

Title (en)
MICROELECTRONIC SENSOR FOR BIOMETRIC AUTHENTICATION

Title (de)
MIKROELEKTRONISCHER SENSOR ZUR BIOMETRISCHEN AUTHENTIFIZIERUNG

Title (fr)
CAPTEUR MICROÉLECTRIQUE POUR AUTHENTIFICATION BIOMÉTRIQUE

Publication
EP 3457916 A1 20190327 (EN)

Application
EP 17732999 A 20170403

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Abstract (en)
[origin: WO2017199110A1] In some embodiments, a microelectronic sensor includes an open-gate pseudo-conductive high-electron mobility transistor and used for biometric authentication of a user. The transistor comprises a substrate, on which a multilayer hetero-junction structure is deposited. This hetero-junction structure comprises a buffer layer and a barrier layer, both grown from III-V single-crystalline or polycrystalline semiconductor materials. A two- dimensional electron gas (2DEG) conducting channel is formed at the interface between the buffer and barrier layers and provides electron current in the system between source and drain electrodes. The source and drain contacts, which maybe either ohmic or non- ohmic (capacitively-coupled), are connected to the formed 2DEG channel and to electrical metallizations, the latter are placed on top of the transistor and connect it to the sensor system. The metal gate electrode is placed between the source and drain areas on or above the barrier layer, which may be recessed or grown to a specific thickness. An optional dielectric layer is deposited on top of the barrier layer.

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