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(57)

**ABSTRACT**

An optical device includes an optical coupler that inputs an optical signal received from a light source, a semiconductor optical amplifier that amplifies the optical signal received from the optical coupler, and a light receiving element that receives spontaneous emission light received from the semiconductor optical amplifier. The optical coupler includes a first input port to which the optical signal received from the light source is input, a second input port that is connected to an input stage of the light receiving element and that is different from the first input, and an output port that is connected to an input stage of the semiconductor optical amplifier, and that outputs optical signal received from the first input port to the semiconductor optical amplifier. The light receiving element receives, via the output port and the second input port, spontaneous emission light received from the semiconductor optical amplifier.

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