Invited Paper: Development of Novel LTPS Technology

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Abstract

Using heat retaining layer to enhance silicon crystallization has been achieved. More than 4μm grain size of silicon lateral growth crystallization by single shot laser irradiation was developed. 164cm^2/Vs of electron mobility for single gate and 260 cm^2/Vs of electron mobility for dual gate with threshold voltage of 2.35V and 1.5, respectively were observed. In addition, typical 100nm grain size of silicon micro-crystallization without incubation interface growth layer by in-situ deposition process has been developed separately.

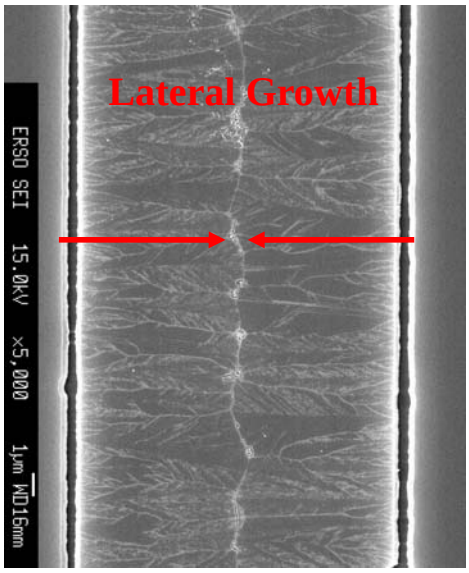

Figure 1. SEM Top View of Heat Retaining Enhanced Silicon Crystallization

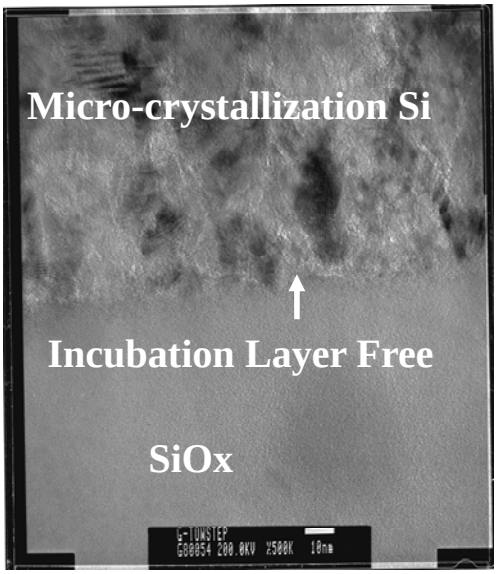

Figure 2. TEM Cross Section of Micro-crystallization by In-situ Deposition