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2006  February 

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# Group4 Labs launches GaN-on-diamond wafers

17 February 2006

**Group4 Labs are targeting high power applications with GaN-on-diamond wafers that have a thermal conductivity up to 30 times higher than compound semiconductor substrates.**

Compound semiconductor materials manufacturer Group4 Labs has released GaN-on-diamond wafers that are claimed to offer unprecedented high temperature resilience.

The company says that its wafers can prevent the device failures that occurs in high power and high speed transistors that are caused by excessive heat build-up within the chip.

This is because Group4's wafers are based on CVD diamond, which has a thermal conductivity 3 to 30 times greater than that of conventional semiconductors and enables the chip to dissipate heat more effectively.

"This new type of semiconductor allows manufacturers of power amplifiers for cellular base stations, microwave and millimeter-wave circuits, UV laser diodes and ultra blue, green and white LEDs to achieve power density levels never before attained," remarked company CEO Felix Ejeckam.

Group4's GaN-on-diamond "Xero Wafers" feature a 0.5 nm-thick atomically smooth nitrogen terminated wurtzite GaN layer and a 25 µm-thick synthetic diamond substrate. The company says that the wafers are suitable for conventional epitaxial growth of GaN and its aluminum and indium-based alloys.

Group4, which was founded in 2003 and is headquartered in Menlo Park, CA, is selling its 10 mm x 10 mm GaN-on-diamond pieces for \$450.

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