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Low chirp and high-speed operation of transverse coupled cavity VCSEL

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Abstract

We present the modeling on the modulation bandwidth and frequency chirp of transverse-coupled-cavity vertical-cavity surface-emitting lasers (VCSELs), which enable us to tailor the transfer function of intensity and frequency modulations thanks to an optical feedback effect. The simulation shows the 3-dB-modulation bandwidth can be doubled and the chirp can be reduced by a factor of more than three. These improvements could be explained by an increase in differential net gain in coupled cavities. The result shows a possibility of high-speed and low-chirp operations of transverse coupled cavity VCSELs for higher data rates and longer link lengths of single-mode fiber transmissions. (C) 2015 The Japan Society of Applied Physics

Keywords

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