Supplemental Document

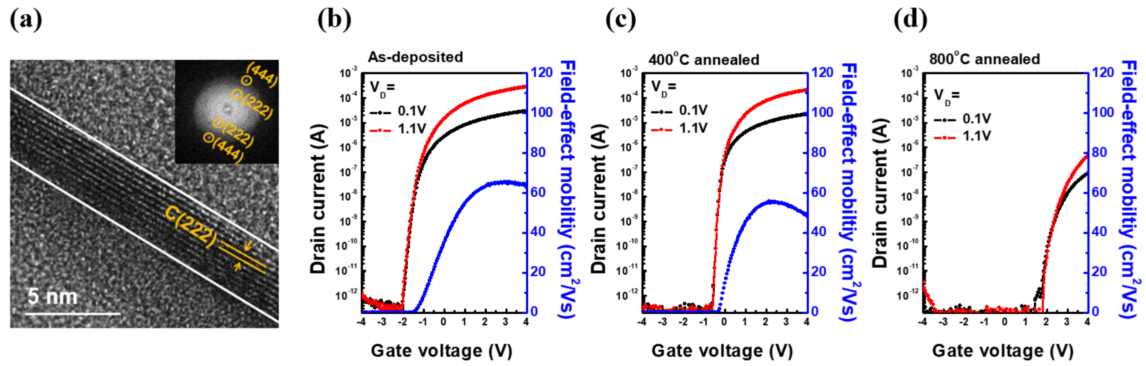

Figure 1. (a) HRTEM image of 3 nm thick InO deposited at 250 ºC. The transfer curve of 250 ºC deposited InO channel FET, **(b)** as-depositied, **(c)** 400 ºC annealed and (d) 800 ºC annealed.

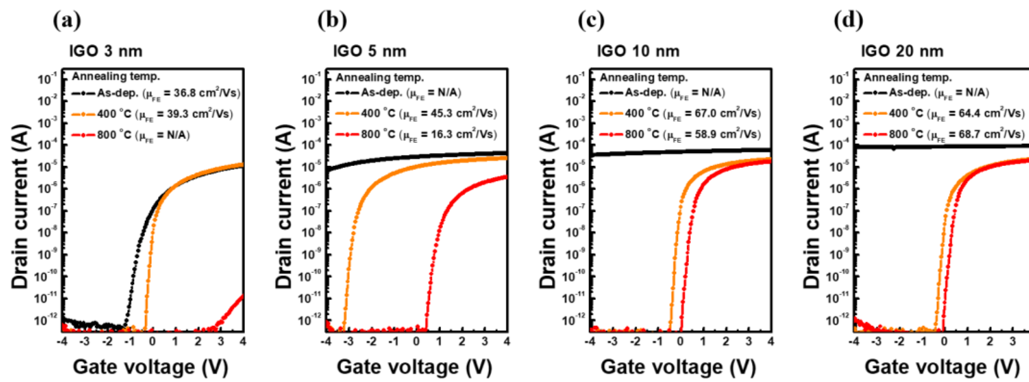

Figure 2. The transfer curves and extracted field-effect mobility of gallium doped InO (IGO) channel FET after the post-annealing process at 400, 800 ºC for 3 hours. The thickness of the IGO channel is **(a)** 3 nm, **(b)** 5 nm, **(c)** 10 nm, and **(d)** 20 nm.

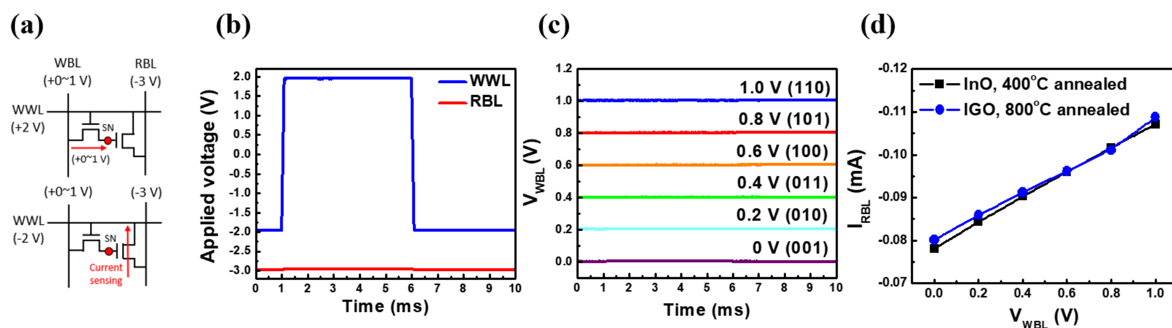

Figure 3. (a) Schematics and operation examples of 3-line structure 2T0C DRAM. Timing voltage waveform of **(b)** WWL, RBL, and **(c)** WBL, of 3-line based 2T0C DRAM. **(d)** Measured RBL current values at 10 ms according to the WBL voltage.