Characterizations of Metal-Oxide-Semiconductor Field-Effect Transistors of ZnGaO Grown on Sapphire Substrate

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ABSTRACT

Zinc gallate (ZnGaO) epilayers were grown on a c-plane sapphire substrate by metalorganic chemical vapor deposition and fabricated into metal-oxide-semiconductor field-effect transistors (MOSFETs). The ZnGaO MOSFETs exhibited a complete channel pinch-off of the drain current for $V_{GS} < -4.43$ V, high off-state breakdown voltage of 378 V, high $I_{ON}/I_{OFF}$ ratio of $10^6$, and low gate leakage current.

Keywords: Zinc gallate, metal-oxide-semiconductor field-effect transistors (MOSFETs),

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