

The Effect of Three-Dimensional Morphology with Wet Chemical Etching in Solar Cells

Hyunyub Kim¹, Jangho Park², Hyunki Kim², Joondong Kim²

¹School of Information and Communication Engineering, Sungkyunkwan University, Suwon 440-746,

²Department of Electrical Engineering, Kunsan National University, Kunsan 753-701, Korea

Optimizing morphology of the front surface with three dimensional structures (3D) in solar cell is essential element for not only effective light harvesting but also carrier collection and separation without the cost burden in process. We designed a three-dimensionally ordered front surface with wet chemical etching. Wet chemical etching is a proper way to have three dimensional structures. The method efficiently transmits the incident light at the front surface to a Si absorber and has competitive price in manufacturing when comparing with reactive ion etching (RIE) to have three dimensional structures. This indicates that optimized front surface with three dimensional structures by wet chemical etching will bring effective light management in solar cells.

Keywords: Three dimensional structures, Front surface, Wet chemical etching, Solar cells