
Automated spatial configuring of the pressure sensor controller by the thermal criterion

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The article discusses optimizations spatial arrangement of the amplification circuit and the signal processing silicon pressure transducer to reduce the volume occupied by a subsequent adaptation trace conductors and lines, as well as to improve the reliability of the module. Various modifications to the spatial arrangements of the signal processing circuit pressure sensors, made in the form of a microprocessor-based systems consisting of a printed circuit modules, systems based on specialized microcontrollers with placement on a ceramic substrate and systems implemented using the technologies of three-dimensional integration. It also discusses ways to address the problem of locating items on a limited area of the optimization criteria for the minimum total length of connections and minimal heat stress. Performs analysis of existing placement algorithms, analysis of existing methods of calculating the thermal regimes of devices, the analysis of genetic modifications of existing algorithms. Consider layout option control unit the pressure sensor based on a genetic algorithm. Also provides an example model for heat distribution. Modeling of the thermal regime is based on consistent use of thermal and mathematical models corresponding to different levels of the hierarchy of the electronic equipment.

Keywords: *pressure sensor; three-dimensional integration, microboards, three-dimensional layout of the electronic module.*

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