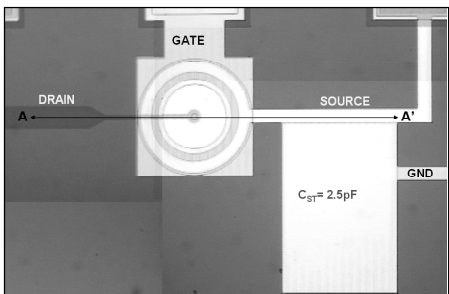
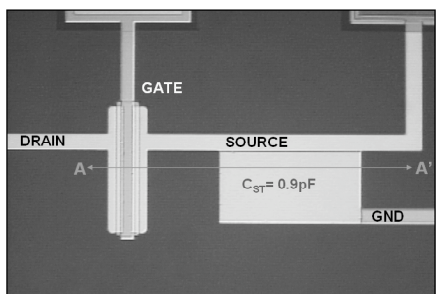


Dynamic Response of Normal and Corbino a-Si:H TFTs for AM-OLEDs

Hojin Lee, Chun-Sung Chiang, and Jerzy Kanicki



In this project, the dynamic characteristics of normal and Corbino hydrogenated amorphous silicon (a-Si:H) thin-film transistors (TFTs) have been investigated. Top- and bottom-gate normal a-Si:H TFTs and bottom-gate Corbino a-Si:H TFTs were fabricated with a 5-photomask process used in the processing of the active-matrix liquid crystal displays. The charging time and feed-through voltage (V_P) measurement indicates that the normal a-Si:H TFT shows a similar behavior regardless of its TFT geometrical structure. Using a simple gate-to-source capacitance model, the dependence of V_P on gate-to-source overlap and storage capacitor has been closely estimated using analytical calculation. Due to a unique electrode geometry, Corbino a-Si:H TFT shows a small deviation from an analytical model used for normal a-Si:H TFT, and consequently a modified analytical model was developed.

We also investigated concepts of their possible application as switching devices to active-matrix organic light-emitting displays. This project is supported by LG Philips LCD Research and Development Center, Korea.

