

Micro-trench stacked (MTS) capacitor의 특성

(Characteristics of the Micro-Trench Stack Capacitor)

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[Introduction]

Storage mode, which has micro trench structure, has been made to extraordinarily increase the area of DRAM capacitor. The advantage of this simple fabrication process is that capacitor effective area can be increased without using complicated cell structure.

[Experiment]

Island HSGs are formed after thin CVD oxide deposition on the storage node. Thin CVD oxide dry etch using this HSG as mask is followed by sequential storage node etch. The fabrication method of stacked micro trench is as follows.

[Results]

The micro trench stack which has greatly increased surface area can be obtained. The micro trench stack has five times increase in capacitance compare to conventional capacitor. This also has comparable electrical characteristics and reliability. Thus, this micro trench stack is practical cell structure which might be applicable to 64Mb DRAM or beyond.