

Specific contact resistance of ohmic contacts to n-type SiC membranes

Abstract

Membranes of epitaxial SiC have been used as a means of eliminating the leakage current into the Si substrate during circular transmission line model (CTLTM) measurements. In the n +- 3C-SiC/ Si wafers, the Si substrate was etched in a patterned window with dimensions up to 10 mm x 15 mm². An array of CTLTM metal contacts was then deposited onto the upper surface of the n +-SiC membrane. The CTLTM contacts on the membrane have shown an ohmic current/voltage response while electrodes located on the adjacent substrate were non-ohmic. Values of ρ_c were measured directly on the membranes. These results have shown a significant increase in the current flow below the metal contacts due to the presence of the Si substrate.

Keywords — Circular transmission line model, current flows, metal contacts, Ohmic currents