

Study of External Quantum Efficiency for Triple-Junction Solar Cell

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ABSTRACT

The main work of this thesis is to study on the growth of high quality triple-junction solar cells on Ge substrates using metal-organic chemical vapor deposition (MOCVD) epitaxial technique. The structure of triple-junction solar cell is quite complex. Therefore, in order to reduce the development costs and shorten the development time, the external quantum efficiency (EQE) is used to understand the characteristics of solar cell under the influence of device structure. The grown wafers were processed into 10 mm × 10 mm cells by standard processing techniques, and the actual conversion efficiency was measured with solar simulator. The improvement on the conversion efficiency was achieved from the analysis of measured EQE and conversion efficiency.

Keywords : MOCVD、GaAs、Solar cells

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