

عنوان مقاله:

Design and Simulation of a Micromachined Gas Flow meter

محل انتشار:

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خلاصه مقاله:

This paper describes the design of a gas flow meter using silicon bulk micromachining technology. The sensor is a thermal type device and consists of a micro heater and two temperature sensors situated at the left and right side of the heating element (Ru, Rd) on a stacked SiO₂ / Si₃N₄ thermally isolated membrane. The sensor works on the bases of displacement of temperature profile around the heating element with the gas flow. Ansys/Flotran software has been used for thermal and fluid simulations. The simulation results provide the optimum distance between the central heating element and two sensing elements in the range of 200 μm. Also, the required heater temperature found to be in the range of 393 K.

کلمات کلیدی:

Micromachining technology, thermal flow meter, anemometers, calorimetric sensor, Flotran

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