Low-Voltage Perovskite Light-Emitting Transistors: A Novel Approach Utilizing Solution-Processed High-K Inorganic Dielectrics for Full-Color Emission

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Key Words: Multi-dimensional perovskite film; Light emitting transistor; $CsPbBr_3$; PVP modification; Metal oxide semiconductor

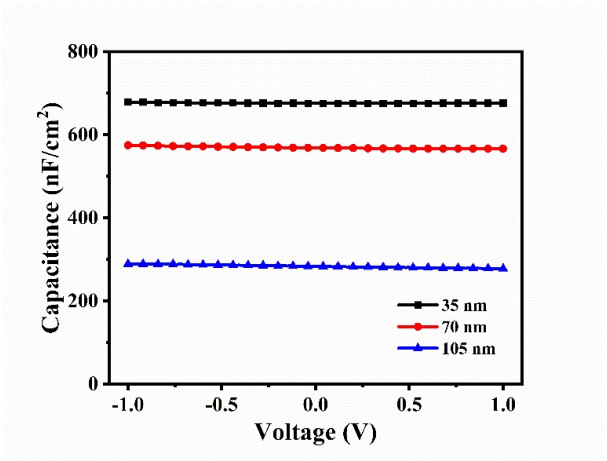

Figure S1. C-V curves of capacitors with different HfO_x thicknesses.

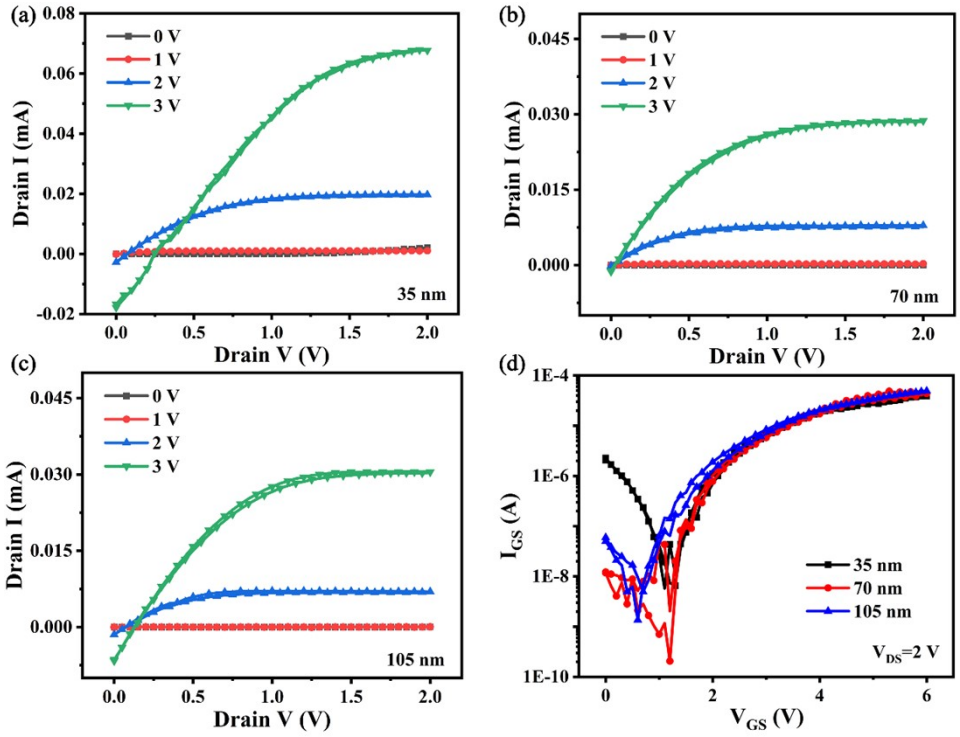

Figure S2. Output curve of the ZTO transistor with a (a)35 nm, (b)70 nm, and (c)105 nm HfO_x dielectric layer. (d) Gate-source current (I_{GS}) curves of ZTO transistors with HfO_x dielectric layers of varying thicknesses.

