## 523

## Patent Number(s): US2012211858-A1; JP2012173191-A

Title: Thermal detector for use in e.g. pyroelectric-type infrared light detection device of electronic instrument for detecting infrared and terahertz lights, has support member comprising light-absorbing part in which impurities are dispersed

Inventor Name(s): TSUCHIYA Y

Patent Assignee(s): SEIKO EPSON CORP (SHIH)

Derwent Primary Accession No.: 2012-L04936

Abstract: NOVELTY - The detector (10C) has a thermal detection element (30) comprising a light-absorbing film (32). A support member (40) supports the thermal detection element, where a substrate (20) and the support member form a hollow part (50). The support member comprises a light-absorbing part (41) in which impurities are dispersed in polycrystalline silicon with the light-absorbing part arranged in a part of a surface of the support member facing toward the hollow part such that the light-absorbing part is irradiated by light reflected by a curved light-reflecting surface (25).

USE - Thermal detector for use in a thermal detection device e.g. pyroelectric-type infrared light detection device and bolometer-type infrared light detection device, of an electronic instrument for detecting infrared light and terahertz light (all claimed). Can also be used in a vehicle-mounted night vision device and a surveillance camera.

ADVANTAGE - The detector allows the curved light-reflecting surface to reflect light that is not absorbed by the light-absorbing film and incident on the light-absorbing part of the support member, so that the light is efficiently conducted to the light-absorbing film and the impurities are doped into the light-absorbing part of the support member, thus increasing detection sensitivity of the detector.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an electronic instrument comprising a thermal detection device.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-sectional view of an infrared detector.

Thermal detector (10C)

Substrate (20)

Bottom surface (23)

Curved light-reflecting surface (25)

Thermal detection element (30)

Light-absorbing film (32)

Support member (40)

Light-absorbing part (41)

Hollow part (50)

Derwent Class Code(s): S03 (Scientific Instrumentation, photometry, calorimetry); U11 (Semiconductor Materials and Processes); U14 (Memories, Film and Hybrid Circuits, Digital memories)

Derwent Manual Code(s): S03-A03; U11-C18B9; U14-E01; U14-E01C

IPC: H01L-031/101; G01J-001/02; H01L-037/02