LaserMOD

LaserMOD is a photonic device design software tool for simulating the optical, electronic, and thermal properties of semiconductor lasers, modulators, and detectors. LaserMOD can account for a wide variety of important processes, such as thermal flux and carrier transport, within a self-consistent scheme for extremely advanced and thorough semiconductor modeling.

Benefits

- Versatile, user friendly, parametric CAD interface
- All simulation modules included in a single package
- Integrated with RSoft passive device and system tools

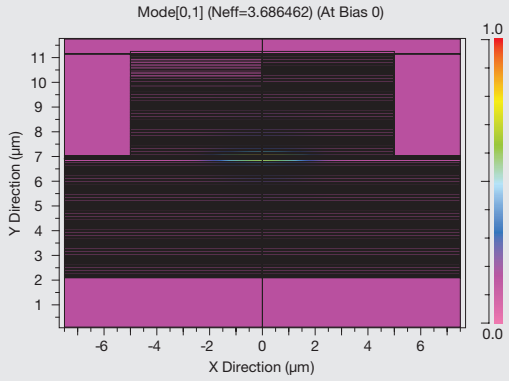
Applications

LaserMOD applications include the following device families:

- Edge emitting lasers, such as Fabry-Perot (FP), Distributed Feedback (DFB), and Distributed Bragg Reflector (DBR)
- Cylindrical Vertical Cavity Surface Emitting Lasers (VCSEL)
- Silicon modulators (electro-absorptive, electro-refractive, and thermo-optic modulators in silicon and other semi-conductor materials)
- Hybrid and multilevel applications when combined with other tools in the RSoft suite
- Semiconductor photodetectors including large-area, avalanche, solar-cell, and waveguide types

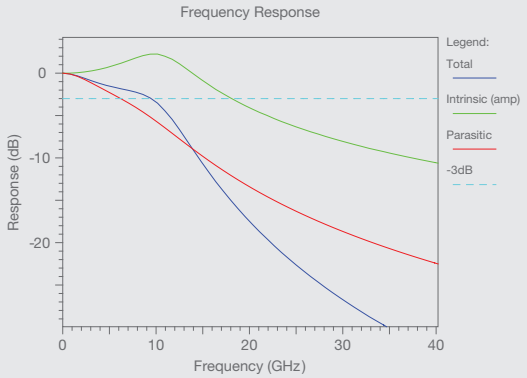
Featured Application

Fundamental cavity mode of an oxide-aperture VCSEL.

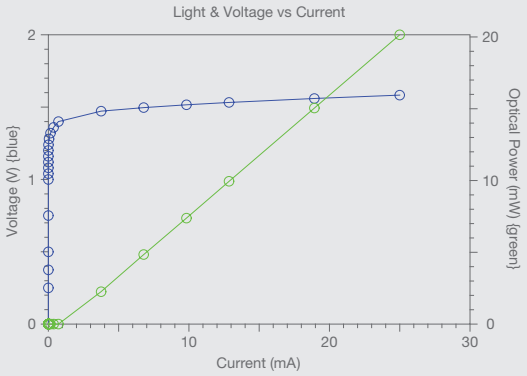


Features

- 1D, 2D and cylindrical (quasi-3D)
- Advanced physics based models
- Self-consistent solution of optics, quartum mechanical gain, and electro-thermal transport
- Steady-state and time-dependent simulation
- 8x8 KP band calculation for gain
- Lookup table base gain model
- Integrated BPM and FEM mode solvers
- Integrated mesh generator
- Extensible material libraries
- Numerous tutorial examples
- Standard and custom plot generation
- Scanning of design parameters



Computed light-current and current-voltage (LIV) characteristics indicating the progress of a steady-state simulation.



Frequency response to a small pulse applied at the steady-state operating point. Parasitic effects can be included to account for packaging.

SEE PAGE 42 FOR SYSTEM REQUIREMENTS