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I-V-T and admittance measurement on a-Si:H/c-Si solar cell device structure

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Abstract:

Hydrogenated amorphous silicon (a-Si:H) layers of n type was deposited on p type crystalline silicon substrate using Plasma Enhanced Chemical Vapor Deposition (PECVD) system. After evaporating ohmic contact electrode on the side of substrate and on the side of a-Si:H film, a heterojunction structure of electrode/a-Si:H(n)/c-Si(p)/electrode was obtained. The rectification behavior of the device is confirmed by current voltage (I–V) measurement. The interface state of a-Si:H/c-Si heterojunction device were investigated by current voltage and admittance spectroscopy measurements. It was shown that the current–voltage data of our a-Si:H/c-Si heterojunction structure can be analysed by tunneling enhanced recombination model.