

A novel 2-bit/cell MONOS memory device with a wrapped-control-gate  
structure that applies  
source-side hot-electron injection

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We have proposed a novel 2-bit/cell MONOS memory structure that features a wrapped gate. Programming and erasing are by source-side hot-electron injection and hot-hole injection, respectively. With this device, programming speeds  $< 1 \mu\text{s}$  with a programming current  $< 2 \mu\text{A}/\mu\text{m}$ , and erasing speeds  $< 10 \mu\text{s}$  have been achieved.