EW-P011

TCO Workfunction Engineering with Oxygen Reactive Sputtering Method for Silicon Heterojunction Sola Cell Application

봉성재[1], 김선보[2], 안시현[1], 박형식[1], 이준신[1,2,*]

[1]성균관대학교 정보통신대학 전자전기컴퓨터 공학부, [2]성균관대학교 에너지에너지과학과

On account of the good conductivity and optical properties, TCO is generally used in silicon hetero-junction solar cell since the emitter material, hydrogenated amorphous silicon (a-Si:H), of the solar cell has low conductivity compare to the emitter of crystalline silicon solar cell. However, the work function mismatch between TCO layer and emitter leads to band-offset and interfere the injection of photo-generated carriers. In this study, work function engineering of TCO by oxygen reactive sputtering method was carried out to identify the trend of band-offset change. The open circuit voltage and short circuit current are noticeably changed by work function that effected from variation of oxygen ratio.

Keywords: oxygen reactive puttering, workfunction, silicon heterojunction solar cell