

A method of forming multilevel cavities in silicon plates includes masking according to a given topology of the plate surface and etching vertical slits on desired depth. The surfaces of slits are coated with silicon nitride. The slits are deepened and horizontal cavities-tunnels are formed. Silicon nitride is etched on the surface of the walls of slits. Then thermal oxidation of the surfaces of cavities and slits is carried out. At that the vertical slits and horizontal cavities-tunnels are formed in the silicon plate sequentially over each other on two or more levels. Then the second, lower level of vertical slits and cavities-tunnels is formed. The film of silicon nitride is removed from the vertical walls of slits. After that, the surfaces of cavities and vertical slits are locally simultaneously oxidized.