#

22 November 2012

The Manager

Company Announcements Office

ASX Limited

BLUGLASS HITS MATERIAL PROOF OF CONCEPT MILESTONE: PRODUCING n-GaN FILMS THAT MEET INDUSTRY BENCHMARKS

KEY POINTS

- **BluGlass achieves Proof of Concept milestone producing RPCVD grown n-GaN films with industry-equivalent electrical properties**
- **Electrical properties independently verified by expert party**

Australian clean technology innovator, BluGlass Limited (ASX: BLG) announced today that it is now producing n-type gallium nitride (GaN) films with demonstrated industry equivalent performance properties using its breakthrough low temperature Remote Plasma Chemical Vapour Deposition (RPCVD) technology when grown on top of MOCVD GaN templates.

BluGlass is now able to use its low temperature RPCVD technology to produce n-GaN films with low impurities and with good electrical properties equivalent to films grown using the industry standard process – MOCVD. This breakthrough represents the culmination of over 6 years of research by the company. Having demonstrated these material specifications BluGlass is now in a position to commence experiments targeting improved p-GaN layers with the goal of improving LED device efficiency over the current MOCVD produced devices.

ROOM TEMPERATURE HALL MEASUREMENT RESULTS OF AN RPCVD n-GaN FILM GROWN ON A UN-DOPED COMMERCIAL GaN TEMPLATE COMPARED TO A TYPICAL MOCVD GROWN n-GaN FILM

	TYPICAL MOCVD n-GaN SPECIFICATION	RECENT RPCVD n-GaN DATA	
		IQE Data	ANU Data
Mobility	≥ 250 $cm^2/V.s$	297 $cm^2/V.s$	300 $cm^2/V.s$
For a Carrier Concentration	2.0 x 10^{18} cm^{-3}	2.0 x 10^{18} cm^{-3}	2.1 x 10^{18} cm^{-3}

#

The electrical performance properties were independently measured and verified by IQE in the UK, a global supplier of advanced semiconductor wafer products and The Australian National University (ANU), a leading university in semiconductor physics. The metal contacts required to perform the electrical measurements were prepared at the ACT node of The Australian National Fabrication Facility (ANFF). These electrical measurements were also supported by secondary ion mass spectrometry (SIMS) data provided by Evans Analytical Group (EAG) that showed levels of silicon equal to 2.2 x 10^{18} silicon atoms.cm^{-3} which corresponds well to the ANU measured carrier concentration of 2.1 x 10^{18} cm^{-3}.

Giles Bourne, BluGlass CEO, said today “This is a pivotal moment for the company that has significantly de-risked the technology. To have equaled the existing industry n-GaN standard for MOCVD equipment with our R&D RPCVD machine is a testament to the potential of our technology. We look forward to capitalising on our recent achievements and bringing this cutting edge technology to commercial reality”.

The achievement of electrical properties on par with MOCVD grown n-GaN films has been enabled through the reduction of critical impurities; carbon, oxygen and hydrogen. As previously announced, BluGlass has succeeded in reducing these impurities to levels similar to commercially produced GaN based LEDs.

George Venardos, BluGlass Chairman, said “The reduction of impurities and achievement of high quality crystalline GaN with industry matching electrical properties validates the BluGlass technology. These advancements will pave the way for commercialising RPCVD in the LED industry.”

BluGlass Chief Technology Officer Dr. Ian Mann added “The next steps will see the company look to build on this achievement and focus on demonstrating that a low temperature p-GaN layer can improve an LED’s efficiency over commercial devices. While the p-GaN device demonstration is the primary short term commercial focus, the technology team will also continue R&D into solar and other areas of an LED that can take advantage of the low temperature platform technology. BluGlass will also commence the design phase of scaling the technology”.

-Ends-

About IQE:

IQE is the leading global supplier of advanced semiconductor wafer products that cover a diverse range of applications, supported by an innovative outsourced foundry services portfolio that allows the Group to provide a 'one stop shop' for the wafer needs of the world's leading semiconductor manufacturers. The company's GaAs, InP, Si, Sb and GaN based materials enable a diverse range of technologies including wireless, photonic and electronic applications, high efficiency

concentrator photovoltaic (CPV) solar cells and UHB LEDs. IQE has been pioneering advanced semiconductor wafer technology since 1988 and currently operates nine facilities world-wide. Its global headquarters are in Cardiff, United Kingdom.

About ANU:

The Australian National University (ANU) is a leading university with significant expertise in areas such as condensed matter physics, materials science and device engineering. ANU provides world-class research into the growth, structure, properties and applications of semiconductors and related materials and plays a leading role in the development of electronic materials research within the University and broader Australian research community.

About Australian National Fabrication Facility (ANFF)

ANFF is a company established under the National Collaborative Research Infrastructure Strategy to provide nano and microfabrication facilities for Australia's researchers.

Evans Analytical Group (EAG)

EAG is a leading provider of microanalytical surface testing and materials characterisation, trace elemental analysis, electron microscopy and failure analysis.

LED Device Terms:

n-GaN (or n-type GaN) refers to a GaN film that has been *doped* (i.e. the process of adding certain type of atoms - in this case with silicon) to increase the number of free charge carriers (in this case negative electrons)

p-GaN (or p-type GaN) refers to a GaN film that has been *doped* (i.e. the process of adding certain type of atoms - in this case with magnesium) to increase the number of free charge carriers (in this case positive holes)

About BluGlass: BluGlass Limited is an Australian green technology company formed to commercialise a breakthrough in the Semiconductor Industry. BluGlass has invented a new process using Remote Plasma Chemical Vapour Deposition (RPCVD) to grow semiconductor materials such as gallium nitride (GaN) and indium gallium nitride (InGaN), crucial to the production of high efficiency devices such as next generation lighting technology Light Emitting Diodes (LEDs) with advanced low cost potential.

The RPCVD technology, because of its low temperature and highly flexible nature, offers many potential benefits over existing technologies including higher efficiency, lower cost and greater scalability.

Contact: Stefanie Winwood +61 2 9334 2302, +61 433 307 853 swinwood@bluglass.com.au