249. Title: Calculation of the Cross-plane Thermal Conductivity of a Quantum Cascade Laser Active Region

Author: Szymanacuteski M.

Source: Journal of Physics D: Applied Physics

Volume:44

Issue:8

Publication year: 2011

Pages: 085101 (5 )..

Abstract: The key problem in thermal modelling of a quantum cascade laser (QCL) is determining the thermal conductivity lambda of its active region. The parameter is highly anisotropic. In particular, the cross-plane value lambdaperp is significantly reduced, which may be attributed to the presence of a large number of interfaces between epitaxial layers. In this work, two relatively simple models of phonon scattering at solid-solid boundary are used to calculate lambdaperp for the terahertz QCL. The theoretical results are in good agreement with measurements.