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(54) Title (EN): SEMICONDUCTOR DEVICE AND METHOD FOR FABRICATING THE SAME

(54) Title (FR): DISPOSITIF SEMICONDUCTEUR ET SON PROCÉDÉ DE FABRICATION

(54) Title (JA): 半導体装置及びその製造方法

(57) Abstract:
(EN): A semiconductor device having such a structure as a light emitting layer of an organic matter or the like is sandwiched between a work function control single layer carbon nanotube cathode including donor of low ionization potential and a work function control single layer carbon nanotube anode including accepter of large electron affinity. A semiconductor device represented by an organic field effect light emitting element which can reduce emission start voltage, enhance characteristics/ function such as emission efficiency, enhance reliability such as the lifetime, and enhance productivity such as reduction in fabrication cost is provided along with its fabrication process.

(FR): L'invention concerne un dispositif semi-conducteur ayant une structure telle qu'une couche électroluminescente d'une matière organique ou similaire est prise en sandwich entre une cathode à nano tubes de carbone à une seule couche de commande de travail d'extraction comprenant un donneur à faible potentiel d'ionisation et une anode à nano tubes de carbone à une seule

couche de commande de travail d'extraction comprenant un accepteur à affinité électronique importante. L'invention concerne également un dispositif semi-conducteur représenté par un élément d'émission de lumière à effet de champ organique, qui peut réduire la tension de début d'émission, augmenter les caractéristiques/la fonction telles que l'efficacité d'émission, augmenter la fiabilité telle que la durée de vie, et augmenter la productivité, de telle sorte que la réduction du coût de fabrication, ainsi que son procédé de fabrication.

(JA): 有機物などの発光層が、イオン化ポテンシャルが小さいドナーを内包させた仕事関数制御単層カーボンナノチューブ陰極と電子親和力の大きいアクセプターを内包させた仕事関数制御単層カーボンナノチューブ陽極に挟まれた構造を持つ半導体装置である。発光開始電圧の低減、高発光効率などの特性・性能向上、長寿命化などの信頼性向上、製造コスト削減などの生産性向上が可能となる有機電界効果発光素子に代表される半導体装置とその製法を提供する。

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