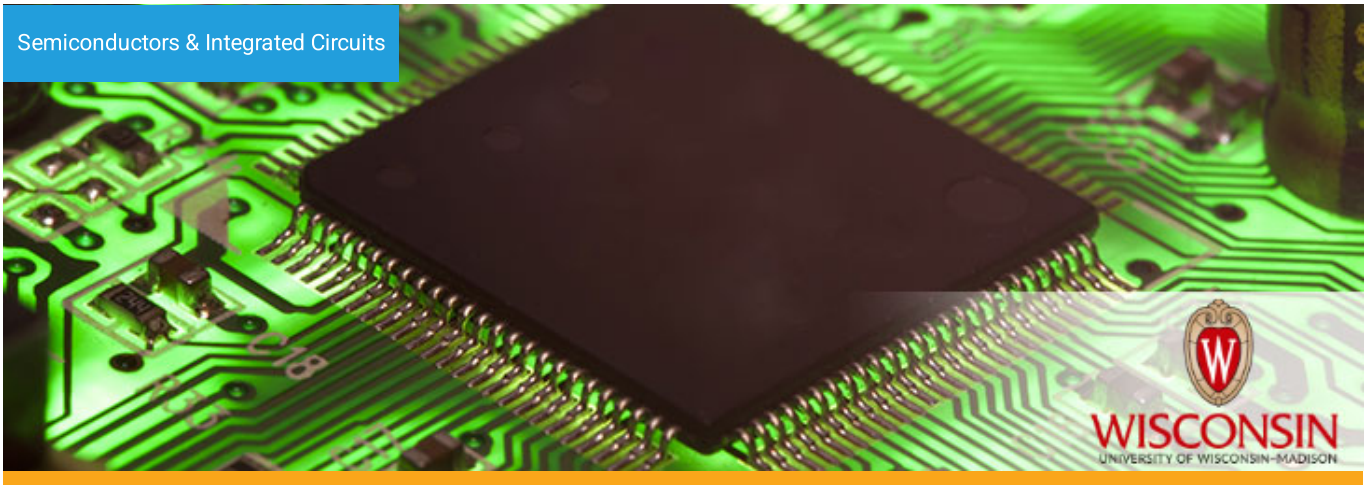

ULTRAHIGH BANDGAP ALGAN CHANNEL HEMTS WITH LOW CONTACT RESISTANCE

WARF: P250192US01

Inventors: Shubhra Pasayat, Swarnav Mukhopadhyay, Chirag Gupta, Khush Gohel

The Invention

UW-Madison researchers have created structures and methods for AlGaN channel high electron mobility transistors (HEMTs). Typically, extreme bandgap AlGaN channel HEMTs show very high ohmic contact resistance, which limits the transistor's performance as a power and RF device. Introducing partial relaxation in the epitaxial structure enables very low contact resistance without compromising the transistor's performance. Moreover, a fully relaxed regrown contact layer grown on a fully strained epitaxial structure of HEMTs reduces the contact resistance further.

Additional Information

For More Information About the Inventors

- Chirag Gupta
- Shubhra Pasayat

Publications

- Vega et al. Modifications in the charge trap landscape in Hf0.5Zr0.5O2 as a function of oxygen vacancy concentration observed with photoemission electron microscopy. Appl. Phys. Lett. 14 April 2025. 126 (15): 152903. https://doi.org/10.1063/5.0252406

Tech Fields

- Semiconductors & Integrated Circuits : Components & materials
- Semiconductors & Integrated Circuits : Design & fabrication

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846