A B S T R A C T

The invention concerns a method of fabricating a composite substrate (4) of the type comprising at least one thin final insulating layer (3) interposed between a support substrate (1) and an active layer (20) of semiconductor materials.

It is remarkable in that it comprises:

- forming or depositing an insulating layer (31) on said support substrate (1) and an insulating layer (32) on a source substrate (2);
- plasma activation of at least one of said insulating layers;
- bonding the two substrates (1, 2) by molecular bonding via their respective insulating layers; and
- lifting off a back portion (21) from the source substrate (2), to retain only said active layer (20);

the value of the plasma activation energy and the respective thicknesses (e_1, e_2) of the insulating layers (31, 32) being selected such that the activated insulating layer is activated only in its upper portion, and the thickness of said final insulating layer (3) is 50 nanometers (50 nm) or less.

FIGURE 2E