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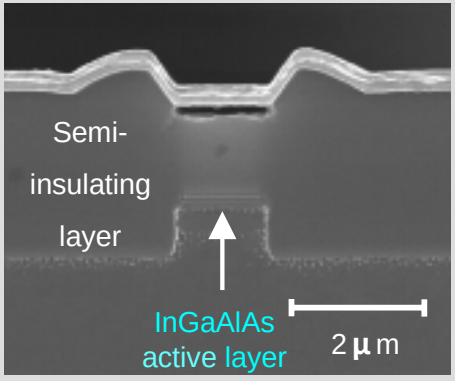
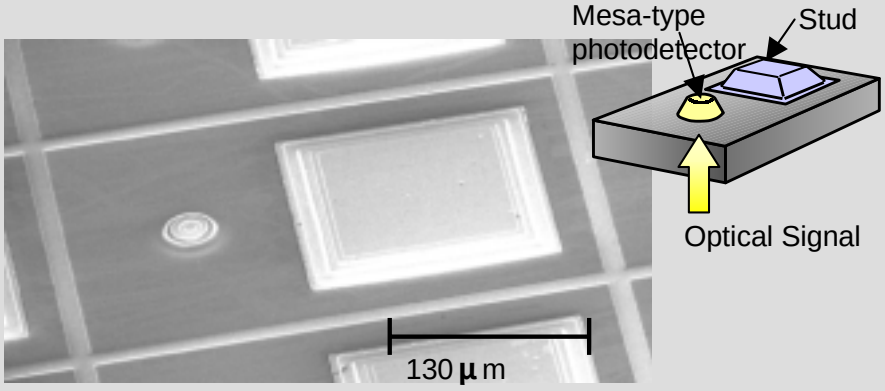
Development of optical transmitter/receiver devices for cost-effective 10Gbps metropolitan area networks



Cross-section photo of a InGaAlAs buried heterogeneous semiconductor laser (Electron microscope image)



High sensitivity avalanche photodiode (Electron microscope image)

The Central Research Laboratory of Hitachi, Ltd., has succeeded in the development of optical transmitter (InGaAlAs buried-heterostructure (BH) semiconductor laser) and receiver (InAlAs mesa-type avalanche photodiode (APD)) devices for cost-effective 10 gigabits/s metropolitan area networks. The technology developed provides stable high temperature operation in the laser and high sensitivity in the optical receiver. These improvements eliminate the need for a temperature control cooler in the transmitter and the optical amplifier in the receiver, contributing to a large cost reduction in optical sub-systems. Further, the world's highest sensitivity of -29.8dBm was achieved in an APD receiver module with a built-in SiGe-HBT preamplifier.

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