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High-speed programming technologies for multilevel AG-AND flash memories - 20-fold increase in hot electron injection speed achieved during programming -



4 Gbit AG-AND Flash Memory
with high-speed multilevel programming circuit technology

Renesas Technology Corp. and Hitachi, Ltd. have co-developed two high-speed programming technologies for AG-AND (Assist Gate-AND) flash memory devices, high-speed data storage built with multilevel cell technology. Details of the new technology was presented at the 2005 Symposia on VLSI Technology and Circuits, an international conference on LSI devices and circuits, held in Kyoto, Japan from 14th-18th June 2005.

The new developments comprise of (1) a memory cell operation technology that boosts the efficiency of hot electron injection by a factor of 20 during programming, and (2) a multilevel, high-speed programming circuit technology that reduces the overhead associated with multilevel programming. The circuit technology has been applied to Renesas' 4-Gigabit AG-AND flash memories (90-nanometer process technology), which are now in volume production.