

COMPOSITE STRUCTURE FOR MEMS APPLICATIONS, COMPRISING A
DEFORMABLE LAYER AND A PIEZOELECTRIC LAYER, AND ASSOCIATED
FABRICATION PROCESS

ABSTRACT

The invention relates to a composite structure (100) comprising:
- a receiver substrate (3) comprising at least one cavity (31) defined in said substrate and devoid of solid material or filled with a sacrificial solid material,

- a single-crystal semiconductor layer (1) placed on the receiver substrate (3), said layer having a free surface over the entire extent of the structure and a thickness comprised between 0.1 micron and 100 microns,

- a piezoelectric layer (2) that is securely fastened to the single-crystal semiconductor layer (1) and placed between the latter and the receiver substrate (3).

The invention also relates to a device based on a movable membrane (50) above a cavity (31), and formed from the composite structure (100).

The invention lastly relates to a process for fabricating the aforementioned composite structure.

Fig. 1a