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**ANDO et al.**(10) **Pub. No.: US 2023/0232128 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **PHOTODETECTION DEVICE AND  
ELECTRONIC APPARATUS**(52) **U.S. Cl.**CPC ..... *H04N 25/616* (2023.01); *H04N 25/75*  
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**ABSTRACT**(72) Inventors: **KENGO ANDO, KANAGAWA (JP);  
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A photodetection device according to the present disclosure includes: a pixel; a reference signal generation unit; a comparison circuit; and a first switch. The pixel is configured to generate a pixel signal. The reference signal generation unit is configured to generate a reference signal. The comparison circuit includes a first-stage amplifier circuit and a second-stage amplifier circuit that is coupled to the first-stage amplifier circuit through a connection node. The first-stage amplifier circuit is configured to output a first output signal corresponding to a comparison operation based on the pixel signal and the reference signal. The second-stage amplifier circuit is configured to output a second output signal corresponding to the first output signal outputted from the first-stage amplifier circuit through the connection node. The first switch has one end and another end. The one end is coupled to the connection node. The first switch allows impedance and a voltage at the connection node to change.

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