# Electrical Properties of SiO2/n-GaN Metal – Oxide – Semiconductor with Liquid-Phase-Deposition Oxide


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**ABSTRACT**

The liquid-phase-deposition (LPD) oxide has been grown on GaN substrate under room temperature by using an aqueous solution of supersaturated hydrofluosilicic acid (H2SiF6) and an aqueous solution of boric acid (H3BO3). In this study, the as-grown LPD samples were annealed at 700、 800 and 900°C for 5 minutes under N2 or vacuum environments to improve their electrical properties. We found that the breakdown voltage was increased, fixed oxide charge and interface trap densities were reduced. Furthermore, anneal in vacuum would have more improvements than anneal in N2. The current-voltage (I-V) and capacitance-voltage (C-V) characteristics were investigated to determine electrical properties. The composition was examined by energy-dispersive x-ray (EDX) and X-ray photoelectron spectroscopy (XPS) and (SIMS).



Keywords : GaN ; liquid-phase deposition ; fixed oxide charge ; interface trap density


**Table of Contents**



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