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Abstract:We report on the room-temperature electrical rectification at 1.5 THz of a unipolar nanodiode based on symmetry breaking in a nanochannel. The exploitation of its nonlinear diodelike characteristic and intrinsically low parasitic capacitance enables rectification at ultrahigh speed. The zero-voltage threshold and unique planar layout make the nanodiode suitable for building large arrays. This is the highest speed reported in nanorectifiers to date.