

Characterizations of Metal Induced Lateral Crystallization Poly-Silicon

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ABSTRACT

Recently, polycrystalline silicon (poly-Si) has received increasing attention because of its wide range application, such as Thin Film Transistor (TFT) for liquid crystal display, solar cell and image sensors. But now, the growth method of poly-Si including (1) Low Pressure Chemical Vapor Deposition (LPCVD) (2) Solid Phase Crystallization (SPC) and (3) Laser Crystallization (LC) .The LC method is expensive and cannot mass production due to laser annealing. However, both LPCVD and SPC methods have high growth temperature (above 600) , resulting in fused quartz or silicon substrate is needed, which is high cost. In this plan, the poly-Si film is deposited by MILC (Metal-Induced Lateral Crystallization) technique under 500 and the quality of MILC poly-Si film is better than SPC, so that the glass substrate is used; The procedure of annealing uses Two-Step RTA (Two-Step Rapid Thermal Annealing) and is better than CFA (Conventional Furnace Annealing) to decrease time which take in the process. These is low cost and easy to mass production.

Keywords : MILC: Metal Induced Lateral Crystallization ; LPCVD: Low Pressure Chemical Vapor Deposition ; SPC: Solid-Phase Crystallization ; LC: Laser Crystallization ; Two-Step RTA : Two-Step Rapid Thermal Annealing ; CFA : Conventional Furnace Annealing

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