

Title (en)
GROUNDED GATE AND ISOLATION TECHNIQUES FOR REDUCING DARK CURRENT IN CMOS IMAGE SENSORS

Title (de)
GEERDETE GATEELEKTRODE UND ISOLATIONSTECHNIKEN FÜR REDUZIERTER DUNKELSTRÖME IN CMOS-BILDSSENSOREN

Title (fr)
GRILLE MISE A LA TERRE ET TECHNIQUES D'ISOLATION VISANT A REDUIRE LE COURANT D'OBSCURITE DANS DES CAPTEURS D'IMAGES CMOS

Publication
EP 1563544 A1 20050817 (EN)

Application
EP 03786643 A 20031112

Priority

- US 0335859 W 20031112
- US 29172802 A 20021112
- US 29177202 A 20021112

Abstract (en)
[origin: WO2004044989A1] Isolation methods and devices for isolating regions of a semiconductor device. The isolation structure and methods include forming a biased gate over a field isolation region and adjacent a pixel of an image sensor. The isolation methods also include forming an isolation gate over substantial portions of a field isolation region to isolate pixels in an array of pixels. The isolation method and structure further include forming an isolating trench in an active area and filling the trench with a doped conductive material containing silicon. There is also provided a method and structure for isolating the regions by providing a trench in an active area of a substrate, growing an epitaxial layer in the trench to fill the trench or to partially fill the trench and depositing an insulating material over the epitaxial layer and within the trench to completely fill the trench.

IPC 1-7
H01L 27/146; **H01L 27/148**

IPC 8 full level
H01L 21/00 (2006.01); **H01L 21/76** (2006.01); **H01L 27/146** (2006.01); **H01L 27/148** (2006.01); **H01L 29/74** (2006.01); **H01L 29/747** (2006.01); **H01L 31/06** (2006.01)

CPC (source: EP KR)
H01L 27/146 (2013.01 - KR); **H01L 27/14603** (2013.01 - EP); **H01L 27/14609** (2013.01 - EP); **H01L 27/1463** (2013.01 - EP); **H01L 27/14632** (2013.01 - EP); **H01L 27/14643** (2013.01 - EP); **H01L 27/14687** (2013.01 - EP); **H01L 27/14689** (2013.01 - EP)

Citation (search report)
See references of WO 2004044989A1

Citation (examination)

- EP 1139428 A2 20011004 - TOSHIBA KK [JP]
- US 2002024067 A1 20020228 - HAN JIN-SU [KR]

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

DOCDB simple family (publication)
WO 2004044989 A1 20040527; AU 2003295456 A1 20040603; CN 100405598 C 20080723; CN 100477241 C 20090408; CN 1735969 A 20060215; CN 1738045 A 20060222; EP 1563544 A1 20050817; EP 1641045 A2 20060329; EP 1641045 A3 20060607; JP 2005347762 A 20051215; JP 2006506813 A 20060223; JP 4422075 B2 20100224; KR 100669645 B1 20070116; KR 100749888 B1 20070821; KR 20050061608 A 20050622; KR 20050072485 A 20050711; TW 200415785 A 20040816; TW I248676 B 20060201

DOCDB simple family (application)
US 0335859 W 20031112; AU 2003295456 A 20031112; CN 200380108186 A 20031112; CN 200510096578 A 20031112; EP 03786643 A 20031112; EP 05021614 A 20031112; JP 2004552024 A 20031112; JP 2005185310 A 20050624; KR 20057008510 A 20050512; KR 20057009339 A 20050524; TW 92131675 A 20031112