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标题: Monolithic Integration of a Semiconductor Optical Amplifier and a High-Speed Photodiode With Low Polarization Dependence Loss
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摘要: We demonstrate the monolithic integration of a buried heterostructure semiconductor optical amplifier (SOA) and a deep ridge PIN photodiode for high-speed on-off keying links at 1.55 mu m. The structure allows separate optimization of the SOA and the photodiode. The integrated receiver presents simultaneously a peak responsivity of 88 A/W with a low polarization dependence loss (<1 dB), a low noise figure (8.5 dB), and a wide 3-dB electrical bandwidth (approximate to 50 GHz). This corresponds to a very large gain-bandwidth product of 3.5 THz. To our knowledge, this is the first time that a monolithically integrated SOA-PIN receiver has achieved such performances.
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