

Fabrication of amorphous silicon microgap structure for energy saving devices

Abstract

We report here the fabrication of microgaps electrodes on amorphous silicon using low cost techniques such as vacuum deposition and conventional lithography. Amorphous silicon is a low cost material and has desirable properties for semiconductor applications. Microgap electrodes have important applications in power saving devices, electrochemical sensors and dielectric detections of biomolecules. Physical characterization by scanning electron microscopy (SEM) demonstrated such microgap electrodes could be produced with high reproducibility and precision. Preliminary electrical characterizations showed such structures are able to maintain a good capacitance parameters and constant current supply over a wide ranging differences in voltages. They have also good efficiency of power consumption with high insulation properties.