

## Supplementary Information

### MOCVD-grown $\text{Ga}_2\text{O}_3$ as a gate dielectric on AlGaN/GaN based heterojunction field effect transistor.

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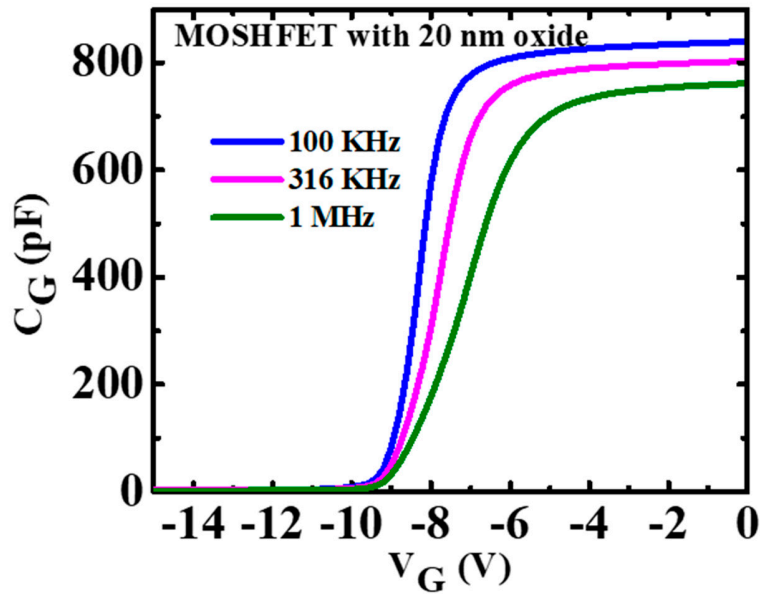
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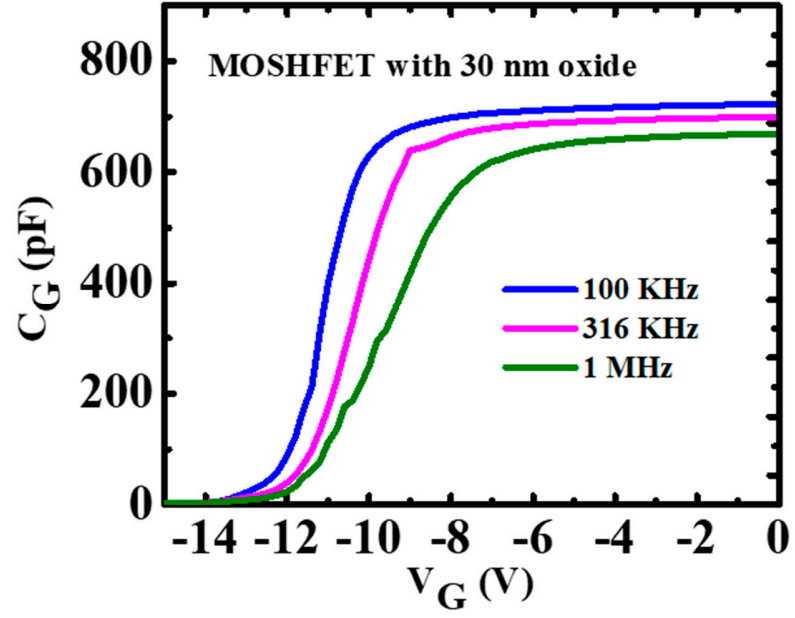
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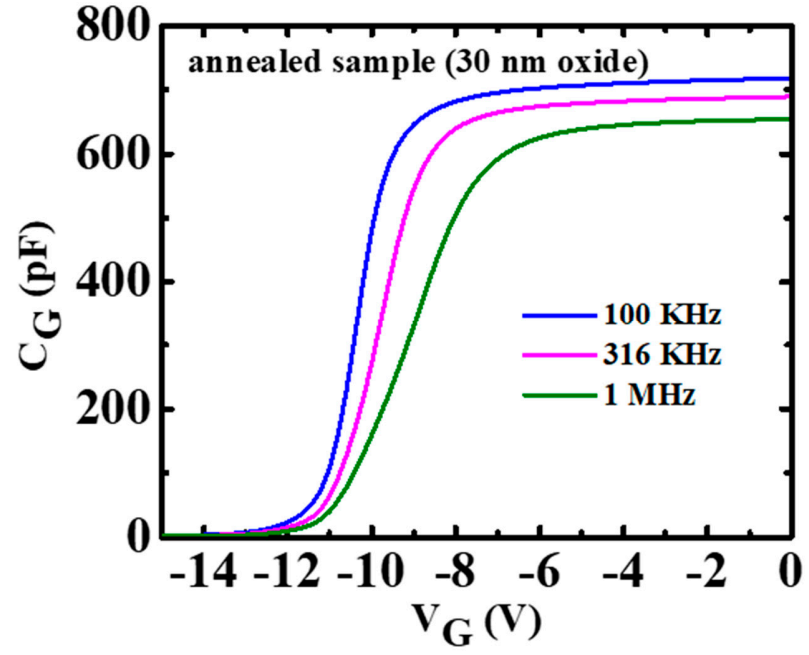
(a)



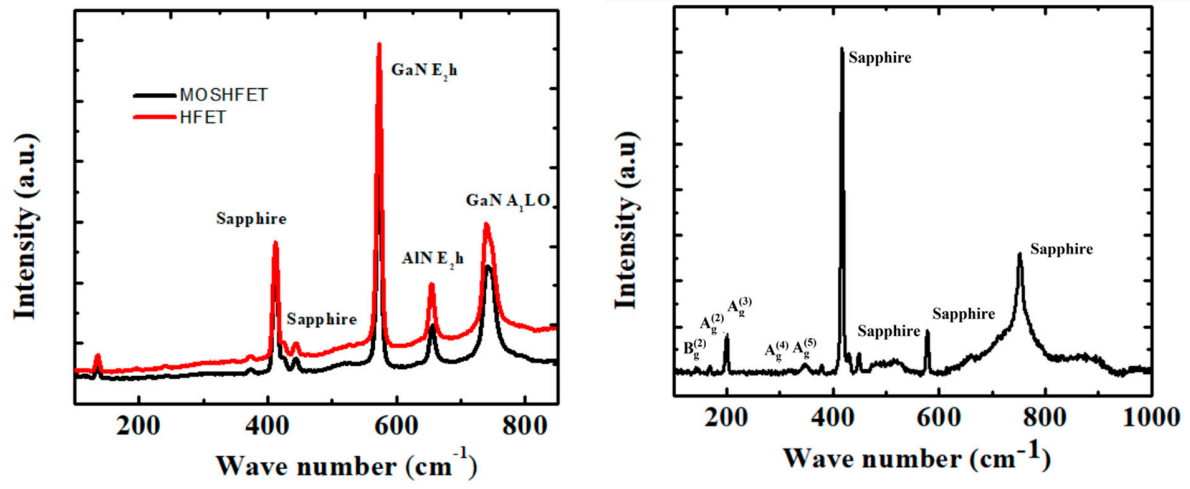
(b)



(c)



**Figure S1.** Frequency-dependent CV measurements of MOSHET with (a) 20 nm thick gate oxide (b) 30 nm thick gate oxide, and (c) annealed 30 nm thick gate oxide.



**Figure S2.** (a) Raman spectra of HFET and MOSFET (30 nm oxide), (b) Raman spectra of Ga<sub>2</sub>O<sub>3</sub> on sapphire to identify the Ga<sub>2</sub>O<sub>3</sub> signature peak positions.