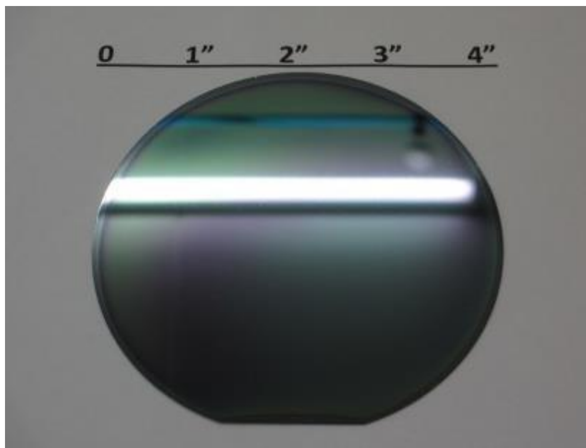
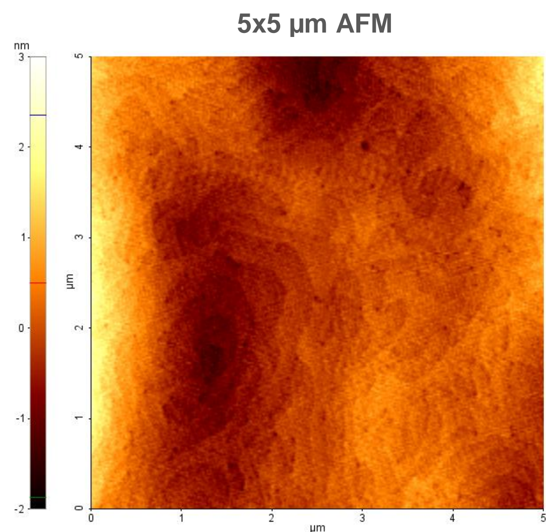
BLUGLASS HEMT DEMONSTRATIONS – November 2017

MOCVD HEMT structure grown on 100mm Si<111>.

A crack free HEMT structure was grown on 100mm Si<111> using MOCVD. Suitable strain engineering achieved zero wafer bow after cool-down as measured by *in situ* Laytec Curvature measurements. AFM confirmed smooth 2D morphology with clear step-flow growth mode.



5x5 µm AFM

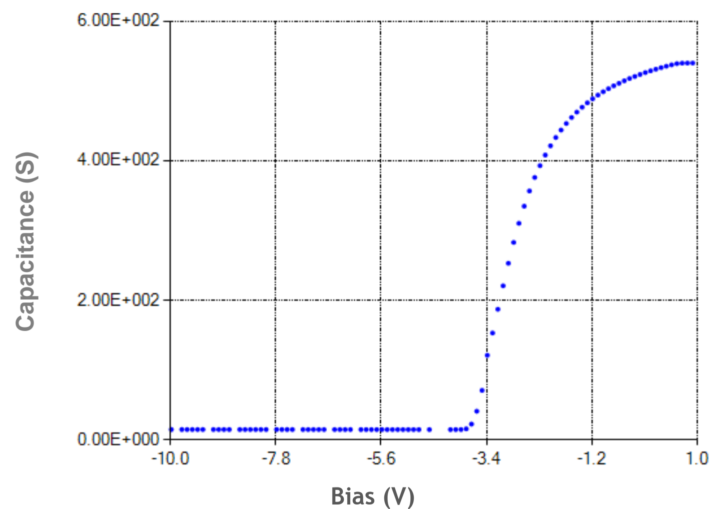


RMS: ~0.5nm

MOCVD HEMT structure grown on 100mm Si<111>.

Hall measurements confirmed a high mobility ~ 2000 cm^2/V.s. Mercury probe CV demonstrated sharply turn-on characteristics.

