

Fabrication of a regulable organic D-inverter by connecting two soft contact laminated pentacene thin film transistors with nanogroove patterns

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Regulable organic D-inverters are fabricated by connecting a normal organic transistor and soft-contact laminated transistors with different angles formed by source-drain current direction and groove direction. Depletion mode transistor is achieved when current direction is parallel to groove direction and enhancement mode transistor is achieved when the directions are crossed. Organic inverter is operated after connecting two soft-contact laminated pentacene transistors. Electrical performances of drive transistors can be varied and electrical output of organic inverter is regulable, by using PDMS stamps with source-drain electrodes and changing the angle between the current direction and grooves direction of PMMA dielectrics. And the gain of inverter and symmetry of VTC are improved by using enhancement mode transistors of which source-drain electrodes are fabricated by thermal evaporation technique instead of soft contact-laminated method.