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## Features of Boards Formation from High Resistive Silicon for Small-Size Space Microwave Filters

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**Abstract.** The paper presents the technological process of manufacturing microwave filter boards based on high resistive silicon using the Substrate Integrated Waveguide (SIW) technology. The urgency of application of high resistive silicon as a material for creation of space microwave devices is shown. Features of processes of ion-plasma etching of silicon, two-sided thermovacuum sputtering of metal system and obtaining of two-sided topological pattern on substrates with through metallized microholes, which together provide obtaining the specified result, are considered. In accordance with the technological process described in the paper, the boards of bandpass microwave filters for frequencies up to 20 GHz were manufactured.

The authors showed that the greatest influence on the accuracy of manufacturing of microwave filter board elements and, consequently, on the characteristics of devices in rocket and space technology equipment is exerted by: ion-plasma etching of microholes in silicon, thermovacuum sputtering of metal system, and photolithography to obtain the topological pattern in the metallization layer on substrates with through metallized microholes.

**Keywords:** SIW-technology, microwave filter, high resistivity silicon, photolithography, bilateral topological pattern on substrates with through metallized microholes

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