

Abstract

Retention Time Improvement by Fast-Pull and Fast-Cool[FPFC] Ingot Growing Combined with Proper Arrangement of Subsequent Thermal Budget for 0.18um DRAM Cell and beyond

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The denudation scheme based on vacancy-assisted BMD[Bulk Micro Defect] formation for reducing grown-in defects and the method of reducing STI-stress caused by denudation thermal budget was investigated to improve the retention time of high density DRAM with STI[Shallow Trench Isolation]. In this paper, we report the denudation scheme employing low-cost FPFC[Fast-Pull and Fast-Cool] ingot growing, combined with proper arrangement of subsequent thermal budget, resulting in excellent improvement of DRAM retention time.