Abstract

MANUFACTURING PROCESS OF A STRUCTURE OF SEMICONDUCTOR ON INSULATOR TYPE, WITH REDUCED ELECTRICAL LOSSES AND CORRESPONDING STRUCTURE

The present invention relates to a manufacturing process for a structure of SOI type, with reduced electrical losses, which successively comprises a support substrate made of silicon (2), an oxide layer (10) and a thin layer of semiconductor material (11), a polycrystalline silicon layer being interleaved between the support substrate and the oxide layer, which comprises the following steps:

a) oxidation of a donor substrate (1) made of semiconductor material to form an oxide layer (10) at the surface;

b) implantation of ions in the donor substrate to form an embrittlement zone therein;

c) adhesion of the donor substrate (1) on the support substrate (2), said support substrate (2) having undergone thermal treatment capable of giving it high resistivity, its upper face which receives the donor substrate (1) being coated by said polycrystalline silicon layer (20);

d) fracturing of the donor substrate (1) according to the embrittlement zone to transfer to the support substrate (2) a thin layer (11) of semiconductor material;

e) conducting of at least one thermal stabilisation event of said resulting structure (3),

characterised in that said treatment capable of conferring high resistivity to said support substrate (2) is carried out prior to formation of the

polycrystalline silicon layer (20), and that step e) comprises at least one long thermal step, carried out at a temperature not exceeding 950°C, for at least 10 minutes.

Figure 1G