Fabrication of roughen transparent conductive layer on solar cells by anidic aluminum oxide technique

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ABSTRACT

This thesis is to study the effect of micro-structure on anti-reflection for a transparent conducting layer (TCL). The process to form micro-structure on a TCL is as following. First, an Al film was deposited on TCL by E-beam evaporation. Then, porous alumina membrane pores were formed by anodic oxidation technology. Next, TCL was wet etched to form micro-structure on surface by using porous alumina membrane as mask. The aperture size can be controlled with different anodic oxidation conditions, such as oxidation time, oxidation voltage, barrier layer removal and pore widening time. Both surface morphology and aperture size were examined by field emission scanning electron microscopy. Finally, TCL with micro-structure was applied to solar cells for anti-reflection.

Keywords : Anodizing、porous alumina

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