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Thermal Effect in Power Electrical for HEMTs Devices with InAlN/GaN

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Abstract : In this paper, we have evaluated the thermal effect for high electron mobility transistors (HEMTs) heterostructure InAlN/GaN with a gate length 30nm high-performance. It also shows the analysis and simulated these devices, and how can be used in different application. The simulator Tcad-Silvaco software has used for predictive results good for the DC, AC and RF characteristic, Devices offered max drain current 0.67A; transconductance is 720 mS/mm the unilateral power gain of 180 dB. A cutoff frequency of 385 GHz, and max frequency 810 GHz These results confirm the feasibility of using HEMTs with InAlN/GaN in high power amplifiers, as well as thermal places.

Keywords : HEMT, Thermal Effect, Silvaco, InAlN/GaN
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