Title (en)

PHOTODETECTOR WITH IMPROVED DETECTION RESULT

Title (de)

PHOTODETEKTOR MIT VERBESSERTEM DETEKTIONSERGEBNIS

Title (fr)

PHOTODÉTECTEUR AVEC RÉSULTAT DE DÉTECTION AMÉLIORÉ

Publication

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Application

EP 20726408 A 20200515

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Abstract (en)

[origin: WO2020234171A1] The invention relates to different aspects of a photodetector (1-8) for detecting electromagnetic radiation in a spectrally selective manner, comprising a first optoelectronic component (100-106, 108) for detecting a first wavelength of the electromagnetic radiation. The first optoelectronic component (100-106, 108) has a first optical cavity and at least one detection cell (21, 21a, 22, 22a, 23) arranged in the first optical cavity. The first optical cavity is made of two mutually spaced parallel mirror layers (11, 11a, 11', 12, 12a). The length of the first optical cavity is configured such that for the first wavelength, a resonant wave (13, 13a), which is associated with said wavelength, of the i-th order is formed in the first optical cavity. Each detection cell (21, 21a, 22, 22a, 23) has a photoactive layer (210, 220, 230), each photoactive layer being arranged within the first optical cavity such that precisely one vibration maximum of the resonant wave (13, 13a) lies within the photoactive layer (210, 220, 230). According to a first aspect of the invention, the order of the resonant wave (13, 13a) of the first optoelectronic component (100-106, 108) is greater than 1, and at least one optically absorbent intermediate layer (30, 31) and/or at least one optically transparent contact layer (50) is arranged in the optical cavity. According to a second aspect, the first optoelectronic component (110, 110') has at least one optically transparent spacer layer (40) in addition to the detection cell (21, 21'), said spacer layer being arranged in the first optical cavity between one of the mirror layers (11, 12) and the detection cell (21, 21'), and at least one outer contact (60, 60'), which adjoins an outer surface of the detection cell (21, 21') and consists of an electrically conductive material.

IPC 8 full level

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