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Abstract

Piezoelectric Micromachined Ultrasonic Transducer Array and Method for Fabricating the Same

5 A piezoelectric ultrasonic transducer array is formed by producing one or more trenches in a silicon wafer 20, and then fusion bonding a silicon layer 25 over the trenches, thereby forming back cavities 26. The silicon layer 25 acts as a diaphragm, and is provided with a piezoelectric layer 22 and electrode layers 21, 23 sandwiching it, so that deflection of the diaphragm 25 can be produced by, or conversely produces, electrical signals in the electrodes 21,
10 23 . The silicon diaphragm layer 25 is moved onto the silicon wafer as a part of an SOI structure. The SOI further includes a handle wafer which is removed once the diaphragm layer 25 is bonded to the wafer.

[Fig. 2(b)]