Title (en)

IMPROVED SOLID STATE IMAGE SENSOR

Title (de)

VERBESSERTE FESTKÖRPERBILDAUFNAHMEVORRICHTUNG

Title (fr)

DETECTEUR D'IMAGE A SEMI-CONDUCTEURS AMELIORE

Publication

EP 0978142 A1 20000209 (EN)

Application

EP 98919307 A 19980424

Priority

- GB 9801214 W 19980424
- GB 9708574 A 19970425

Abstract (en)

[origin: GB2324651A] A solid state image sensor comprises a semiconductor substrate 32 of a first conductivity type having one or more photosensistive pixels formed therein, the photosensitive area 20 of the or each pixel being formed by the semiconductor substrate and one or more impurity layers 33,34 of a second conductivity type formed within an active area of the semiconductor substrate. The photosensitive area has one or more edge portions defined by isolation 31 separating the active area of the semiconductor substrate from other active areas thereof, and the doping density of the impurity at the edge portion(s) of the photosensitive area is substantially restricted. A preferred embodiment is a CMOS photodiode sensor in which each pixel thereof includes a photodiode 20 formed by two N-type layers 33,34 in a P-type substrate. The lower N-type layer 33 is more heavily doped than the upper layer 34 and the edges of the lower layer 33 are set back from the edges of the upper layer 34. Alternatively, the lower layer 33 may be absent altogether. The layers 33, 34 are formed by the use of two or more different masks in the impurity doping process during manufacture of the sensor. Such a construction reduces dark-current leakage.

IPC 1-7

H01L 27/146; H01L 21/76

IPC 8 full level

H01L 21/76 (2006.01); **H01L 27/146** (2006.01); **H01L 27/148** (2006.01)

CPC (source: EP)

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