

75 Word Abstract

0.18 μ m SBT-Based Embedded FeRAM Operating at a Low Voltage of 1.1V

Y. Nagano, T. Mikawa, T. Kutsunai, S. Hayashi, T. Nasu, S. Natsume, T. Tatsunari, T. Ito, S. Goto, H. Yano, A. Noma, K. Nagahashi, T. Miki, M. Sakagami, Y. Izutsu, T. Nakakuma, H. Hirano, S. Iwanari*, Y. Murakuki*, K. Yamaoka*, Y. Goho*, Y. Judai, E. Fujii, and K. Sato

ULSI Process Technology Development Center, Semiconductor Company, Matsushita Electric Industrial Co., Ltd.
19 Nishikujo-kasuga-cho, Minami-ku, Kyoto 601-8413, Japan

*CE System LSI Development Center, Semiconductor Company, Matsushita Electric Industrial Co., Ltd., Kyoto, Japan

We have successfully developed a 0.18 μ m SBT-based 1Mbit embedded FeRAM, which operates at a very low voltage of 1.1V and ensures the data retention time up to 1000hours at 125°C. The low voltage operation and high reliability characteristics of 0.18 μ m embedded FeRAM are the first demonstration to our knowledge. These excellent characteristics have been attained by newly developed FeRAM completely encapsulated by hydrogen barriers.