Homogeneously Doped Atomic Layer Deposition Zinc Tin Oxide Thin Films for Improving Contact Resistance in Semiconductor Device Applications

Alex Ma^{a,c}, Triratna Muneshwar^{a,b}, Ken Cadien^a, Doug Barlage^c

^a Chemicals and Materials Engineering, University of Alberta, Alberta, Canada T6G 1H9

^b Synthergy Inc., Donadaeo ICE 9203 116 St, Edmonton Alberta, T6G 1H9

^c Electrical and Computer Engineering, University of Alberta, Alberta, Canada T6G 1H9

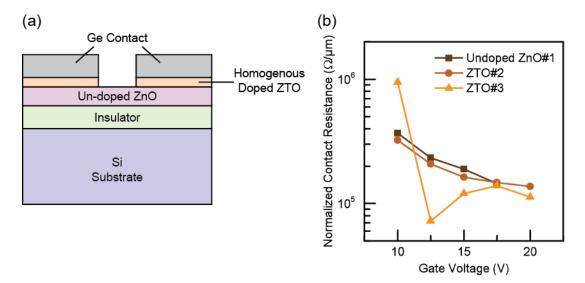


Fig. 1(a) Cross-section schematic of the device structure used to perform the gated transmission line method (TLM) analysis. (b) Extracted normalized contact resistance from the TLM analysis for un-doped ZnO and two doped ZTO films with increasing concentrations of tin – numbered in order from least doped (#1) to most (#3).