Remarkable stability and hydrogen resistance on high-mobility oxide TFTs via N2O plasma reactant in atomic layer deposition

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AA13: Display Application: Thin Film Transistor, Diodes, Thin Film Encapsulation for OLEDs/QDs…

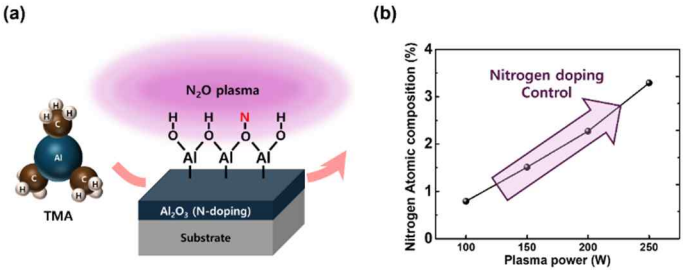

Figure 1. (a) Schematic of the Al_2O_3 deposition process using N_2O plasma reactant. (b) Nitrogen doping concentration and film density of Al_2O_3 as a function of plasma power.

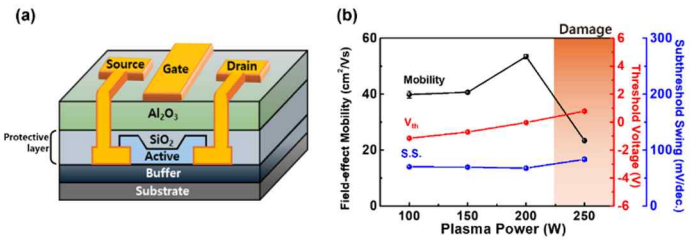

Figure 2. (a) Schematic of TFTs using Al_2O_3 gate insulators with a SiO_2 protective layer. (b) Summary of electrical properties of IGZO TFTs with respect to N_2O plasma power.

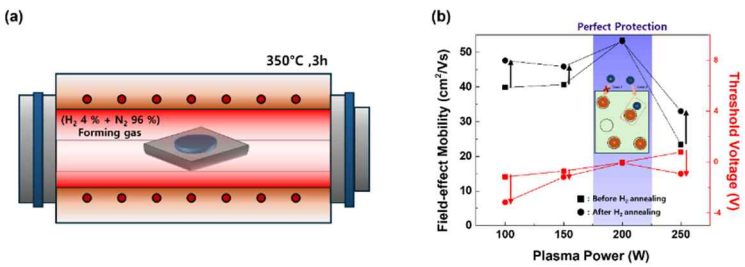

Figure 3. (a) Schematic of hydrogen annealing at 350 °C, 3 h. (b) Device properties before and after hydrogen annealing.