

The effect of controlling the morphology of vertical-type OTFTs using Alq3

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We have fabricated vertical-type organic thin-film transistors (OTFTs) using tris-(8-hydroxyquinoline) aluminum (Alq3) as an n-type active material. Vertical-type OTFT using Alq3 has a layered structure of Al(source electrode)/Alq3(active layer)/Al(gate electrode)/Alq3(active layer)/ITO glass(drain electrode). Alq3 thin films containing various surface morphologies could be obtained by the control of evaporation rate and substrate temperature. The effects of the morphological control of Alq3 thin layer on the grain size and the flatness of film surface were investigated. The characteristics of vertical-type OTFT significantly influenced the growth condition of Alq3 layer.