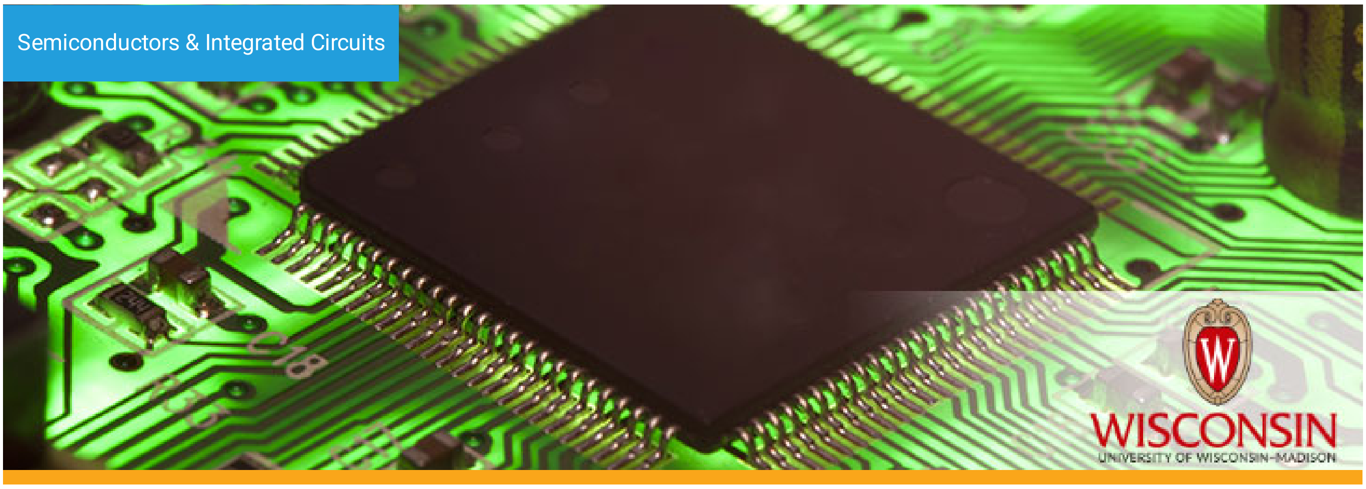

HIGH-FREQUENCY GROUP III-NITRIDE-BASED HIGH ELECTRON MOBILITY TRANSISTORS WITH HIGH-ALUMINUM CONCENTRATION BARRIERS AND RECESSED GATES

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The Invention

UW-Madison researchers have developed improved Group III-nitride based high electron mobility transistors (HEMTs). The HEMTs combine a high-aluminum-content barrier layer with a recessed gate that provides the HEMTs with a very low channel sheet resistance and enables high-power, high-frequency operation. A thick barrier layer increases the distance between the two-dimensional electron gas (2DEG) channel and traps at the exposed surface of the group III-nitride barrier layer, thereby reducing or eliminating current collapse. The recessed gate provides a reduced barrier layer thickness below the gate, reducing the distance between the gate and allowing for good modulation of the 2DEG by the gate.

Additional Information

For More Information About the Inventors

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- Chirag Gupta

Tech Fields

- Engineering : Power electronics & control systems
- Semiconductors & Integrated Circuits : Components & materials

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