ABSTRACT

MULTILAYER PIEZOELECTRIC ACTUATOR WITH BENDING DEFORMATION AND METHOD FOR ITS MANUFACTURE

The present invention relates to a multilayer piezoelectric actuator and methods for manufacturing the actuator stacks.

The multilayer piezoelectric actuator includes a plurality of piezoelectric material layers 2 and a plurality of split electrode layers 1 with the two parts of each split electrode layer spaced in a transverse direction and interposed between two piezoelectric layers. A synchronistical bending motion is produced in the transverse direction as each layer of one half of the multilayer body extends simultaneously in the longitudinal direction, (which is perpendicular to the transverse direction in the plane), and each layer of another half of the multilayer body contracts in the same direction. Such an actuator combines a high displacement/voltage sensitivity, high resonance frequency, and low cost.

Thick film techniques using multiple screen print and the tape casting processes are applied to efficiently produce said multilayer piezoelectric actuators.

(Fig. 1)