Constant-Charge-Injection Programming for 10-MB/s Multilevel AG-AND Flash Memories

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We have developed a constant-charge-injection programming (CCIP) for high-speed multilevel flash memories. In our scheme, constant charge stored in the bit-line is discharged through memory cell and hot electrons generated at that moment are injected into the floating gate. By utilizing CCIP, we can suppress the deviation of programming characteristics, which is caused by the V_{th} deviation of MOS transistor under assist-gate. AG-AND flash memory with proposed scheme enables 10-MB/s multilevel programming