

Title (en)
Field emission-type electron source

Title (de)
Feldemissionselektronenquelle

Title (fr)
Source d'électrons à émission de champ

Publication
EP 1523025 B1 20121219 (EN)

Application
EP 02022014 A 20021001

Priority
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• JP 2002083928 A 20020325

Abstract (en)
[origin: EP1523025A2] A lower electrode (2) and surface electrode (7) composed of a layer-structured conductive carbide layer is formed on one principal surface side of the substrate (1) composed of an insulative substrate such as a glass or ceramic substrate. A non-doped polycrystalline silicon layer (3) is formed on the lower electrode (2). An electron transit layer (6) composed of an oxidized porous polycrystalline silicon is formed on the polycrystalline silicon layer (3). The electron transit layer (6) is composed of a composite nanocrystal layer including polycrystalline silicon and many nanocrystalline silicons residing adjacent to a grain boundary of the polycrystalline silicon. When voltage is applied between the lower electrode (2) and the surface electrode (7) such that the surface electrode (7) has a higher potential, electrons are injected from the lower electrode (2) toward the surface electrode (7), and emitted through the surface electrode (7) through the electron transit layer (6). <IMAGE>

IPC 8 full level
H01J 1/312 (2006.01)

CPC (source: EP)
H01J 1/312 (2013.01)

Citation (examination)
• EP 1117118 A1 20010718 - PIONEER CORP [JP]
• WO 0074098 A1 20001207 - HITACHI LTD [JP], et al
• US 6818941 B1 20041116 - SUZUKI MUTSUMI [JP], et al
• EP 0367195 A2 19900509 - MATSUSHITA ELECTRIC IND CO LTD [JP]

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

DOCDB simple family (publication)
EP 1523025 A2 20050413; EP 1523025 A3 20050420; EP 1523025 B1 20121219

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