High Performance and Low Driving Voltage Amorphous InGaZnO Thin-Film Transistors Using High-K HfSiO Dielectrics

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Abstract

Thin-film transistors were fabricated using amorphous indium gallium zinc oxide (a-IGZO) as
channels and high-K material HfSiO as gate dielectric by RF sputtering. The influence of high-K PDA
temperature variation on device characteristics was investigated. The bottom-gate low voltage driven (:::; 2 V)
TFTs operated in n-type enhancement mode with a field-effect mobility of 12.7cm
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N-s, on-off current ratio of
3x105, threshold voltage of 0.005V , and subthreshold voltage swing of 0.11 V/dec.

Keyword：amorphous indium gallium zinc oxide (a-IGZO),RF