Self-Heating Effect of Low-Temperature Polycrystalline Silicon Thin Film Transistor Considering Grain Boundary Protrusion

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A proper estimation of the self-heating effect is crucial to ensure the reliable performance of high mobility transistors. We perform Silvaco TCAD based thermal distribution modeling in grain, grain boundary (GB) and protrusion of excimer laser annealed (ELA) low-temperature polycrystalline (LTPS) silicon thin-film transistors (TFTs).