

# **Simulation and Analysis of the Effects of High-Electron Mobility Transistors Based on AlGa<sub>N</sub> / GaN to Provide Improved Structure in Digital Applications**

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**In this study, a HEMT which stands for "high electron mobility transistor" was studied. The examined HEMT structure was based on AlGa<sub>N</sub> / GaN, has been simulated and analyzed in the SILVACO software environment. By performing DC and other analysis, the output curves , transients and other device characteristics were investigated carefully. The results of the simulation indicated some specific flow characteristics of this device. Also, by the modification of molar aluminum in composition, and changes in behavior of the electrical characteristic curves and the energy strip patterns analyzed.**

**Keywords : Effect transistors, AlGa<sub>N</sub>/GaN, Digital applications**

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