

Effect of Post-deposition Annealing of Active/Electrode layer on Contact Resistance in Organic Thin Film Transistors

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We report that effect of post-deposition annealing of active (pentacene)/electrode (Au) layers on contact resistance in organic thin film transistors (OTFTs). For good contact resistance we annealed both pentacene and Au layers. Also in order to study on the annealing effect of OTFTs, we compared with non-annealed device. Post-deposition annealing of pentacene/Au as it makes the good ohmic contact. In other word, the device has improve contact resistance which could show through Metal-Semiconductor-Metal (MSM) structure. From the electrical measurements, we found that the post-deposition annealing of pentacene/Au in OTFTs could improve stability in electrical characteristics, while non-annealed other devices decrease stability compared to the value both annealed devices. As a result, both annealed device could advance the performance of OTFTs. But other devices may be ascribed to the unstable contact states between pentacene and electrode.