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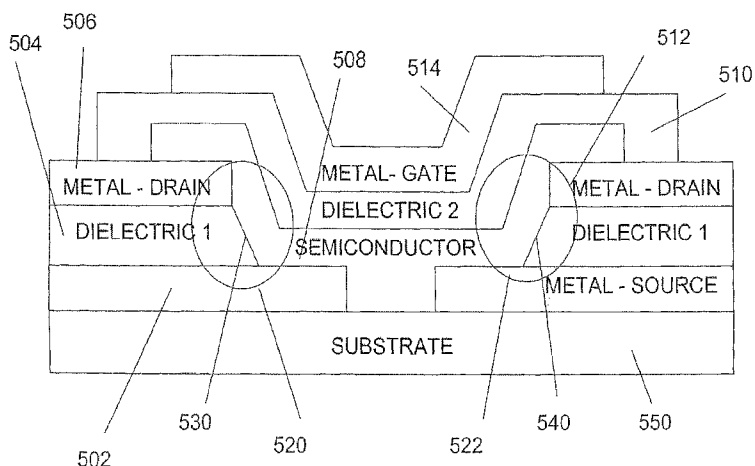
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(57) Abstract: A low channel length organic field-effect transistor can be produced in high volume and at low cost. The transistor structure includes successively deposited patterned layers of a first conductor layer acting as a source terminal, a first dielectric layer, a second conductor layer acting as a drain terminal, a semiconductor layer, a second dielectric layer, and a third conductor layer acting as the gate terminal. In this structure, the transistor is formed on the edge of the first dielectric between the first conductor layer and the second conductor layer. The second conductor layer is deposited on the raised surfaces formed by the dielectric such that conductive ink does not flow into the trough between the dielectric raised surfaces. This is accomplished by coating a flat or rotary print plate with the conductive ink, and applying the appropriate pressure to deposit the materials only on the raised surfaces of the dielectric. The second metal is automatically aligned to the layer beneath it. Due to this self-alignment and the short channel formed by the thickness of the dielectric material, a high-performance FET is produced without the requirement of high-resolution lithography equipment.

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