HBTs exhibit both higher power density than HEMTs. Output capacitance for a given power level is also lower, enabling higher bandwidths in broadband power amplifiers. High base sheet and contact resistance are major impediments to high HBT bandwidths in the AlGaN/GaN material system. Difficulties with base resistance can be greatly reduced by scaling the emitter and collector junction widths to c.a. 0.1 microns. In combination with recent advances in P-doping of AlGaN/GaN materials, high HBT bandwidths are feasible.

FUSION

\[ \text{Si:C} \]

InAlAs

InP

SiC Mie Bieg0 Superlattic.