

Title (en)
VACUUM FIELD-EFFECT DEVICE AND FABRICATION PROCESS THEREFOR

Title (de)
VAKUUM-FELDEFFEKTANORDNUNG UND VERFAHREN ZUR HERSTELLUNG

Title (fr)
DISPOSITIF A EFFET DE CHAMP A VIDE ET PROCEDE DE FABRICATION

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Application
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Abstract (en)
[origin: WO0108193A1] An ultra-high-frequency vacuum-channel field-effect microelectronic device (VFED or IGVFED) has a lateral field-emission source (60), a drain (150), and one or more insulated gates (40, 160). The insulated gate(s) are preferably disposed to extend in overlapping alignment with the emitting edge (85) of the lateral field-emission source and with a portion of the vacuum-channel region (120). If the gate(s) are omitted, the device performs as an ultra-high speed diode. A preferred fabrication process for the device uses a sacrificial material temporarily deposited in a trench for the vacuum-channel region which is covered with an insulating cover. An access hole in the cover allows removal of the sacrificial material. As part of a preferred fabrication process, the drain preferably acts also as a sealing plug, plugging the access hole and sealing the vacuum-channel region after the vacuum-channel region is evacuated.

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