

ABSTRACT

PROCESS FOR TRANSFERRING A USEFUL LAYER TO A CARRIER SUBSTRATE

The invention relates to a process for transferring a useful layer to a carrier substrate, comprising the following steps:

- a) providing a donor substrate including a buried weakened plane, the useful layer being delimited by a front face of the donor substrate and the buried weakened plane;
- b) providing a carrier substrate;
- c) joining the donor substrate, by its front face, to the carrier substrate along a bonding interface so as to form a bonded structure;
- d) annealing the bonded structure in order to apply a weakening thermal budget thereto and to bring the buried weakened plane to a defined level of weakening, said anneal reaching a maximum hold temperature;
- e) initiating a splitting wave in the buried weakened plane by applying a stress to the bonded structure, the splitting wave propagating in a self-sustained manner along the buried weakened plane in order to result in the useful layer being transferred to the carrier substrate.

The initiation in step e) takes place when the bonded structure is experiencing a thermal gradient defining a hot region and a cool region of said bonded structure, the stress being applied locally in the cool region, and the hot region experiencing a temperature lower than the maximum hold temperature.

Fig. 6