Improved Electrical Properties of Indium Gallium Zinc Oxide Thin–film Transistors by AZO/Ag/AZO Multilayer Transparent Electrode

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We fabricated a-IGZO TFT with AZO/Ag/AZO transparent multilayer source/drain contacts by rf magnetron sputtering. Enhanced electrical device performance of a-IGZO TFT with AZO/Ag/AZO multilayer S/D electrodes (W/L = 400/50 μm) was achieved with a sub-threshold swing of 3.78 V/dec, a minimum off-current of 10-12 A, a threshold voltage of 1.80 V, a field effect mobility of 10.86 cm2/Vs, and an on/off ratio of 9x10^9. It demonstrated the potential application of the AZO/Ag/AZO film as a promising S/D contact material for the fabrication of the high performance TFTs.

Acknowledgements

This work was support by both KIST Future Resource Program and the Converging Research Center Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science, and Technology (grant number 2011K000592).

Keywords: Ohmic contact, Dielectric-metal-dielectric multilayer, Indium Gallium Zinc Oxide, Source-drain current, Thin film transistor