or $LiTaO_3$ by heteroepitaxy with sufficiently quality, even if several tests have been carried out on substrates such as sapphire.

BRIEF DESCRIPTION OF THE INVENTION

Embodiments of the invention seek to overcome the above-mentioned disadvantages and particularly seek to design a method of fabricating a substrate for a microelectronic, photonic or optical device, particularly but non-limitatively a bulk acoustic wave device or a surface acoustic wave device from a wider range of materials, and particularly such that uniform thin layers can be obtained (in other words less than 20 µm thick, or even less than 1 µm thick) of materials used for surface acoustic wave devices. Moreover, this method can also make it possible to use a wider variety of support substrates than is possible in existing bulk acoustic wave devices.

An aspect of the invention provides a method of fabricating a layer of a monocrystalline piezoelectric layer, characterised in that it comprises:

- the supply of a donor substrate of said piezoelectric material,
- the supply of a receiving substrate,
- the transfer of a layer called a “germ layer” from said donor substrate onto the receiving substrate,
- implementation of an epitaxy of the piezoelectric material on the germ layer until the required thickness for the monocrystalline piezoelectric layer is obtained.

According to one embodiment, the transfer of the germ layer includes the following steps:

- formation of a zone of weakness in the donor substrate so as to delimit the germ layer to be transferred,
- bonding of the donor substrate onto the receiving substrate, the germ layer to be transferred being at the interface,
- detachment of the donor substrate along the zone of weakness so as to transfer the germ layer onto the receiving substrate.

The zone of weakness can be formed by ion implantation in the donor substrate.

Preferably, the piezoelectric material is chosen from among quartz and compounds with the formula $LiXO_3$, in which X is chosen from among niobium and tantalum.

Advantageously, the thickness of the germ layer is less than 2 µm, and preferably less than 1 µm.

According to one embodiment, before the epitaxy step, part of the thickness of the germ layer transferred onto the receiving substrate is removed.

Advantageously, the thickness of the monocrystalline piezoelectric layer at the end of the epitaxy step is between 0.2 and 20 µm.