

Properties of nanostructured solar cell prepared at different etching time

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Abstract

This paper presents a study of PS layer formed by photoelectrochemical etching on p-n wafer by using He-Ne laser to illumination the wafer during the etching process, An investigation of the dependence on illumination time on solar cells characteristics. Dark current-voltage characteristics of these cells are studied and the surface morphology would dependent of the etching time. Under AM1 illumination the PS/p-n which improves the ISC about 28% and increased fill factor from 0.34 to 0.53 at 5min etching time (i.e., decreased the resistivity of top layer (PS)). These allowing improving the conversion efficiency approximated to 15%

Key word: porous silicon, photoelectrochemical etching, etching time, solar cell