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Title:Cross-bar design of nano-vacuum triode for high-frequency applications
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Abstract:In this letter, a new nano-vacuum triode based on carbon nanotubes (CNTs) has been designed. The use of CNTs as emitters with their extremely high aspect ratio and their characteristics to be patterned in specific emitting areas allowed the realization of a cross-bar geometry for which the transconductance is maximized and the grid-cathode capacitance is reduced. This allowed us to achieve a device cutoff frequency of 156 GHz, which is well beyond the state of the art. © 2012 IEEE.
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