Abstracts

Silicon High Resistivity Substrate Millimeter-Wave Technology (1986 [MCS])

K.M. Strohm, J. Buechler, P. Russer and E. Kasper. "Silicon High Resistivity Substrate Millimeter-Wave Technology (1986 [MCS])." 1986 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 86.1 (1986 [MCS]): 93-97.

The application of the VLSI-techniques molecular beam epitaxy (MBE) and X-ray lithography for the fabrication of monolithic integrated millimeter-wave devices on high resistlvity silicon has been investigated. Process compatibility and the retention of high resistivity characteristics were measured using the spreading resistance method and Hall measurements after various process steps. Ring- and linear microstrip resonators were fabricated on 10 000 Ohm cm silicon. For linear microstrip resonators, the attenuation was found to be less than 0.6 dB/cm at 90 GHz. A 95 GHz impatt oscillator has been integrated on a highly insulating silicon substrate in a combined monolithic-hybrid technique. The oscillator needs no tuning elements. From preliminary experimental results 8 mW output power with 0.2 % efficiency at 95 GHz oscillating frequency has been obtained.

❑ Return to main document.