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Title:High peak-to-valley current ratio In_{0.53}Ga_{0.47}As/AlAs resonant tunneling diode with a high doping emitter

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Abstract:An In_{0.53}Ga_{0.47}As/AlAs resonant tunneling diode (RTD) with a high doping emitter is designed and fabricated using air bridge technology. The RTD exhibits a high peak-to-valley current ratio (PVCR) of more than 40 at room temperature, with a peak current density of 24 kA/cm². The extraction of device parameters from DC and microwave measurements is presented together with an RTD equivalent circuit. The high PVCR RTD with small intrinsic capacitance is favorable for microwave/THz applications. © 2012 Chinese Institute of Electronics.

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Main heading:Landforms

Controlled terms:Equivalent circuits - Gallium - Resonant tunneling diodes - Scattering parameters

Uncontrolled terms:Air bridge technology - Device parameters - Intrinsic capacitance - Peak current density - Peak to valley current ratio - Room temperature

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