

Abstract

MEMS SOUND TRANSDUCER WITH CLOSED CONTROL SYSTEM

A MEMS sound transducer, in particular MEMS loudspeaker and/or MEMS microphone, for generating and/or detecting sound waves in the audible wavelength spectrum, comprising a carrier element, a membrane which can be deflected with respect to the carrier element along a z-axis, at least one piezoelectric actuator supported on the carrier element for deflecting the membrane, and an electronic control unit for activating the actuator, the MEMS sound transducer has at least one position sensor, by means of which a sensor signal dependent on the membrane deflection is available to the control unit. The control unit is such that the sensor signal can be analysed for functional self-testing, for distortion reduction, for damage protection and/or compensating behavioural changes and/or can be compared with a reference signal stored in the control unit, and such that the actuator can be activated in a controlled manner by considering the analysis result and/or comparison result.

Figure: 7