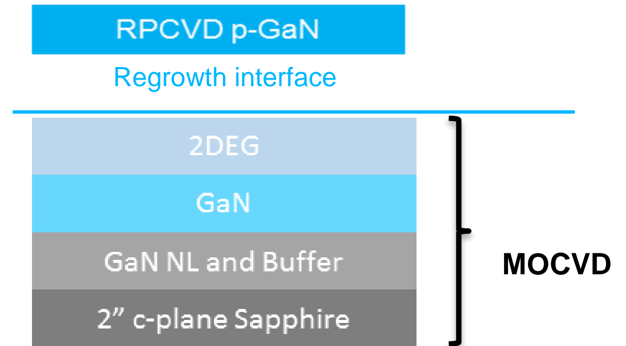
Hall Measurement	
Sheet C.C. (/cm^3)	-1.9E13
Mobility (cm^2/Vs)	1952

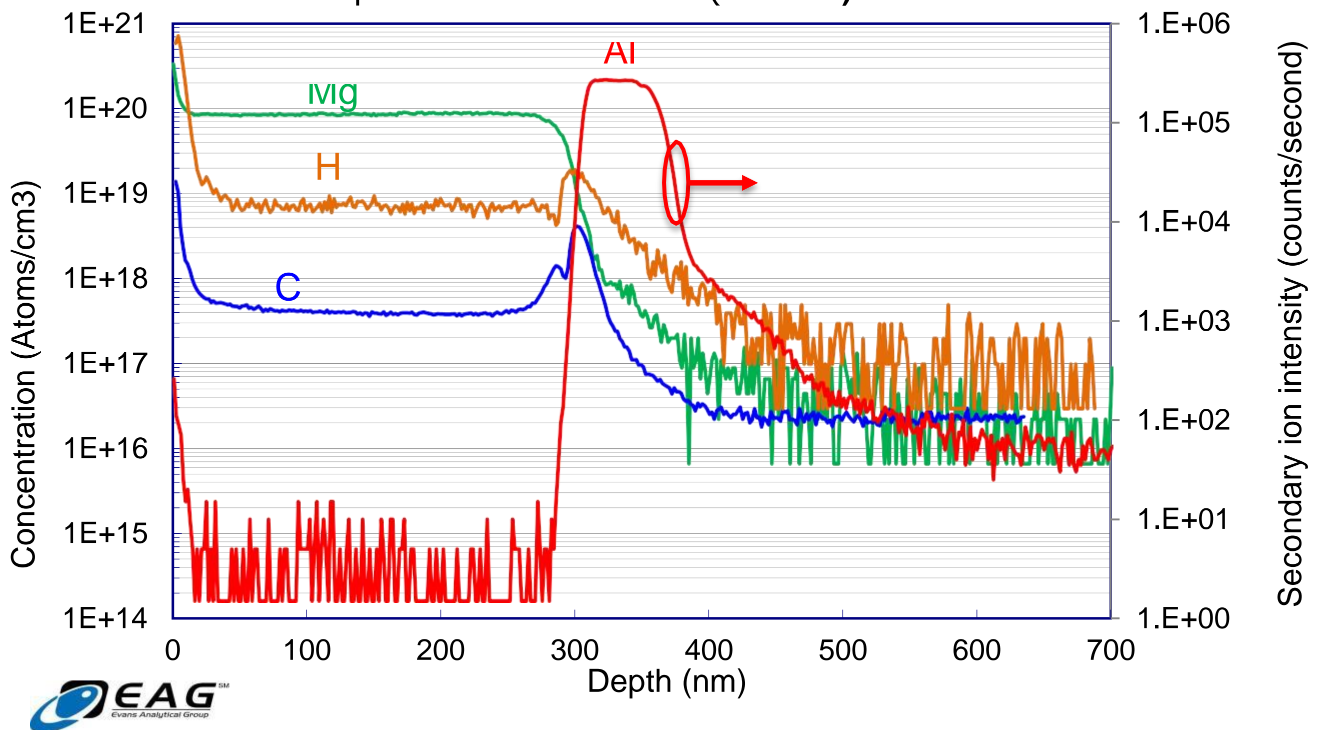


BLUGLASS HEMT DEMONSTRATIONS

RPCVD p-GaN has benefits in the application of GaN for Enhancement-mode HEMT devices.

The lower growth temperature reduces the back-diffusion of Mg into the 2DEG. A sharp Mg turn-on for E-mode HEMTs using p-GaN may help to reduce device breakdown and R_{ON}. To demonstrate this, an MOCVD HEMT was grown on c-plane 2" sapphire. The HEMT was then overgrown by RPCVD p-GaN and SIMS was used to measure the Mg diffusion levels.





Additional information on specialist nitride development and characterisation services as well as specific nitride device development services can be arranged to meet your individual requirements, please contact us for more information.

EPIBLU
SALES@EPIBLU.COM
+ 61 2 9334 2300
74 ASQUITH STREET
SILVERWATER, NSW, 2128
AUSTRALIA