1 to 12.