

Characteristics of Silicon Integrated Vertical Carbon Nanotube Field-Effect Transistors

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Abstract : A new vertical carbon nanotube field effect transistor (CNTFET) has been developed. The source, drain and gate are vertically stacked in this structure. The carbon nanotubes are put on the side wall of the vertical stack. Unique transfer characteristics which depend on both silicon type and the sign of drain voltage have been observed in silicon integrated CNTFETs. The significant advantage of this CNTFET is that the short channel of the transistor can be fabricated without using complicate lithography technique.

Keywords : carbon nanotubes, field-effect transistors, electrical property, short channel fabrication

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