CAMBRIDGE | Enterprise

# Gallium oxide on silicon for power electronics



## High-performance power-device material on low-cost wafers

### Technology

Ultra-wide-bandgap gallium oxide, grown on standard silicon wafers: a low-cost, scalable route to the high-voltage power devices that AI data centres and spacecraft now need.

### Benefits

- **Low cost and scalable:** standard silicon wafers in place of small, expensive specialist substrates, processed on standard semiconductor tooling, demonstrated at 100 mm with a clear route to larger wafers
- **Best in class:** electron mobility and high-voltage breakdown among the best reported for gallium oxide
- **Efficient at high voltage:** an ultra-wide bandgap blocks more volts per micron, giving thinner, lower-resistance, lower-loss devices with simplified cooling requirements
- **Runs cooler:** heat dissipation addressable through silicon compatibility
- **Ready to integrate:** processing that drops into a standard device process flow, on wafers that handle like ordinary silicon in existing fabs and packaging lines
- **Robust:** high radiation tolerance and wide temperature stability, opening up new markets for power electronics

### Commercial applications

AI data centre power; Space and satellite power; Transport electrification; Renewable energy, grid infrastructure and offshore wind transmission; High-voltage power conversion