

Monday Morning, August 14, 2023

Keynote Address

Room Davis Hall 101 - Session KEY-MoM

Keynote Address I

Moderators: Michael Scarpulla, University of Utah, Uttam Singisetti, University of Buffalo, SUNY

8:30am KEY-MoM-1 Welcome and Opening Remarks,

8:45am KEY-MoM-2 Gallium Oxide as a Material for Power Device Applications, Akito Kuramata, Novel Crystal Technology, Inc., Japan
INVITED

Ga₂O₃ is expected as a material for next generation power devices. Since it has a large bandgap energy and a large breakdown electric field strength, it is suitable for high breakdown voltage applications. It is a material that can be produced at a lower cost than SiC and GaN because it can be melt-grown and its hardness is not high.

Currently, 100-mm substrates manufactured by the EFG method are commercially available. A 100-mm epitaxial wafer with a carrier concentration of 10^{15} - 10^{17} cm⁻³, grown by the HVPE method, has also been commercialized. There are no commercial Ga₂O₃ devices yet, but research is progressing. So far, SBDs and FETs have been demonstrated with ampere-class currents and breakdown voltages of 1 kV or higher. In the presentation, I will introduce the above and talk about the challenges for commercialization of Ga₂O₃ devices.

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