Abstracts

Proton Isolation for GaAs Integrated Circuits

D.C. D'Avanzo. "Proton Isolation for GaAs Integrated Circuits." 1982 Transactions on Microwave Theory and Techniques 30.7 (Jul. 1982 [T-MTT] (Joint Special Issue on GaAs IC's)): 955-963.

Significant improvement in the electrical isolation of closely spaced GaAs integrated circuit (IC) devices has been achieved with proton implantation. Isolation voltages have been increased by a factor of four in comparison to a selective implant process. In addition, the tendency of negatively based ohmic contacts to reduce the current flow in neighboring MESFET's (backgating) has been reduced by at least a factor of three. The GaAs IC compatible process includes implantation of protons through the SiO/sub 2/ field oxide layer and a three-layered dielectric- Au mask which is definable to 3-µm linewidths and is easily removed. High temperature storage tests have demonstrated that proton isolation, with lifetimes on the order of 10/sup 5/ h at 290° C, is not a lifetime limiting component in a GaAs IC process.

❑ Return to main document.