Laser Processing of AlN Ceramics for Obtaining a Conductive Low-Resistance Metallized Layer

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The aim of the project is to research the effect of laser radiation on AlN ceramics, which is significantly superior in its parameters to fiberglass laminate. In this case the surfacing method is used to create conductive tracks on development boards, which has several disadvantages. Therefore, in our work, research and development of methods for laser processing of AlN ceramics are carried out, which allows increasing the parameters of the technological process. In the course of the project, a solid-state Nd: VYO4 laser was used. As a result of the study, the samples of ceramics with a conductive low-resistance aluminum layer on the surface were obtained, which makes it possible to create electronic circuits directly on ceramics. The study established the dependences of the specific resistance and ablation depth of ceramics on the parameters of laser radiation. The dependences obtained allow us to choose the operating parameters of the process of ablation of ceramics. The created schemes with the applications of detected dependencies present a complete product and do not require additional processing. The results of the project are intended for manufacturing of mock-up boards on an industrial scale.

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