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(54) MULTI-JUNCTION SOLAR CELL AND METHOD FOR MANUFACTURING THE

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(57)ABSTRACT

Disclosed is a method for manufacturing a multi-junction solar cell including forming a lower cell, depositing a metal thin film layer on the lower cell, heat-treating the metal thin film layer to form a recombination layer and an intermediate charge transport layer, and forming an upper cell on the intermediate charge transport layer. After depositing a metal thin film on top of the lower cell, the deposited metal thin film is heat-treated at a high temperature, so that metal atoms in the metal thin film diffuse to the top of the lower cell to form the recombination layer of silicide at an interface between the metal thin film and the lower cell, and at the same time, oxygen atoms diffuse into the metal thin film to form metal oxide (the charge transport layer) at a surface of the metal thin film.

Metal electrode
Transparent electrode
Buffer layer
Charge transport layer
Top cell absorber
Charge transport layer
Recombination layer
Emitter or charge transport layer
Bottom cell absorber
Back surface field or charge transport layer
Passivation
Reflection layer
Metal electrode