ALLOS' customers confirm excellent dynamic R_{on} performance of carbon-doping free GaN-on-Si

Dresden, Germany – 14th December 2018 – Known for causing bad dynamic on-resistance, carbon-doping is uniquely avoided by ALLOS and data available from customers now confirmed not only outstanding wafer-level data but also excellent dynamic R_{on} and high temperature performance. In an invited talk at the E-MRS scientific conference in Warsaw ALLOS' co-founder and CTO Dr. Atsushi Nishikawa showed this data and the underlining analysis.

Being able to make this proof is important for the high power electronics (HPE) industry because it confirms the widespread believe that the absence of C-doping can help reduce switching losses at high frequencies (dynamic R_{on}) by reducing electron-trapping effects. Nevertheless, C-doping is usually unavoidable to achieve the required breakdown voltage but it causes lower crystal quality and with that more trapping and reliability issues. ALLOS has therefore overcome this challenge of delivering other crucial performance parameters at the same time by showing - on the same epiwafer not only good dynamic R_{on} - but also the renowned good crystal quality and extremely low leakage of ALLOS. Dr. Nishikawa explains: "In epitaxy you often need to work with trade-offs between different criteria and thus it is really a big success to achieve all required specification parameters at the same time".

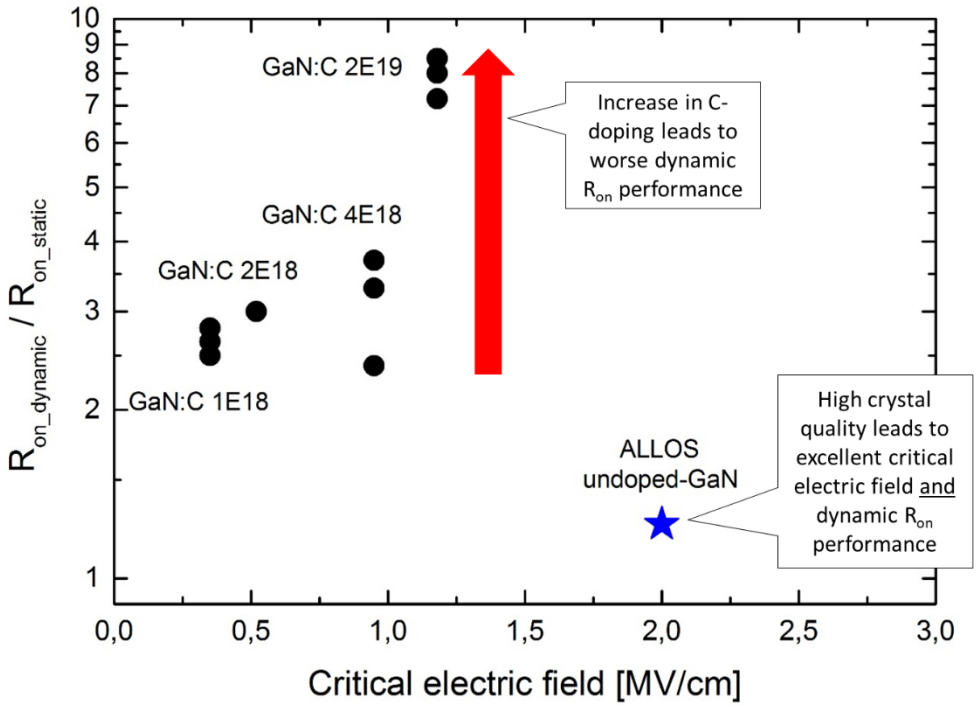

Figure 1: Showing the relationship of critical electric field and dynamic on-resistance (black data points are referred from Würfl *et al.,* IEDM 13-144 (2013)).

"It is ALLOS' value proposition to deliver a technology platform addressing all required spec parameters at the same time to enable our customers to make such epiwafers themselves after a technology transfer from us in only 12 weeks" is added by Alexander Loesing, co-founder and CMO of ALLOS. In addition to excellent dynamic R_{on} and leakage performance, the 150 and 200 mm epiwafers have controlled and flat bow - and through the availability in SEMI-standard thicknesses, the epiwafers are suitable for processing in high volume CMOS-lines.

Based on its business model, ALLOS continues making its epiwafer technology available to high power electronic companies who would like to enter the GaN-on-Si business and avoid the cost, risk and uncertainty of starting their own epi development from scratch. "At the same time also customers who already have an ongoing GaN-on-Si activity can benefit. In some cases they are not yet completely happy with their performance or want to increase the voltage range of their products to 1200 V" is thrown in by Loesing and he further cites that in particular wafer breakage is a key problem still faced by many. Focusing on the low risk which ALLOS offers its customers by guaranteeing the performance delivered in a technology transfer, he adds: "And of course customers can test the technology easily by buying epiwafer samples from us."

About ALLOS Semiconductors

ALLOS is an IP licensing and technology engineering company which is helping clients from the semiconductor industry worldwide to master GaN-on-Si technology and unleash its benefits. ALLOS is providing licenses to its technology know-how and patents as well as transferring the technology to its customers' MOCVD reactors. In addition, ALLOS is delivering customer specific solutions as well as consulting services for next generation GaN-on-Si development challenges.

For further information about ALLOS' technology, licensing options, for your personal copy of the E-MRS presentation and enquiries about epiwafer samples, please contact:

ALLOS Semiconductors GmbH
Alexander Loesing
Breitscheidstrasse 78, 01237 Dresden, Germany
Phone: +49-351-212 937-20
Email: alexander.loesing@allos-semiconductors.com
www.allos-semiconductors.com