ABSTRACT

CAPILLARY WITH GLASS INTERNAL SURFACE

A process to form a capillary that is well insulated from its environment is described Said process has two stages. The first stage, which is the same for both of the invention's two embodiments, comprises forming a micro-channel in the surface of a sheet of glassy material. For the first embodiment, this sheet is bonded to a layer of oxide, that lies on the surface of a sheet of silicon, thereby sealing in the capillary. After all silicon has been selectively removed, a thin membrane of oxide remains. Using a low temperature bonding process, a second sheet of glassy material is then bonded to this membrane In the second embodiment, the silicon is not fully removed Instead, the oxide layer of the first embodiment is replaced by an oxide/nitride/oxide trilayer which provides improved electrical insulation between the capillary and the remaining silicon at a lower level of inter-layer stress



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