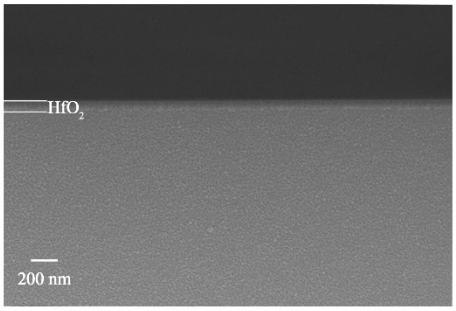

Figure S3. Cross-sectional SEM image of 70 nm HfO_x.

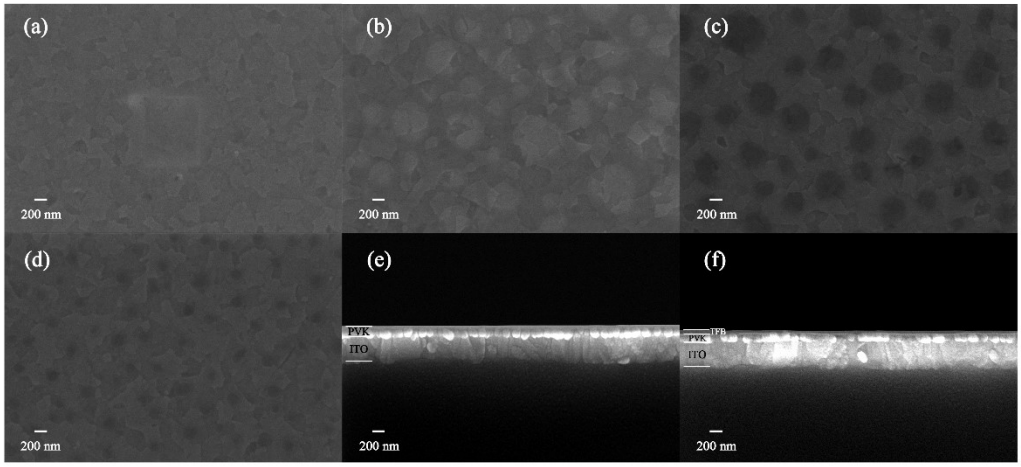

Figure S4. Hole transport layer with different mixing ratios: (a) PVK, (b) PVK: TFB=6: 2, (c) PVK: TFB=4: 4, (d) PVK: TFB=2: 6. Cross-sectional SEM image of (e) PVK and (f) PVK: TFB=6: 2.

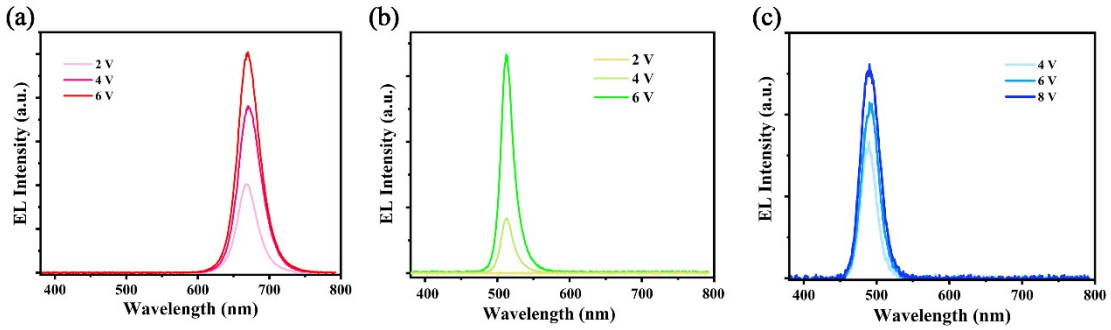

Figure S5. The EL intensity of the (a) red-light-emitting perovskite field-effect transistor, (b) green-light-emitting perovskite field-effect transistor, and (c) blue-light-emitting perovskite field-effect transistor varies with gate voltage.