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## Development of prototype low cost ultra-high-speed semiconductor laser using GaInNAs material - 10 Gbit/s operation at 80°C achieved -

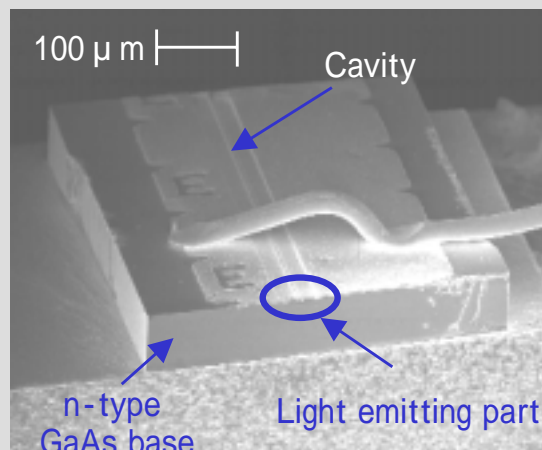


Fig. 1 Microscopic image of the laser  
L400xW400xH100 [μm]

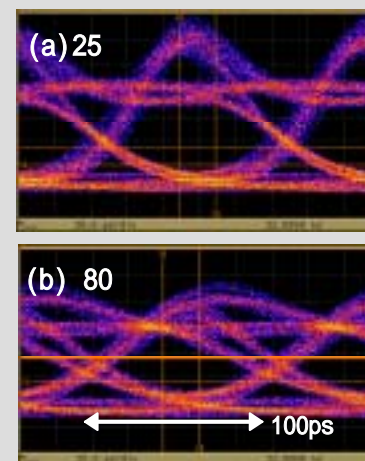


Fig.2 Waveform under 10 Gbit/s operation  
Operating Temp: (top) 25 , (bottom) 80

A prototype ultra-high-speed semiconductor laser was developed using gallium indium nitride arsenide (GaInNAs), a new gallium arsenide based material, in the active layer. Over 8,500 hours of 10 Gigabit/s operation under high temperature conditions of 70-80°C has been successfully achieved. The new material represents a massive decrease in costs compared to the relatively expensive indium phosphide material which is currently used in communication semiconductor devices, and is expected to contribute to cost reduction in optical systems such as access networks.

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