Polycrystalline germanium junctionless FET for stacking CMOS

Practical transfer characteristics have been obtained.

We have developed polycrystalline germanium (Ge) junctionless FETs for stacking CMOS that are expected to realize a high performance and multifunction IC. A large junction leakage current, a major drawback in Ge FETs, has been overcome by using junctionless FET with a narrow fin channel. Our results pave the way for high mobility channel materials which currently suffer from a large junction leakage current originating in small bandgap to suppress an increase in off-current. Practical transfer characteristics have been obtained.

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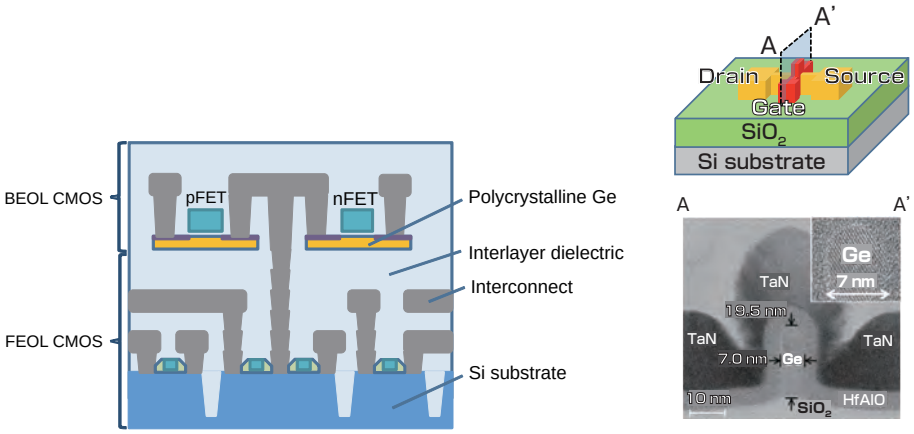

Schematic of stacking CMOS (left), schematic and cross-sectional TEM image of the polycrystalline Ge junctionless transistor (right)

High-access survey robot

Working at TEPCO Fukushima Daiichi Nuclear Power Station

Honda Motor Co., Ltd. and AIST have jointly developed a remotely controlled survey robot that conducts on-site surveys on the first floor of a nuclear reactor building at Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company, Inc. (TEPCO) and help discern structures in high and/or narrow areas.

The survey robot was developed to support the actual needs based on information provided by TEPCO concerning conditions inside the reactor building. AIST developed the high-area accessible crawler work platform and Honda developed the survey-performing robot arm, which is installed on the top of the platform.

This newly developed survey robot is working inside the Unit 2 reactor building since June 18, 2013 and has successfully collected required data.

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The high-access survey robot when driving (left) and when surveying (right)